INCTR would like to thank the following organizations for their support of the Annual Meeting 2005

At the Institut Pasteur, Rue Engeland 642, B-1180 Brussels, Belgium, Tel: +32 2 373 93 24, Fax: +32 2 373 93 13, www.inctr.org
About INCTR

INCTR is a non-profit organisation whose founder members are the International Union Against Cancer and the Institut Pasteur, Brussels. The goals of the organisation are to assist in controlling cancer in developing countries through the development of infrastructure for cancer treatment and research, and through collaboration with physicians and scientists in such countries, to take advantage of unique opportunities to improve our understanding of factors (genetic and environmental) that predispose people to various types of cancer. Education is an integral element of long-term collaborative projects relating to treatment or prevention. The latter also result in immediate benefits to patients or individuals at high risk for developing cancer. INCTR emphasises international collaboration, and promotes improved communication among the wide range of professionals and volunteers working to control cancer throughout the world.

About Cancer Institute (WIA), India

The Cancer Institute (WIA) had its humble beginning in 1955 as a cottage hospital. Over the past forty years, it has grown from strength to strength. It was the first comprehensive Cancer Centre to be established in South India and the second in India. The Cancer Institute (WIA), Chennai is a regional Cancer Centre for Cancer Research and Treatment under the Ministry of Health & Family Welfare of the Government of India. It is an autonomous non-profit organisation comprising four components: the Teaching Hospital of 423 beds, in which more than 50% of the patients receive free board, lodging and treatment; the Research Centre, comprising Microbiology, Immunology, Biochemistry, Molecular Oncology, Biophysics, Cytogenetics and Electron Microscopy laboratories; the Division of Tumour Registry, Epidemiology and Preventive Oncology, one of the finest in the country; and the College of Oncology Sciences, a post-graduate teaching college affiliated with the Dr. M.G.R. Medical University and recognised by the Medical Council of India. The Institute was the first in Asia to introduce super-voltage radiation therapy in 1953; and the first in India to introduce Paediatric Oncology as a specialty in 1960. The first linear accelerator in India was installed at the Institute in 1976 and the Institute was the first in India to offer post-graduate courses in Surgical Oncology (M.Ch.), in Medical Oncology (D.O.) and in Medical Physics (M.Sc). India’s first intra-operative radiotherapy unit was commissioned at the Institute in 1992. The Cancer Institute has done pioneering work in the immunodiagnosis of lymphoma, dietary factors in gastric carcinogenesis, clinical research in oral, breast and cervical carcinomas, hereditary cancers, soft tissue sarcomas, osteosarcomas, acute lymphoblastic leukemias and non-Hodgkin’s lymphoma.

About INCTR India Office

The INCTR India Office is located at the Sir Ganga Ram Hospital in Delhi, India. Dr. Manorama Bhargava, the Head of Haematology at the Sir Ganga Ram Hospital, is the director. The India Office coordinates INCTR projects in India, which include the study of acute lymphoblastic leukaemia and non-Hodgkin’s lymphomas. Projects in cervical cancer and breast cancer are in the planning phases. The Office will assist INCTR and four major cancer centres in India to establish and develop a cooperative group focused, at least initially, on improving the survival of children, adolescents and young adults with ALL in India. The group will gradually expand to include other cancer centres and medical institutions. The office will also assist in the organisation and planning of INCTR educational workshops and other educational activities.
Welcome to Chennai

Chennai, the fourth largest city in India, is the capital of the state of Tamil Nadu. It is the gateway to South India, the land of wondrous silk and profuse incense, soaring temple gopurams, a vibrant festival atmosphere, a long (900 km) coastline with silver beaches and warm, friendly people. Chennai offers a rich variety of South Indian culture, including dance, architecture, art and cuisine – its mouth-watering curries are famous throughout the world. There are many places of interest to visit, such as the Marina, the second longest beach in the world; the world headquarters of the Theosophical Society; Kalashetra, an internationally renowned institution for Indian classical dance and music; Kapaleeswarar Temple with its tall gopuram and splendid sculptures; St. Thomas Mount, where St. Thomas was martyred, and the Santhome Cathedral Basilica built over the tomb of St. Thomas. The famous Big Mosque is located in the central part of Chennai and there are several shopping centers, well known for their colourful silk sarees.

Hotel Information

Park Sheraton Hotel & Towers, Chennai
T.T.K. Road
Chennai, 600 018
India
Phone: +91 44 2499 4101
Fax: +91 44 2499 7101
www.sheraton.com

Park Sheraton Hotel and Towers nestles in a neighbourhood of sprawling oaks, cool summer bungalows and restful quiet situated in the heart of Chennai.

Organising / Scientific Committee

INCTR would like to thank the following individuals for their hard work in putting the programme together for this year's INCTR Annual Meeting.

Indian National Advisory Committee

1. K.A. Dinshaw, Mumbai
2. S.H. Advani, Mumbai
3. M. Bhargava, Delhi
4. P. Parikh, Mumbai
5. S.D. Banavali, Mumbai
6. L. Kumar, Delhi
7. I. Mittra, Bhopal
8. P. Shah, Ahmedabad

Indian Local Organizing Committee

(Chennai)

1. V. Shanta
2. T. Rajkumar
3. T.G. Sagar
4. A.V. Lakshmanan
5. G. Ramanan
6. R. Ravikannan
7. A. Vasanthan
8. R. Swaminathan

INCTR Committee

1. Ian Magrath, Belgium
2. Melissa Adde, Belgium
3. Ama Rohatiner, UK
4. Stuart Brown, Saudi Arabia
5. Kishor Bhatia, USA

Organising / Scientific Committee

INCTR would like to thank the following individuals for their hard work in putting the programme together for this year’s INCTR Annual Meeting.

Indian National Advisory Committee

1. K.A. Dinshaw, Mumbai
2. S.H. Advani, Mumbai
3. M. Bhargava, Delhi
4. P. Parikh, Mumbai
5. S.D. Banavali, Mumbai
6. L. Kumar, Delhi
7. I. Mittra, Bhopal
8. P. Shah, Ahmedabad

Indian Local Organizing Committee

(Chennai)

1. V. Shanta
2. T. Rajkumar
3. T.G. Sagar
4. A.V. Lakshmanan
5. G. Ramanan
6. R. Ravikannan
7. A. Vasanthan
8. R. Swaminathan

INCTR Committee

1. Ian Magrath, Belgium
2. Melissa Adde, Belgium
3. Ama Rohatiner, UK
4. Stuart Brown, Saudi Arabia
5. Kishor Bhatia, USA
Cancer Control in Developing Countries

INCTR’s Annual Meeting is an important event which serves to bring together INCTR Associate Members from many different countries to strengthen international collaboration in all aspects of cancer treatment and research, to report progress that has been made in INCTR projects in the last year and to identify focal points for discussion that may lead to the development of new projects. While it is important that key figures in cancer treatment and research are involved in these discussions, it is also essential, in the interests of ensuring long term viability of programmes that young health professionals also participate. Professional education - including continuing education - underlies much of the meeting content, and although primacy is given to an exchange of views among health professionals from a variety of backgrounds, didactic elements are included in order to provide a foundation on which discussion can be based.

It must be recognized that cancer control, although founded on the same basic principles throughout the world, must contend with even greater obstacles in developing countries than those present in more affluent nations - obstacles that ultimately arise from the economic difficulties faced by the populations susceptible to cancer, and the paucity of resources available to study predisposing factors, prevention, early detection and treatment. For these reasons, essential research relevant to cancer control in developing countries must, in part or in whole, be conducted in those countries themselves, where the pattern of cancer may be regionally unique, where the lifestyles, nutritional status and co-morbidities of potential and actual victims of cancer differ so profoundly, and where the availability or access to treatment may be poor or even absent. It is also critically important to involve the entire family and local community in the process of cancer control - particularly since success to a large degree is dependent upon the avoidance of cancer, or its detection at the earliest possible stage of its evolution –even before it has become a true “invasive” cancer. Both are dependent upon knowledge of the symptoms and signs of cancer (by health professionals and the population at large), and in those cases where it is known to be beneficial, cost effective screening of asymptomatic populations.

INCTR’s Annual Meeting is unique in having, as its entire focus, cancer in developing countries. It brings together experts both from within those countries and from affluent nations to discuss possible approaches to the control of cancer, as well as the evaluation of such approaches. Cancer is becoming a more and more immediate problem as communicable diseases are overcome and populations age and adopt the bad habits of affluent societies, particularly smoking.

In addition to the INCTR Award Lectures and reports, this year’s meeting will include presentations and discussion of cancers that are particularly frequent in Asia, but also in many other countries in less developed world regions, and several discussions pertaining to more and more general issues of cancer management. A plenary session in which INCTR members will present their own work will be held, and posters will be viewed in the course of the meeting. Two workshops will be held, one on acute lymphoblastic leukaemia and another on breast cancer, as well as consensus panel discussion and a multidisciplinary conference.
Day 1. Saturday, 10th December 2005

08.00 - 09.00 Registration and Mounting of Posters

09.00

Opening Remarks: V. Shanta, Cancer Institute, India, Ian Magrath, INCTR, Belgium and Joe Harford, National Cancer Institute, USA

Conference Inauguration: M.S. Swaminathan, Cancer Institute, India

09.30 - 11.00 SESSION 1: Award Lectures

Chairpersons: V. Shanta and Ian Magrath

Each year, INCTR’s Special Panel of the Advisory Board selects two individuals who have made major contributions to cancer control in developing countries; one from a Resource-Poor Country, and one from a Resource-Rich Country. Each gives a lecture at the Annual Meeting.

The Paul P Carbone Award for International Oncology. For Outstanding Contributions to Oncology or Cancer Research by an Individual from a Resource-Rich Country. Recipient for 2005: Dennis Wright, The University of Southampton, UK

09.30 Introduction to Award Recipient: Ian Magrath, INCTR, Belgium
09.35 - 10.15 Award Lecture: “From Africa to ZAP-70; a Journey”

The Nazli Gad-el-Mawla Award Lecture. For Outstanding Contributions to Cancer Control by an Individual from a Resource-Poor Country. Recipient for 2005: S. Advani, Jaslok Hospital and Research Centre, India

10.15 Introduction to Award Recipient: B. Agarwal, B. J. Wadia Hospital for Children, India
10.20 - 11.00 Award Lecture: “ALL - The Changing Paradigm in the Developing World”

11.00 - 11.20 Coffee break

11.20 - 13.00 SESSION 2: INCTR Reports

Chairpersons: M. Bhargava, INCTR, India and Dennis Wright, The University of Southampton, UK

11.20 INCTR’s Evolving Strategy: Ian Magrath, INCTR, Belgium

INCTR Program Reports

11.40 Clinical Research Programme: Melissa Adde, INCTR, Belgium
11.55 Educational Programme - Medical Oncology: Ama Rohatiner, INCTR, UK
12.10 Educational Programme - Paediatric Oncology: Aziza Shad, INCTR, USA
12.20 Educational Programme - Nursing Oncology: Sabine Perrier-Bonnet, INCTR/AMCC, France
12.30 Translational Research Programme: Marina Gutierrez, Centro de Estudios Infectologicos, Argentina
12.45 Palliative Care Programme: Stuart Brown, King Faisal Specialist Hospital & Research Centre, Saudi Arabia

13.00 -14.00 Lunch and Poster Viewing

14.00 - 16.30 SESSION 3: Proffered Papers; Simultaneous Session

Presentations 10 mins each, with 5 minutes discussion

Hall A: Adult Cancers

Chairpersons: Ama Rohatiner, INCTR, UK and T. Ganesan, Amrita Cancer Institute of Medical Sciences and Research Centre, India

14.00 Breast Conservation Surgery: A New Concept in Pakistan
Arif Rashid Khawaja, Shaukat Khanum Memorial Cancer Hospital, Pakistan

14.15 Prognostic Factors in Adult Acute Lymphoblastic Leukaemia and their Impact on Treatment Outcome and Leukaemia - Free Survival
Abdel Hamid, National Cancer Institute, Egypt
14.30  To Study the Effect of a Poly Herbal “Huma” in 25 Patients Suffering from Oral Malignancy  
S. Kumar Pal, Huma Cancer Society, India

14.45  Telecommunicating Radiation Oncology: Multisite Linear Accelerator Implantation as a Possible Model for Developing Countries  
J-M. Deneufbourg, University Hospital, Belgium

**Hall B: Paediatric Cancers**

Chairpersons: Aziza Shad, INCTR, USA and S. Banavali, Tata Memorial Hospital, India

14.00  Non Metastatic Osteosarcoma, Experience at SKMCH&RC  
Alia Zaidi, Shaukat Khanum Memorial Cancer Hospital, Pakistan

14.15  Prevention of Hepatitis B Virus (HBV) Infection Using Oral Passive Active Prophylaxis (PAP) in Children and Adults on Chemotherapy for Lymphoid Malignancies (LM)  
S. Banavali, Tata Memorial Hospital, India

14.30  Prognostic Significance of T-Lineage Acute Lymphoblastic Leukaemia in North Indian Children  
LS. Arya, All India Institute of Medical Sciences, India

14.45  Comparison of Histopathologic Findings in Enucleated Eyes with Retinoblastoma, Treated with Chemoreduction versus no Chemotherapy  
Nurdan Tacyildiz, Ankara University, Turkey

15.00 - 15.20  Coffee Break

15.20 - 16.30  Poster Discussion

16.30 - 17.15  Members Forum

Each year, the Annual Meeting will include a general discussion in which INCTR members will have an opportunity to raise issues they consider to be important with respect to INCTR’s overall programmes, projects, structure and management. Open only to INCTR Associate Members.

18.00 - 19.00  Reception

19.00 - 22.00  Dinner

**Day 2. Sunday, 11th December 2005**

07.45 - 08.45  Meet the Expert  
**Building a Strong Research Team**  
Melissa Adde and Lolita Lantican, INCTR, Belgium  
Julia Challinor, University of California – San Fransisco, USA

07.45 - 08.45  Meet the Expert  
**Cancer Control Advocacy: From Patients to Policymakers**  
Shalini Vallabhan and Molly Daniels, American Cancer Society, USA

07.45 - 08.45  Meet the Expert  
**Early Detection of Cervical and Breast Cancers**  

09.00 - 09.45  Key Note Lecture  
**Infections Causing Human Cancers**  
Harald zur Hausen, Deutsches Krebsforschungszentrum, Germany
**SESSION 4: Simultaneous Scientific/Educational Sessions.**

**Hall A: Cervical Cancer**
Chairpersons: R. Sankaranarayanan, International Agency for Research on Cancer, France and Twalib Ngoma, INCTR, Tanzania

10.05 Visual Screening Methods in an African Setting
Twalib Ngoma, INCTR, Tanzania

10.25 Developing a Coordinated Cervical Cancer Screening Program in Latin America
Carlos Santos, Instituto de Enfermedades Neoplasicos, Peru

10.45 Clinical Trials in Cervical Cancer – The Cancer Institute (WIA) Experience
G. Selvaluxmi, Cancer Institute, India

11.05 Newer Approaches in the Detection of Pre-Cancerous Lesions
Magnus von Knebel Doebeitz, University of Heidelberg, Germany

11.25 Strategies for the Control of Cervical Cancer in India
N.K. Ganguly, Indian Council of Medical Research, India

**Panel Discussion: Control of Cervical Cancer in Developing Countries**
Chairpersons & Speakers

**Hall B: Palliative Care**
Chairpersons: Stuart Brown, King Faisal Specialist Hospital & Research Centre, Saudi Arabia, Pradeep Vaidya, Tribhuvan University Teaching Hospital, Nepal, Shalini Vallabhan, American Cancer Society, USA

10.05 ACS Palliative Care Initiatives
Tom Burish, American Cancer Society, USA

10.25 Teaching Palliative Care in India
M. Rajagopal, Amrita Cancer Institute of Medical Sciences and Research Centre, India

10.45 Neuropathic Pain
Eugenie Obbens, Memorial Sloan-Kettering Cancer Center, USA

11.05 Palliative Care – A Report from Nepal
Sudip Shrestha, Bhaktapur Cancer Center, Nepal

11.25 Palliative Sedation at the End of Life
Nessa Coyle, Memorial Sloan-Kettering Cancer Center, USA

11.45 Psychosocial Care – Grief and Bereavement
Doug Ennals, University of Victoria, Canada

12.05 - 12.30 Panel Discussion: Expanding Palliative Care Coverage in Developing Countries
Chairpersons & Speakers

12.30 - 13.30 Lunch and Poster Viewing

**SESSION 5: Simultaneous Scientific/Educational Sessions**

**Hall A: Paediatric Solid Tumours**
Chairpersons: A. Chandra, Cancer Institute, India and Jon Pritchard, Royal Hospital of Sick Children, UK

13.30 Molecular Pathology of Child Cancer – Principles and Clinical Applications
Jon Pritchard, Royal Hospital of Sick Children, UK

13.50 Limb Sparing Procedures in Low Resource Settings for Patients with Osteosarcoma
G. Ramoran, Cancer Institute, India

14.10 Treatment of Brain Tumours in India
P. Kurkure, Tata Memorial Hospital, India

14.30 Campaign for Early Detection of Retinoblastoma
Sidnei Epelman, INCTR, Brazil
Annual Meeting 2005

14.50 - 15.30 Panel Discussion: International Collaboration in Paediatric Oncology
Chairpersons & Speakers

**Hall B: Oral Cancer**
Chairpersons: R. Ravikannan, Cancer Institute, India and Alison Brown, King Faisal Specialist Hospital & Research Centre, Saudi Arabia

13.30 Epidemiology of Oral Cancer
Robert Chamberlain, University of Texas MD. Anderson Cancer Center, USA

13.50 Screening for Oral Cancer – Experience in a Developing Country
K. Ramadas, Medical College Calicut, India

14.10 Clinical Trials in the Management of Oral Cancer – The Cancer Institute (WIA) Experience
A. Vasanthan, Cancer Institute, India

14.30 Symptom Management in the Management of Oral Cancer
Stuart Brown, King Faisal Specialist Hospital & Research Centre, Saudi Arabia

14.50 - 15.30 Panel Discussion: Control of Oral Cancer
Chairpersons & Speakers

15.30 - 15.50 Coffee Break

18.30 - 22.00 Gala Dinner

---

**Day 3. Monday, 12th December 2005**

07.45 - 08.45 Meet the Expert
Solutions to Challenges in Data Management
Melissa Adde and Lolita Lantican, INCTR, Belgium
Julia Challinor, University of California – San Francisco, USA

07.45 - 08.45 Meet the Expert
Special Topics in Paediatric Oncology
Aziza Shad, INCTR, USA

07.45 - 08.45 Meet the Expert
Molecular Studies in Oncology
Kishor Bhatia, National Cancer Institute, USA

09.00 - 09.45 Key Note Lecture
Chairpersons: M. Bhargava, INCTR, India and Ian Magrath, INCTR, Belgium
Cancer Control in India, 1955-2005 and Beyond
V. Shanta, Cancer Institute, India

09.45 - 10.05 Coffee Break

10.05 - 13.15 **SESSION 6: Simultaneous Workshop Sessions**
**Hall A: Acute Lymphoblastic Leukaemia in Developing Countries**
Workshop supported by the Leukemia and Lymphoma Society
Chairpersons: TG. Sagar, Cancer Institute, India and Ian Magrath, INCTR, Belgium

10.05 Epidemiology of Acute Lymphoblastic Leukaemia
Eve Roman, University of York, UK

10.25 Role of Co-operative Groups in Development of and Improving Access to High Quality Therapy
Angelo Rosolen, Università di Padova, Italy

10.45 Risk Stratification in Developing Countries
S. Banavali, Tata Memorial Hospital, India

11.05 Approaches to the Management of ALL in Adults
Santiago Pavlovsky, Instituto de Enfermedades Neoplasicas, Argentina
11.25 Results of ALL Treatment in India
S. Advani, Jaslok Hospital & Research Centre, India
11.45 Complications of Leukaemia Treatment and their Management
Aziza Shad, INCTR, USA
12.05 Status of Minimal Residual Disease Detection in ALL
N. Nancy, Cancer Institute, India
12.25 - 13.15 Panel Discussion: Treatment of ALL in Developing Countries
Chairpersons & Speakers

**Hall B: Breast Cancer in Developing Countries**
Workshop supported by the Susan G. Komen Breast Cancer Foundation
Chairpersons: V. Shanta, Cancer Institute, India and Richard Pestell, Lombardi Comprehensive Cancer Center, USA
10.05 Epidemiology of Breast Cancer
Amr Soliman, University of Michigan, USA
10.25 Screening for Early Breast Cancer in Developing Countries
Salwa Boulos, Italian Hospital, Egypt
10.45 The Evidence Base for the Treatment of Breast Cancer – The Cochrane Network
Mark Lodge, Cochrane Cancer Network, UK
11.05 Importance of Clinical Trials in Developing Countries in Breast Cancer
Zeba Aziz, Lahore, Allama Iqbal Medical College Jinnah Hospital Lahore, Pakistan
11.25 Indian Experience in Breast Cancer
V. Shanta, Cancer Institute, India
11.45 New Approaches to the Treatment of Breast Cancer
Richard Pestell, Lombardi Comprehensive Cancer Center, USA
12.05 Development of Support Activities for Patients with Breast Cancer in Developing Countries
Ranjit Kaur, Breast Cancer Welfare Association, Malaysia
12.25 - 13.15 Panel Discussion: Breast Cancer Control in Developing Countries
Chairpersons & Speakers

13.15 - 14.15 Lunch and Poster Viewing

14.15 - 15.30 **SESSION 7: Simultaneous Consensus Panel Discussions**
**Hall A: Feasibility and Cost as Factors in Treatment Design of ALL in Developing Countries**
Panelists: TG. Sagar, Cancer Institute, India, S. Advani, Jaslok Hospital & Research Centre, India
Speakers and Chairpersons Session 6A

**Hall B: Hereditary Breast Cancer in Developing Countries**
Panelists: T. Rajkumar, Cancer Institute, India, Rodney J. Scott, John Hunter Hospital, Australia, Richard Pestell, Kimmel Cancer Center, USA and Jan Lubinski, Pomeranian Medical University, Poland

15.30 - 15.50 Coffee Break

15.50 - 17.30 **SESSION 8: Multidisciplinary Conference**
Treatment of Diffuse Large B Cell Lymphoma
Moderators: Ama Rohatiner, INCTR, UK and TG. Sagar, Cancer Institute, India

19.30 Dinner
Day 4. Tuesday, 13th December 2005

07.45 - 08.45 Meet the Expert
How to Write and Present an Abstract
Ama Rohatiner, INCTR, UK and Elisabeth Heseltine, France

07.45 - 08.45 Meet the Expert – TBA

07.45 - 08.45 Meet the Expert – TBA

09.00 - 09.45 Key Note Lecture
Chairpersons: T. Rajkumar, Cancer Institute, India and Frans Dhaenens, AGFA, Belgium
The Promise of Nanotechnology in Cancer Treatment
Esther Chang, Georgetown University Medical Centre, USA

09.45 - 10.05 Coffee Break

10.05 - 11.25 SESSION 9: Emerging Technologies in the New Millennium
Chairpersons: Frans Dhaenens, AGFA, Belgium and Kishor Bhatia, National Cancer Institute, USA
10.05 Challenges in Bringing BioMarkers to the Clinic
Sheila Taube, National Cancer Institute, USA
10.25 Tissue Micro Arrays in Biomarker Discovery and Development
Stephen M. Hewitt, National Cancer Institute, USA
10.45 Newer Approaches to Cancer Imaging
Ali Khan, North Manchester General Hospital, UK
11.05 Creativity with Light: the Challenge of ‘Optical’ Techniques
Frans Dhaenens, AGFA, Belgium

09.45 - 11.30 Workshop on Palliative Care
Chairpersons: Stuart Brown, King Faisal Specialist Hospital & Research Centre, Saudi Arabia and Tom Burish, American Cancer Society, USA
09.45 - 10.00 Welcome and Introduction
Stuart Brown, King Faisal Specialist Hospital & Research Centre, S.A.
10.00 - 10.45 Community Based Palliative Care
Pradeep Vaidya, Hospice Nepal, Nepal
10.45 - 11.30 Obstacles to Opioid Availability and Use
Fraser Black, Victoria Hospital, Canada

11.35 - 12.20 Session 10: Closing Session
Poster Awards - Ama Rohatiner, INCTR, UK and Joe Harford, National Cancer Institute, USA
Closing Remarks: V. Shanta, Cancer Institute, India and Ian Magrath, INCTR, Belgium

12.20 Lunch
Awards Information

INCTR has introduced two awards that are presented annually to individuals who have made outstanding contributions to cancer treatment or research in one or more developing countries. The purpose of these awards is not simply to recognize and honor the recipients, although this is certainly an important element, but also to show, by their example, that much can be accomplished even when resources are limited. It is hoped that their work and philosophy, brought through the award lectures to a broader audience than would otherwise be the case, will inspire others to greater efforts.

Each of the awards is named after a distinguished oncologist. They began their careers when there was so little knowledge about the causes of cancer, that people could only live in fear that they would one day be a victim, while the diagnosis was usually hidden from those unfortunate enough to develop cancer because so little could be done for them. It is thanks to the resolution and fortitude of Dr. Nazli Gad-el-Mawla, Dr. Paul P. Carbone, and others like them, who worked through a time when cancer specialists were often accused of prolonging the misery of cancer victims through their efforts at treatment rather than helping them, that today, at least in the wealthier nations, more than half of those who develop cancer can be cured. Both Dr. Nazli and Dr. Carbone were responsible for training numerous young people, and so leave us a precious legacy through which their work will be continued.

• The Nazli Gad-el-Mawla Award is made for outstanding contributions to cancer control by an individual from a country with limited resources. Nazli Gad-el-Mawla was an pioneer Egyptian oncologist, who, as a member of a small group of oncologists working at the National Cancer Institute in Cairo in the 1960s and ’70s, helped to build the institute into one of the premier cancer centres in the Middle East. She founded the Department of Medical Oncology in 1970 and, as part of it, developed a strong pediatric oncology programme. She is known particularly for her work in the chemotherapy of cancer of the bilharzial bladder, which accounts for some 25% of all cancer in Egypt, and in haematological malignancies. She was highly respected both by her colleagues in Egypt and also by the international community of oncologists in which she became increasingly active throughout her career.

The 2004 Award recipient is Dr. Suresh Advani.

• The Paul P. Carbone Award in International Oncology is made for outstanding contributions to oncology or cancer research by an individual from a resource-rich country. Paul P. Carbone was a pioneer American oncologist, who, as the Associate Director for the Clinical Oncology Programme at the National Cancer Institute, Bethesda, played a critical role in the development of cancer chemotherapy. Subsequently, he continued his work as the Director of the Cancer Center at the University of Madison, Wisconsin. From the beginning, he recognised not only the needs of patients in developing countries, but also the contribution that scientific research conducted in such countries could and should make to the global efforts against cancer. Dr. Carbone’s family have established a the Paul P. Carbone MD Foundation for “the support of scientific, educational, and charitable endeavors that reflect Dr. Carbone’s practice of the art and science of oncology and his lifelong dedication to teaching and mentoring.”

The 2004 Award recipient is Dr. Dennis Wright.
Dr. Suresh Advani
Recipient of the Nazli Gad-el-Mawla Award 2004.

Suresh H Advani qualified in medicine in at the Bombay University in 1966. After training in internal medicine and haematology-oncology at the J.J. Hospital, Grant Medical College in Mumbai, he undertook further training in oncology in the USA. He joined the Oncology Department at the Tata Memorial Hospital (TMH) in 1974. In 1985, he became the Chief of the Department of Medical Oncology. Under his stewardship, the department developed capabilities for providing modern medical and paediatric oncology services with laboratories for haematology, cytogenetics and molecular diagnostics, a day care chemotherapy unit, and patient counseling services. He played an important role in establishing the Doctorate of Medicine (DM) in Medical Oncology at TMH (Mumbai University). He has trained many successful oncologists. Dr. Advani is recognized as a pioneer in the establishment of bone marrow transplantation in India. He is active in medical and academic research and has over 640 publications. He is the recipient of many international and national awards including the Padmashri Award, the highest civilian honour granted by the President of India.

In 2002, Dr. Advani retired from Tata Memorial Hospital. Presently, he is the Director of Medical Oncology at Jaslok Hospital & Research Centre and the Chief Medical Oncologist at the Asian Institute of Oncology.

Dr. Dennis Wright
Recipient of the Paul P. Carbone Award in International Oncology 2004.

Dennis Wright qualified in medicine at the University of Bristol in 1956. After internships in paediatrics and in surgery he began training in clinical pathology. In 1960 he was appointed Lecturer in Pathology at Makerere Medical School in Uganda. He worked with Denis Burkitt helping to delineate the pathology of Burkitt lymphoma and developing a lifelong interest in the pathology of malignant lymphomas. He was awarded an MD for his thesis on Malignant Lymphomas in Uganda. In 1968 he was appointed Reader in Pathology at the University of Birmingham and in 1971 to the Chair of Pathology at the newly established medical school at the University of Southampton. During his 25 years in Southampton the study of lymphomas was transformed by developments in immunohistochemistry, cytogenetics and molecular biology. The concept of lymphomas of mucosa associated lymphoid tissues (MALT lymphomas) was developed in Southampton, as also was the specific nature of the coeliac disease associated lymphoma (enteropathy associated T-cell lymphoma). Professor Wright played an active part in the establishment of the European Association of Haematopathology and was the second person to hold the Presidency of that Association.

He retired in 1996 but remains active in lymphoma diagnosis and research as Emeritus Professor.
<table>
<thead>
<tr>
<th>ABSTRACT #</th>
<th>PRESENTING AUTHOR</th>
<th>TITLE OF ABSTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sawsan S. Abbas</td>
<td>CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA: A CLINICO-EPIDEMIOLICAL STUDY</td>
</tr>
<tr>
<td>2</td>
<td>Nkougou B.</td>
<td>ADENOCARCINOMAS OF THE UTERINE CERVIX IN CAMEROONIAN WOMEN</td>
</tr>
<tr>
<td>3</td>
<td>Vivek Choudhary</td>
<td>SPLENIC RADIATION: AN ALTERNATIVE TREATMENT OPTION IN THE BLAST CRISIS PHASE OF CHRONIC MYELOID LEUKEMIA</td>
</tr>
<tr>
<td>4</td>
<td>Vivek Choudhary</td>
<td>IR-192 IRIDIUM INTERSTITIAL IMPLANTS IN MANAGEMENT OF EYELID TUMORS</td>
</tr>
<tr>
<td>5</td>
<td>Arif Rashid Khawaja</td>
<td>BREAST CONSERVATION SURGERY: A NEW CONCEPT IN PAKISTAN</td>
</tr>
<tr>
<td>6</td>
<td>Zaidi A.</td>
<td>NON METASTATIC OSTEOSARCOMA - EXPERIENCE AT SKMCH &amp; RESEARCH CENTRE</td>
</tr>
<tr>
<td>7</td>
<td>Krishna Prasad</td>
<td>SURVIVAL OF PATIENTS WITH CARCINOMA OF OESPHAGUS HAILING FROM NORTH COASTAL ANDHRA PRADESH</td>
</tr>
<tr>
<td>8</td>
<td>Shamim A.</td>
<td>RESULTS OF LIMB SALVAGE SURGERY FOR NONMETASTATIC OSTEOSARCOMA AT SKMCH&amp;RC 1994-2004</td>
</tr>
<tr>
<td>9</td>
<td>Gupta P.</td>
<td>TOBACCO HABIT AS A RISK FACTOR FOR LUNG CANCER - A STUDY FROM EASTERN INDIA</td>
</tr>
<tr>
<td>10</td>
<td>Mondal A.</td>
<td>EFFECT OF A MEAT CONTAINING DIET ON CAUSATION OF COLON CANCER - A STUDY FROM EASTERN INDIA</td>
</tr>
<tr>
<td>11</td>
<td>Azza M. Kamel</td>
<td>SYNERGISTIC EFFECT OF METHYLTERAHYDROFOLATE REDUCTASE (MTHFR) C677T AND A1298C POLYMORPHISM AS RISK MODIFIERS OF PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)</td>
</tr>
<tr>
<td>12</td>
<td>Azza M. Kamel</td>
<td>MOLECULAR CHARACTERIZATION OF PEDIATRIC PRECURSOR B ALL IN EGYPT</td>
</tr>
<tr>
<td>13</td>
<td>Barman B.</td>
<td>COMBINATION OF GEMCITE &amp; CISPLATIN CHEMOTHERAPY IN UNRESECTABLE GALL BLADDER CANCER</td>
</tr>
<tr>
<td>14</td>
<td>Gupta P.</td>
<td>ORAL CHEMOTHERAPEUTIC AGENTS IN ELDERLY PATIENTS WITH ACUTE MYELOID LEUKEMIA (AML): A STUDY FROM A DEVELOPING COUNTRY</td>
</tr>
<tr>
<td>15</td>
<td>Bhanu Kiran</td>
<td>SURVIVAL OF PATIENTS WITH CERVICAL CANCER HAILING FROM ANDHRA PRADESH</td>
</tr>
<tr>
<td>16</td>
<td>Abdel Hamid Th.</td>
<td>PROGNOSTIC FACTORS IN ADULT ACUTE LYMPHOBLASTIC LEUKAEMIA (ALL) AND THEIR IMPACT ON TREATMENT OUTCOME AND LEUKAEMIA FREE SURVIVAL</td>
</tr>
<tr>
<td>17</td>
<td>Dhara A.</td>
<td>PASSIVE SMOKING AS A CAUSE OF CANCER: PROSPECTIVE ANALYSIS FROM EASTERN INDIA</td>
</tr>
<tr>
<td>18</td>
<td>Mukhopadhayay A.</td>
<td>IMATINIB MESYLATE AS FIRST LINE THERAPY IN PATIENTS WITH PAEDIATRIC CHRONIC MYELOID LEUKEMIA (CML) - AN EXPERIENCE FROM EASTERN INDIA</td>
</tr>
</tbody>
</table>

* The INCTR does not take any responsibility for the content of the abstracts
<table>
<thead>
<tr>
<th>ABSTRACT #</th>
<th>PRESENTING AUTHOR</th>
<th>TITLE OF ABSTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Koner S.</td>
<td>CHILDHOOD CANCER EPIDEMIOLOGY: A HOSPITAL BASED CANCER REGISTRY FROM A DEVELOPING COUNTRY</td>
</tr>
<tr>
<td>20</td>
<td>Ghosh R.</td>
<td>ASSESSMENT OF NUTRITION IN CHILDREN WITH CANCER - A STUDY FROM A DEVELOPING COUNTRY</td>
</tr>
<tr>
<td>21</td>
<td>Mukhopadhyay S.</td>
<td>PSYCHOLOGICAL PROBLEMS OF SURVIVORS OF ACUTE LEUKEMIA IN THEIR ADOLESCENCE - AN EXPERIENCE FROM EASTERN INDIA</td>
</tr>
<tr>
<td>22</td>
<td>Sarkar R.</td>
<td>DEPRESSION IN YOUNG WOMEN WITH EARLY STAGE BREAST CANCER - A STUDY FROM EASTERN INDIA</td>
</tr>
<tr>
<td>23</td>
<td>Shome S.</td>
<td>CANCER PATTERN IN EASTERN INDIA: DATA FROM A HOSPITAL BASED CANCER REGISTRY</td>
</tr>
<tr>
<td>24</td>
<td>Kundu B.</td>
<td>EFFECT OF WHEAT GRASS JUICE IN TERMINALLY ILL CANCER PATIENTS - A TERTIARY CANCER CENTER EXPERIENCE FROM INDIA</td>
</tr>
<tr>
<td>25</td>
<td>Adewuyi S. A.</td>
<td>PRELIMINARY RESULTS OF A MULTIDISCIPLINARY CLINICO-PATHOLOGICAL CHARACTERIZATION OF CONSECUTIVE CARCINOMA OF THE CERVIX UTERI PATIENTS IN ZARIA, NIGERIA</td>
</tr>
<tr>
<td>26</td>
<td>Adewuyi S. A.</td>
<td>A PILOT MULTIDISCIPLINARY CLINICO-PATHOLOGICAL CHARACTERIZATION OF BREAST CANCER IN NORTHERN NIGERIA: A 2-YEAR REPORT FROM ZARIA RADIOThERapy &amp; ONCOLOGY CENTER</td>
</tr>
<tr>
<td>27</td>
<td>Khuong C. Tran</td>
<td>CURRENT MANAGEMENT OF WILM’S TUMORS IN HCMC, VIETNAM (Preliminary report)</td>
</tr>
<tr>
<td>28</td>
<td>Quintero M.</td>
<td>NON HODGKIN'S LYMPHOMA IN CHILDREN - PROGNOSTIC FACTORS AND SURVIVAL</td>
</tr>
<tr>
<td>29</td>
<td>Hemendra Mod</td>
<td>A RETROSPECTIVE REVIEW OF NASOPHARYNGEAL CARCINOMA AT B.P. KOIRALA MEMORIAL CANCER HOSPITAL, BHARATPUR, NEPAL</td>
</tr>
<tr>
<td>30</td>
<td>Anupama Borker</td>
<td>EFFICACY OF TICAROLLIN CLAVULINIC ACID AND AMIKACIN AS FIRST LINE ANTIBIOTICS IN THE EMPIRIC MANAGEMENT OF FEBRILE NEUTROPENIA IN CHILDREN</td>
</tr>
<tr>
<td>31</td>
<td>Sanjoy Kumar Pal</td>
<td>A SURVEY OF PATIENTS ELECTING A POPULAR ALTERNATIVE THERAPY ‘HUMA’ FOR CANCER TREATMENT</td>
</tr>
<tr>
<td>32</td>
<td>Hina Fatima S.</td>
<td>TO STUDY THE EFFECT OF A POLY HERBAL MEDICINE ‘HUMA’ IN 25 PATIENTS SUFFERING FROM ORAL MALIGNANCY</td>
</tr>
<tr>
<td>33</td>
<td>Huynh Quyet Thang</td>
<td>POPULATION BASED CANCER REGISTRY IN CANTHO DURING 4 YEARS FROM 2001 TO 2004</td>
</tr>
<tr>
<td>34</td>
<td>Uysal K.</td>
<td>HIGH SURVIVAL RATES IN RHABDOMYOSARCOMA: A SINGLE INSTITUTION'S RESULTS</td>
</tr>
<tr>
<td>35</td>
<td>Uysal K.</td>
<td>PEDIATRIC HODGKIN’S DISEASE: A SINGLE INSTITUTION’S EXPERIENCE</td>
</tr>
<tr>
<td>36</td>
<td>Somani N.</td>
<td>PERCEPTION OF SIDE EFFECTS OF CHEMOTHERAPY BY PATIENTS: A CHANGING SCENARIO IN THE 21ST CENTURY</td>
</tr>
</tbody>
</table>

*The INCTR does not take any responsibility for the content of the abstracts*
<table>
<thead>
<tr>
<th>ABSTRACT #</th>
<th>PRESENTING AUTHOR</th>
<th>TITLE OF ABSTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Ocheni S.</td>
<td>SPECTRUM OF CHILDHOOD MALIGNANCIES IN ENUGU, NIGERIA (1999-2004)</td>
</tr>
<tr>
<td>38</td>
<td>Badrinath G.</td>
<td>EPIDEMIOLOGY OF LUNG CANCER IN NORTH COASTAL ANDHRA PRADESH</td>
</tr>
<tr>
<td>39</td>
<td>Arya I. S.</td>
<td>RELAPSE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA</td>
</tr>
<tr>
<td>40</td>
<td>Anorlu R. I.</td>
<td>CERVICAL CANCER SCREENING PRACTICES AMONG GENERAL PRACTITIONERS IN LAGOS, NIGERIA</td>
</tr>
<tr>
<td>41</td>
<td>Raji A. A.</td>
<td>THE PATTERN OF LYMPHOMAS AT THE UNIVERSITY COLLEGE HOSPITAL, IBADAN, NIGERIA - A 10 YEAR REVIEW</td>
</tr>
<tr>
<td>42</td>
<td>Banavali S. D.</td>
<td>PREVENTION OF HEPATITIS B VIRUS (HBV) INFECTION USING PASSIVE ACTIVE PROPHYLAXIS (PAP) IN CHILDREN AND ADULTS ON CHEMOTHERAPY FOR LYMPHOID MALIGNANCIES (LM)</td>
</tr>
<tr>
<td>43</td>
<td>Bhagwat R.</td>
<td>LAMIVUDINE FOR THE PREVENTION OF HEPATITIS B VIRUS (HBV) REACTIVATION IN PATIENTS UNDERGOING CHEMOTHERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)</td>
</tr>
<tr>
<td>44</td>
<td>Sambasivaiah K.</td>
<td>CARCINOMA OF THE STOMACH - 9 YEAR EXPERIENCE AT A TERTIARY CARE HOSPITAL IN INDIA</td>
</tr>
<tr>
<td>45</td>
<td>Sukanta Koner</td>
<td>THE CONTENT OF CANCER CONTROL - A PERSPECTIVE FROM EASTERN INDIA</td>
</tr>
<tr>
<td>46</td>
<td>Barman B.</td>
<td>CERVICAL CANCER SCREENING PROGRAMME - AN EXPERIENCE FROM EASTERN INDIA</td>
</tr>
<tr>
<td>47</td>
<td>Devarajan S.</td>
<td>ANALYSIS OF THE IMMUNOPHENOTYPES OF DE NOVO ACUTE LYMPHOBLASTIC LEUKAEMIA (ALL) IN CHILDREN AND ADOLESCENTS OF THE INDIAN SUBCONTINENT IN RELATION TO CLINICAL SYMPTOMS AND LABORATORY TESTS, PRECEDING ITS DIAGNOSIS</td>
</tr>
<tr>
<td>48</td>
<td>Chandra A.</td>
<td>IMPROVED OUTCOME FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) IN CHILDREN AND ADOLESCENTS OF A DEVELOPING COUNTRY: RESULTS OF THE MCP 841 (MULTI CENTRE PROTOCOL): A 20 YEARS REPORT</td>
</tr>
<tr>
<td>49</td>
<td>Rajiv R.</td>
<td>LATE EFFECTS OF TREATMENT IN SURVIVORS OF CHILDHOOD CANCER. EXPERIENCES FROM THE CHILDHOOD CANCER SURVIVOR STUDY AT CANCER INSTITUTE (WIA) CHENNAI, INDIA</td>
</tr>
<tr>
<td>50</td>
<td>Jin Runming</td>
<td>A STUDY OF THE CLINICAL CHARACTERISTICS AND IMMUNOPHENOTYPE OF ACUTE LEUKEMIA IN CHILDREN</td>
</tr>
<tr>
<td>51</td>
<td>Jin Runming</td>
<td>STUDY OF THE RELATIONSHIP BETWEEN EXPRESSION OF ANTI-APOPTOTIC ONCOGENE - Bcl-2, APOPTOSIS AND CLINICAL FEATURES IN CHILDREN WITH ACUTE LEUKEMIA</td>
</tr>
<tr>
<td>52</td>
<td>Jin Runming</td>
<td>A STUDY OF APOPTOSIS INDUCED BY QUABAIN IN THE LEUKEMIA CELL LINE (Jurkat)</td>
</tr>
</tbody>
</table>

* The INCTR does not take any responsibility for the content of the abstracts
<table>
<thead>
<tr>
<th>ABSTRACT #</th>
<th>PRESENTING AUTHOR</th>
<th>TITLE OF ABSTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>Jin Runming</td>
<td>THE PROTECTIVE EFFECT OF AMIFOSTINE ON METHOTREXATE-INDUCED TOXICITY IN THE CHEMOTHERAPY OF CHILDHOOD ALL</td>
</tr>
<tr>
<td>54</td>
<td>Jin Runming</td>
<td>A STUDY OF THE RELATIONSHIP BETWEEN THE DETECTION OF MINIMAL RESIDUAL DISEASE AND THE PROGNOSIS OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA</td>
</tr>
<tr>
<td>55</td>
<td>Pratibha Sharma</td>
<td>FREQUENCY OF VARIOUS BCR-ABL TRANSCRIPTS IN INDIAN (CML) PATIENTS WITH CHRONIC MYELOID LEUKEMIA (CML)</td>
</tr>
<tr>
<td>56</td>
<td>Sujata Mohanty</td>
<td>HEMATOLOGICAL AND CYTOGENETIC RESPONSES TO IMATINIB MESYLATE IN CHRONIC MYELOID LEUKEMIA PATIENTS: IRCH EXPERIENCE</td>
</tr>
<tr>
<td>57</td>
<td>Naveen Kumar T.</td>
<td>SURVIVAL ANALYSIS OF PATIENTS WITH CANCER OF THE LARYNX HAILING FROM NORTH COASTAL ANDHRA PRADESH</td>
</tr>
<tr>
<td>58</td>
<td>Chandra A.</td>
<td>INFECTION COMPLICATIONS DURING THERAPY OF ACUTE LYMPHOBLASTIC LEUKAEMIA AT THE CANCER INSTITUTE (WIA), CHENNAI, INDIA</td>
</tr>
<tr>
<td>59</td>
<td>Arya L. S.</td>
<td>PROGNOSTIC SIGNIFICANCE OF T-LINEAGE ACUTE LYMPHOBLASTIC LEUKEMIA IN NORTH INDIAN CHILDREN</td>
</tr>
<tr>
<td>60</td>
<td>Dhara A.</td>
<td>RED CELL DISTRIBUTION WIDTH (RDW) AS AN INDICATOR OF IRON DEFICIENCY ANAEMIA IN A COMMUNITY SURVEY</td>
</tr>
<tr>
<td>61</td>
<td>Seth T.</td>
<td>CANCER CONTROL: A STUDY ON COMMUNITY PERCEPTIONS, DETERMINANTS OF COMMUNITY BEHAVIOUR AND PROGRAM IMPLEMENTATION IN NEW DELHI, INDIA</td>
</tr>
<tr>
<td>62</td>
<td>Tacyildiz N.</td>
<td>COMPARISON OF HISTOPATHOLOGIC FINDINGS IN ENUCLEATED EYES FROM PATIENTS WITH RETINOBLASTOMA, TREATED WITH CHEMOREDUCTION VERSUS NO CHEMOTHERAPY</td>
</tr>
<tr>
<td>63</td>
<td>Tacyildiz N.</td>
<td>HISTOPATHOLOGIC RISK FACTORS IN ENUCLEATED EYES WITH RETINOBLASTOMA</td>
</tr>
<tr>
<td>64</td>
<td>Sudhakar N.</td>
<td>T CELL RECEPTOR (TCR) γ AND δ GENE REARRANGEMENTS IN T CELL-ACUTE LYMPHOBLASTIC LEUKEMIA IN SOUTH INDIA</td>
</tr>
<tr>
<td>65</td>
<td>Borker Anupama</td>
<td>PROCEDURAL SEDATION AND ANALGESIA BY NON-ANESTHESIOLOGISTS IN A PEDIATRIC HEMATOLOGY - ONCOLOGY UNIT</td>
</tr>
<tr>
<td>66</td>
<td>Shehu S.M.</td>
<td>LIMITATIONS FOR CANCER DIAGNOSIS IN A RESOURCE CONSTRAINT SETTING: EXPERIENCE AT AHMADU BELLO UNIVERSITY TEACHING HOSPITAL (ABUTH), ZARIA - NIGERIA</td>
</tr>
<tr>
<td>67</td>
<td>Glass A.G.</td>
<td>DEVELOPING A HOSPITAL-BASED CANCER REGISTRY ALLOWS ASSESSMENT OF THE QUALITY OF CARE AND FACILITATES CLINICAL TRIALS, EPIDEMIOLOGIC RESEARCH AND MOLECULAR INVESTIGATIONS</td>
</tr>
</tbody>
</table>

*The INCTR does not take any responsibility for the content of the abstracts*
# TABLE OF CONTENTS AND PUBLICATION ORDER OF THE ABSTRACTS *

<table>
<thead>
<tr>
<th>ABSTRACT #</th>
<th>PRESENTING AUTHOR</th>
<th>TITLE OF ABSTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>Anti Patel</td>
<td>THE PERU PREVENTORIUM DEMONSTRATION PROJECT: A MODEL FOR REDUCING THE CANCER BURDEN IN DEVELOPING COUNTRIES</td>
</tr>
<tr>
<td>69</td>
<td>Ahasan N.</td>
<td>ePROTOCOL RB: AN INNOVATIVE WEB-BASED CLINICAL TRIAL MANAGEMENT TOOL</td>
</tr>
<tr>
<td>70</td>
<td>Susheela Mungamuru</td>
<td>CYTOGENETIC CHARACTERISTICS OF ALL PATIENTS AND THEIR CLINICAL, HAEMATOLOGICAL, MORPHOLOGICAL AND IMMUNOPHENOTYPIC IMPLICATIONS</td>
</tr>
<tr>
<td>71</td>
<td>Susheela Mungamuru</td>
<td>PLOIDY, DOUBLE PH AND TRISOMY 8 IN CML PATIENTS AFTER CHEMOTHERAPY AND THEIR CLINICAL AND HAEMATOLOGICAL FINDINGS</td>
</tr>
<tr>
<td>72</td>
<td>Deneufbourg J-M.</td>
<td>TELECOMMUNICATING RADIATION ONCOLOGY: MULTISITE LINEAR ACCELERATOR IMPLANTATION AS A POSSIBLE MODEL FOR DEVELOPING COUNTRIES?</td>
</tr>
</tbody>
</table>

* The INCTR does not take any responsibility for the content of the abstracts

---

**CME ACCREDITATION AND CERTIFICATE OF ATTENDANCE**

The INCTR Annual Meeting 2005 - Cancer control in Developing Countries – has been appraised and approved by the Accreditation Council of Oncology in Europe (ACOE). ACOE is a multidisciplinary body of full time specialists practicing in the field of oncology and recognized for their experience in education and expertise in their field. ACOE accreditation acknowledges quality of the scientific program and its educational value.

The conference has been designated for a maximum of 18 hours of European external CME credits. Following an agreement of mutual recognition between the European Union of Medical Specialists (UEMS) and the American Medical Association (AMA), CME credits are also accepted by the Physicians Recognition Award (PRA) in the United States.

Delegates are kindly requested to complete the general evaluation form before claiming their certificate of attendance.

The conference secretariat will not issue the mail certificate of attendance to participants after the conference.
ABSTRACT 1

CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA: A CLINICO-EPIDEMILOGICAL STUDY
Sawsan S. Abbas
Department of Pediatric, College of Medicine, Al-Nahrain University, Baghdad, Iraq
e-mail: saw_195@yahoo.com and col_med_nahrain@yahoo.com

Background: Forty-eight patients with newly diagnosed acute lymphoblastic leukemia were enrolled in this prospective study to determine the clinico–epidemiological features of childhood acute lymphoblastic leukemia.

Patients and Methods: Cases and blood samples were collected consecutively during the years (1999 – 2001). A history was taken and physical examination was performed. The diagnosis of acute lymphoblastic leukemia was based on the morphological appearance of leukemic cells in a bone marrow smear. Two milliliters of blood were taken into an EDTA heparinized tube for full blood picture determination. Chest X – ray was done looking for a mediastinal mass and cerebrospinal fluid was examined to exclude central nervous system leukemia. The French-American-British (FAB) classification of leukemia was used. Patients were followed-up consecutively up to the end of 2003 to determine response to treatment and duration of remission.

Results: The majority (22 cases, 45.84 %) were between 6 and 10 years of age, the male: female ratio was 1.28: 1. Most of the patients had a moderately enlarged liver, spleen and lymph node: (30, 28 & 22 cases i.e. 62.5%, 58.3% & 45.8% respectively). A total white cell count < 50 x 10^9 / L was found in 37 cases (77.1%), while a white cell count > 100 x 10^9 / L was encountered in 5 cases only (10.4%), 3 of whom were males and aged more than 10. A hemoglobin level < 8 gm / dl was found in 32 cases (66.7%) and a platelet count ≤ 50 x 10^9 / L was found in 35 cases (72.9%). FAB – L2 constituted more than half of the cases (29 cases, 60.4 %). A mediastinal mass was found in 7 cases (14.6%) who were mainly males having FAB- L2. Initially, all of the patients responded to treatment and remission was induced within 4 weeks in the majority (44 cases 91.7%). Early relapse (< 6 months) occurred in 31 cases (64.6%, bone marrow relapse) and death soon after remission in 7 cases (14.6%, 3 cases due to bleeding and 4 due to sepsis). Two patients discontinued treatment during late intensification, whilst only 8 patients (16.7%) continued on maintenance treatment.

Conclusion: The predominance of FAB–L2 indicates that leukemia in our country is more aggressive. The outcome is very poor due to non availability of different chemotherapeutic agents.

ABSTRACT 2

ADENOCARCINOMAS OF THE UTERINE CERVIX IN CAMEROONIAN WOMEN
Nkegoum B., Mompea M., Doh A., Essame O., Ndom P., Ama Moor V. J.
Faculty of Medicine and Biomedical Sciences, Yaoundé, Cameroon
e-mail: nkegoum@yahoo.fr

Background: Cameroon is an underdeveloped country of about 15,000,000 (fifteen millions) inhabitants located in central Africa. Cancer of the cervix is still a common cancer, as is breast cancer, representing 11% of the total cancer cases. Most of these are squamous cell carcinomas. Nevertheless, adenocarcinoma of the cervix which accounts for 10-15 % of all cervical cancers worldwide and has shown an increased incidence in the last three decades is rare in Cameroon.

Objective: The objective of this study was to present the clinicopathological aspects of adenocarcinoma of the uterine cervix in Cameroonian women.

Materials and Methods: We evaluated all cases of adenocarcinoma of the cervix observed in Cameroon
between 1987-2005 (17 years). For each case we noted the:
- type of tumour - age of the patient - age at first sexual intercourse
- number of pregnancies - age of first delivery - parity - marital status
- socio-economic class - clinical signs and symptoms.

Results: Sixty (60) cases of adenocarcinoma of the cervix were observed, representing 3.5 % of the total number of cancers of the cervix diagnosed in the country. The incidence was constant, the patients aged 20-70 years with a mean age of 48 ± 11 years. All the women in this series had their first sexual intercourse before 15 years of age. 75% of the women had their first delivery between 13 and 21 years of age. 80% of these women had had more than five pregnancies and more than five parities. 50% of them were married, 30% were unmarried and the others (20%) were widows. 76% had low socio-economic status. 70% of the patients consulted late with vaginal bleeding. 30% came with vaginal discharge or pelvic pain. The tumours were fungated in 50% of the cases, infiltrated in 25% of the cases, and ulcerated in 25% of the cases. 90% of the tumours were tubular or papillary adenocarcinomas, while 10% were adenosquamous carcinomas.

Conclusion: Adenocarcinoma of the cervix is still uncommon in Cameroon and its prevalence and incidence are constant.

Key words: Cameroon / epidemiology /adenocarcinoma / uterine cervix

ABSTRACT 3

SPLENIC RADIATION: AN ALTERNATIVE TREATMENT OPTION IN THE BLAST CRISIS PHASE OF CHRONIC MYELOID LEUKEMIA
Vivek Choudhary, Pradeep Patra
Regional Cancer Center, Pt. J. L. N. M. Medical College Raipur, India

e-mail: rccaipur@yahoo.com

Background: To access the efficacy of splenic radiation in Chronic Myeloid Leukemia.

Methods: This is a longitudinal study of 55 patients with the blast crisis phase of CML registered between 1990 and 1998 in the Regional Cancer Center / Pt. J. L. N. M. Medical college Raipur, (C.G.) India. CML was commonly observed in the 2nd & 3rd decade of life. These patients were treated with splenic external beam Radiotherapy. The total peripheral W. B. C. count and splenic size were compared before & after Radiotherapy to spleen. The duration of remission period & overall survival were evaluated. Radiotherapy was given to the spleen with a field size about 15x10cm, as 150cGY/fraction/twice a week x 4 fractions with AP/PA portals. A total dose of 600cGy was given in 11 days.

Results: Before splenic Radiotherapy, the median peripheral W. B. C. count was 150,000/mm³ & the mean platelet count was 168,245/mm³. After splenic Radiotherapy, the median counts were 14,750/mm³ & 17,165/mm³ respectively. Median and mean spleen sizes were 17.6cm & 18.85cm respectively before Radiotherapy and 6.58 cm & 5.74 cm respectively after Radiotherapy. There was marked improvement in gastrointestinal symptoms in most of the patients. The median & mean remission periods were 9.66 month & 17.3 month respectively. The overall median & mean survival was 23 month & 31.53 months respectively. Most of the patients died because of septicemia & Bone marrow failure.

Conclusion: Splenic Radiotherapy in blast crisis phase can be an alternative palliative treatment option in the following settings:
1) Patients who cannot afford chemotherapy in developing countries.
2) Chemotherapy resistant blast crisis of CML patients.
3) Splenomegaly with high WBC counts.
**ABSTRACT 4**

**IR-192 IRIDIUM INTERSTITIAL IMPLANTS IN MANAGEMENT OF EYELID TUMORS**  
Choudhary S.V., Choudhary V.K.  
Regional Cancer Center, Pt. J. N. M. Medical Collage Raipur C. G. India

*e-mail: rccaipur@yahoo.com*

**Purpose:** This is a prospective study of 14 Patients with Carcinoma of the eyelid registered between January 2004 and May 2004 at the Regional Cancer Centre / Pt. J. N. M. Medical College Raipur India. Out of 14 Patients, two had tumours of the upper lid and 12 were lower lid. 10/14 were Squamous cell carcinoma and the rest were Basal cell carcinomas. 12/14 were T3NOMO and two were T2NOMO.

**Materials and Methods:** Single plane 192 Iridium Implant with Two or three tubes was used for the full length of the eyelid. A plastic tube and button technique was used and the Paris system followed for dosimetry. A micro Selectron High dose Brachytherapy machine (Nucletron) was used for Geometry, and dosimetry and treatment time was calculated with 3D TPS (Plato). A total dose of 650 cGy / fraction daily for 5 days was given. Patients were followed weekly in the first month, then monthly for 12 months.

**Results:** After 12 months of follow up, the disease remained locally controlled in 14/14 patients. The main acute side effects noted were erythema, Lid edema, congestion and loss of eyelashes. Late side effects were radiation fibrosis of the implanted area and loss of eyelashes.

**Conclusion:** Although our follow up of 12 months is too short for long term data, in the light of the opinion of Pierquin et al freedom from disease at 6 months is tantamount to cure. Our initial results are encouraging. 192 iridium implant can be an alternative treatment modality in the management of eyelid tumors.

**ABSTRACT 5**

**BREAST CONSERVATION SURGERY; A NEW CONCEPT IN PAKISTAN**  
Arif Rashid Khawaja, Mohammad Hamid Isa, Mazhar Ali Shah  
Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan

*e-mail: arif@skm.org.pk*

**Background:** Breast Cancer is the commonest female malignancy in Pakistan. The disease pattern is considered different and more aggressive than in the West as most breast cancers occur in much younger age groups. Also no authentic survival data from Pakistan exists due to poor patient compliance as well as lack of a national cancer registry. Modified Radical Mastectomy (MRM) is the only surgical option given to almost all the patients. Breast Conserving Therapy (BST) is not offered as it is considered an unsafe practice for various reasons; the commonest being the increased risk of local recurrence. It is very difficult to change this perception among clinicians, as it has never been practiced before. In a society with little education, myths are considered superior to realities and sometimes this can be devastating. Women with breast cancer are considered outcasts, as they would have their breast removed. Unmarried women fail to find a partner as they are considered incomplete and a bad omen. Working in the only state of the art, dedicated, free cancer hospital in the country, BCT was introduced as an option to patients with Early Stage Breast Cancer as proper follow-up facilities were provided along with medical and radiation oncology. A prospective cohort of patients was selected and followed up in the first ever such study in Pakistan.

**Methods:** Between June 2003 & June 2004, all women with Stage I and II breast cancer were offered BCT provided recommended criteria were met. Patients were informed about the requirement of XRT after breast conservation and other associated risks. All patients underwent Axillary Lymphnode Dissection (ALND) at the time of surgery. All patients were referred to the medical oncologist for an opinion regarding chemothera-
py and all patients had XRT to the remaining breast. Hormone sensitive patients were prescribed Tamoxifen 10mgs BD for 5 years. Patients were followed up every three months for one year after which all had bilateral mammograms. Patients who had received neoadjuvant chemotherapy were not included in the study.

Results: 64 women had BCT within one year. 39 pts (61%) were pre-menopausal, 25 pts (53%) were hormone sensitive and 60% were Her 2- Neu positive. 62% of tumors involved the right breast, the and outer upper quadrant being the commonest site (54%). 34 pts (53%) had either a lumpectomy or an incisional biopsy done outside the hospital and were then referred to us. The median age of the patients was 45 years (Range 24 – 70), the median size of the lump was 2.5 cms (Range 1 – 5 cm). 30 (47%) pts were lymph node negative. 4 patients were lost to follow up. 5 patients developed metastases (Lung being the commonest). There were 3 deaths (2 died of metastasis, 1 died of chemotherapy). After a mean follow up of 18 months, there has not been any reported or documented local recurrence. Three unmarried women got married after completing their treatment.

Conclusion: Breast Conservation is not practiced in Pakistan with as much confidence as it is in the West. A proper prospective study like ours would help allay fears among colleagues and peers about BCT. A 5 year follow-up is intended for these patients and others who are having Breast conservation with a hope that this option is considered as safe as studies from developed countries have shown.

ABSTRACT 6

NON METASTATIC OSTEOSARCOMA - EXPERIENCE AT SKMCH & RESEARCH CENTRE
Zaidi A., Shamim A., Shamim W.
Shaukat Khanum Memorial Cancer Hospital & Research Centre (SKMCH&RC), Lahore, Pakistan

e-mail: aliaz@skm.org.pk

Background: The role of chemotherapy in the treatment of Osteosarcoma is now well established. Most centres report an Event Free Survival (EFS) > 65% and Overall Survival (OS) > 75% for non-metastatic extremity Osteosarcoma. The purpose of this study was to analyze treatment outcome for Osteosarcoma at our hospital.

Materials and Methods: This was a retrospective observational study, Information was gathered from the patients’ medical records. Between 29/12/1994 and 30/04/2004, 278 patients <30 yrs age were registered at SKMCH&RC with bone tumors. Of these 134 (48%) had Osteosarcoma. 71 patients were excluded from the study because 35 were metastatic at presentation and 36 failed to complete their prescribed treatment at SKMCH&RC, leaving 63 patients eligible for analysis. Treatment consisted of chemotherapy in the neoadjuvant and adjuvant setting using either a combination of Cisplatin and Adriamycin or Cisplatin, Adriamycin and High Dose (HD) Methotrexate. Some patients also required second line treatment because of progressive disease with Ifosfamide based combinations. Surgery was either amputation or limb salvage. EFS and OS curves were derived using the actuarial life method on the SPSS statistical package.

Results: The mean age of these patients was 15.41 years (range = 8–28 years).77.8% were < 18 years of age. There were 41 male and 22 female patients with a male: female ratio of 1.9: 1. The sites of involvement were as follows: distal femur 29 (46%), proximal tibia 13 (20.6%), proximal humerus 6(9.5%), fibula 4 (6.4%), distal tibia 3 (4.8%), femoral diaphysis 3 (4.8%), proximal femur 2 (3.2%), tibial diaphysis 1 (1.6%), proximal ulna 1 (1.6%) and ribs 1 (1.6%). 50/63 patients underwent preoperative neoadjuvant chemotherapy with either a combination of Cisplatin and Adriamycin or Cisplatin, Adriamycin and High Dose (HD) Methotrexate. 12/63 also required second line treatment because of progressive disease. The mean followup was 32 ± 26 months (mean ± 1 SD) with a range from 3.6 to 98.5 months. The Overall Survival was 60.4% at 5 years with an Event Free Survival of 40% at 5 years. The survival rate was not significantly differ-
ent for patients who had less than 90% tumour necrosis (44/63) and those who had more than 90% necrosis (19/63) after neoadjuvant chemotherapy (p=>0.05). Similarly the survival rate was unaffected by whether the patients had limb ablation or salvage (p=>0.05).

**Conclusion:** A much longer follow up (at least 10 years) is required to get more accurate survival figures. Despite limitations of working in a Third World tertiary care centre, our preliminary results of limb salvage surgery are heartening (30%, no statistically significant difference in outcome compared to ablative surgery). We need to organize educational campaigns to improve public and health personnel awareness about the treatable nature of this disease if caught early.

**ABSTRACT 7**

**SURVIVAL OF PATIENTS WITH CARCINOMA OF OESPHAGUS HAILING FROM NORTH COASTAL ANDHRA PRADESH**

_**Krishna Prasad P.** 1, Gavarasana S. 2_  
_Lions District 324 C-1, Cancer Treatment & Research Center, Seethammadhara, Visakhapatnam, Andhra Pradesh, India_  
e-mail: kaypee_11@rediffmail.com

**Background:** Squamous cell carcinoma of Oesophagus is the third leading cancer in men and fourth leading cancer in women of India. The aim of the present study is to understand the survival of Oesophageal cancer patients hailing from north coastal Andhra Pradesh.

**Methods:** Retrospective analysis of 2,341 cancer patients treated at Lions Cancer Hospital during the years 1998-2000.

**Results:** Out of a total of 2,341 cancer patients treated, 5.25% (n=123) had oesophageal cancer. Females constituted 30.08% (n=37) and males 69.91% (n=86). Median age at presentation with oesophageal cancer was 55 Yrs in both sexes. Smokers constituted 45.52% and 54.47% were non-smokers. The site of esophageal cancer varied; 42.25% patients had tumours in the middle 1/3rd, 28.4% in the upper 1/3rd and 24.77% in the lower 1/3rd of the oesophagus. Well differentiated Squamous Cell CA was seen in 29%, moderately differentiated Squamous cell carcinoma in 36% and poorly differentiated Squamous cell CA in 5%. Only 2.8 % patients survived for five years and all these survivors were non-smokers. Non-smokers had a better survival at four years with 7.46% surviving than the smokers with a survival rate of 1.78%.

**Conclusion:** Squamous Cell Carcinoma of Oesophagus was 2.32 times more common in males compared to females hailing from North Coastal Andhra Pradesh, India. Though the overall 5-year survival was 2.8%, survival was better in non-smokers than in smokers (p=0.2358).

**ABSTRACT 8**

**RESULTS OF LIMB SALVAGE SURGERY FOR NONMETASTATIC OSTEOSARCOMA AT SKMCH&RC 1994-2004**

_Shamim A., Zaidi A., Shamim W., Khan M.A., Ghauri S.S._  
_Shaukat Khanum Memorial Cancer Hospital & Research Centre (SKMCH&RC), Lahore, Pakistan_  
e-mail: ashamim@skm.org.pk

**Background:** The role of limb salvage surgery in the management of Osteosarcoma has been well documented. Most centres report a limb salvage rate of greater than 80% with no adverse effects on overall survival.
The purpose of this study was to analyze the results of this treatment at our hospital in the setting of a developing country.

Materials and Methods: This was a retrospective observational study. Information was gathered from the patients’ medical records. Between 29/12/1994 and 30/04/2004, 278 patients < 30 yrs age were registered at SKMCH&RC with bone tumors. Of these 134 (48%) had Osteosarcoma. 71 patients were excluded from the study because 35 were metastatic at presentation and 36 failed to complete their prescribed treatment at SKMCH&RC. Of the remaining 63 patients 19 (30%) had limb salvage surgery and 44 (70%) had amputation in addition to chemotherapy in the neoadjuvant and adjuvant setting using either a combination of Cisplatin and Adriamycin or Cisplatin, Adriamycin and High Dose (HD) Methotrexate. We wish to present our results of limb salvage surgery in these 19 patients.

Results: The mean age of these patients was 14.7 years (range 8-22 years). 13 (68%) were male and 6 (32%) female. 6 (31.6%) had distal femoral lesions, 5 (26.3%) had proximal humeral lesions, 4 (21.1%) had proximal tibial lesions, 3 (15.8%) had femoral diaphyseal lesions and 1 (5.3%) had a tibial diaphyseal lesion. 6 (31.6%) had resection arthrodesis of the knee with contralateral free fibula and unicortical tibial autograft reconstruction and internal fixation, 4 (21.1%) had a Tikhoff-Linberg resection of the shoulder, 4 (21.1%) had segmental resection of diaphyseal lesions with contralateral free fibula and unicortical tibial autograft reconstruction and internal fixation, 2 (10.5%) had tumour resection and Ilizarov limb reconstruction, 1 (5.3%) had a modified Van Nes Rotationplasty, 1 (5.3%) resection arthrodesis of the knee with interposition of autoclaved resected bone and 1 (5.3%) had an Enneking arthrodesis of the shoulder. The mean followup was 17.4 ± 14.7 months (Range 4.3 to 67.3 months). 5 patients died during this period and a further 3 developed distant metastases but were still alive at last followup. 1 (5.3%) patient was alive and disease free at last followup. 11 (58%) patients were alive and disease free at last followup. 1 patient (5.3%) developed failure of internal fixation, deep sepsis and required conversion to an above knee amputation. 1 (5.3%) had failure of arthrodesis and fatigue fracture of her implant requiring revision of internal fixation and bone grafting. 1 (5.3%) developed flap necrosis and exposure of metalwork requiring secondary plastic surgical reconstruction. 2 (10.5%) developed fractures of free fibular grafts which healed with conservative treatment. There were no cases of local recurrence, unplanned neurovascular injury, DVT or PE. At last follow-up all patients were satisfied with the results of their procedures.

Conclusion: The rate of limb salvage surgery at our institution is low (30%) due to delayed presentation on the part of the patients and advanced stage tumours with neurovascular encasement. With increased patient awareness we hope that this situation will change. Limb salvage is more easily accepted by patients in our Country as compared to amputation. Despite financial constraints we find it a rewarding procedure for our population and our results compare well with those described in the literature.

ABSTRACT 9

TOBACCO HABIT AS A RISK FACTOR FOR LUNG CANCER – A STUDY FROM EASTERN INDIA
Gupta P., Roychowdhury S., Roychowdhury G., Barman B., Ghosh R., Mukhopadhyay S., Mukhopadhyay A.
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: Tobacco smoking is the most intensively investigated environmental cause of cancer. Smoke comes out of cigarettes, bidis, hookahs etc. contains nicotine and other chemical compounds which are proven to be as dangerous carcinogens. Cancer causation by tobacco smoke is not attributable to any one chemical compound but to an overall effect of the complex mixture of chemicals in smoke. The burden of tobacco related cancer is increasing alarmingly throughout the world, and therefore merits the highest priority in the war against cancer worldwide. Using tobacco, active smokers can get lung cancer and cancers in other organs such as the larynx, oral cavity, pharynx, oesophagus, pancreas, kidney and bladder. The aim of our study was to investigate tobacco use, prevalence of exposure, awareness about the risk of tobacco use and incidence of lung cancer in tobacco users.
Materials and Methods: 220 new patients with cancer of the lung registered in Netaji Subhash Chandra Bose Cancer Research Institute were recruited for the study during the period of January 2004 – December 2004. Two hundred healthy male (age, religion and residential status matched) visiting controls were selected from the hospital outpatients during the same time period. Information on socio demographic data, details of the disease, tobacco use, and awareness about the effect of tobacco were obtained through standardized questionnaires.

Results: Out of 220 patients 160 were male and 60 were female. Out of 160 males, a history of tobacco smoking was observed in 148 (92.5%). Of the 60 females 13 (21.66%) were smokers. Smokers were at a higher risk of developing the disease than non-smokers. Disease directly correlated with the duration, number of cigarettes, monthly income, family size and education level. Adjusted Odd Ratio (OR) observed for smokers for duration more than 20 bids/cigarettes per day were 2.11%, 1.49 % and 3.48% respectively. Smoking was seen as more common form of tobacco than chewing. Awareness level towards tobacco chewing, active and passive smoking was poor.

Conclusion: Smoking related lung cancer is very high in this part of the country. Health education about smoking and of generation awareness about the hazards of tobacco should be strongly recommended.

ABSTRACT 10

EFFECT OF A MEAT CONTAINING DIET ON CAUSATION OF COLON CANCER – A STUDY FROM EASTERN INDIA
Netaji Subhas Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: Almost 30% of human cancers are probably related to diet and nutrition. A western diet (highly calorific food rich in animal fat & protein), often combined with a sedentary life style and hence energy imbalance, increases the risk of colon cancer. Epidemiological studies show that there is a correlation between meat consumption and cancer of the colorectal region. It has been shown that consumption of 80gm/day red meat (Beef, Lamb & Pork) and processed meat (Ham, Salami, Bacon) may increase the colorectal cancer risk by 25% and 67% respectively. Several biological mechanisms have been postulated. These include the influence of meat and fat consumption on the production and metabolism of bile salts and bile acids by gut flora. Another hypothesis concerns the potential carcinogenic effect of certain compounds that can be formed in meat during cooking. Colon cancer is the 3rd commonest malignancy in the eastern part of India, where the diet is non-vegetarian and contains a high proportion of red meat. The aim of our study was to determine the incidence of colon cancer in the Asian-Indian population and its relationship with the habit of eating red meat.

Materials and Methods: We retrospectively analysed 3,627 cancer patients from our cancer registry during the period November 2002 to December 2004. We took a detailed dietary and family history. Those patients who were originally from Bengal and the eastern part of India were mainly red meat eaters and those from other parts of India were mainly vegetarian.

Results: The incidence of colon cancer was 8.22% (298 patients) in our hospital based cancer registry. Ninety four percent of the colon cancer patients were red meat eaters whereas only 6% were purely vegetarian. Ninety nine percent of the colon cancer patients were permanent residents of Bengal whereas 1% were from other parts of the country.

Conclusion: The incidence of colon cancer in eastern India is higher as compared to the other parts of the country and world. There is a strong co-relation between red meat eating and colon cancer.
ABSTRACT 11

SYNERGISTIC EFFECT OF METHYLTETRAHYDROFOLATE REDUCTASE (MTHFR) C677T AND A1298C POLYMORPHISM AS RISK MODIFIERS OF PEDIATRIC ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)

Azza M. Kamel, Gamal Thabet, Rong Bu*, Heba Moussa and Kishor Bhatia*
Clinical Pathology Department, NCI, Cairo University, Cairo, Egypt and *Molecular Biology Lab., KFNCCCR, KSCHRC, Riyadh, Saudi Arabia

e-mail: amkamel@hotmail.com and azzamkamel@yahoo.com

Introduction: Acute Lymphoblastic Leukemia (ALL) is the most common pediatric malignancy accounting for 25-30% of all cancer cases. Although the clinical, pathological, immunophenotypic and molecular features of the disease are well documented, little is known about leukemogenesis. The causes of the majority of pediatric acute leukemia are unknown and are likely to involve an interaction between genetic and environmental factors. Therefore, unfavorable gene-environmental interaction might be involved in the genesis of ALL. Aim of the work: To evaluate in a case-control study whether the common polymorphisms in MTHFR (C677T and A1298C) and MS (A2756G) genes may play a role in altering susceptibility to pediatric ALL as individual genes and in combination.

Patients and Methods: DNA of 92 ALL patients (age ≤ 16 years) and 312 healthy control subjects was analyzed for the polymorphisms of MTHFR and MS genes using PCR-RFLP method.

Results: MTHFR 1298AA was encountered in 45% of the controls compared to 62.4% in patients. MTHFR 1298AC was encountered in 45.1% of the controls versus 8.6% of the patients (p = 0.001) and MTHFR 1298CC was encountered in 9.3% of the controls versus 8.6% of the patients (p > 0.05). MTHFR 1298AC+CC was encountered in 70.5% of the controls versus 34.1% of the patients (p = 0.001). The frequency of distribution of MTHFR 677 and MS polymorphisms was comparable between patients and controls. Individuals carrying the MTHFR 1298AC showed a 2.6 fold decreased ALL risk (odds ratio 0.38, 95% confidence interval 0.22-0.66) than wild type. Individuals carrying either MTHFR 1298AC or CC showed 2.3 fold decreased ALL risk (odds ratio 0.43, 95% confidence interval 0.26-0.71) than wild type. Study of gene combinations showed that MTHFR 677CT + 1298 AC was encountered in 30.7% of controls versus 16% of patients (p = 0.002). The combination imposed a 3.6 fold decreased ALL risk (odds ratio 0.27, 95% confidence interval 0.12-0.64) than wild type. On the other hand, MTHFR 677 CT + MTHFR 1298AC or CC was encountered in 33.2% of controls compared to 18% of patients (p = 0.002). The combination imposed a 3.5 fold decreased ALL risk (odds ratio 0.29, 95% confidence interval 0.13-0.64) than wild type.

Conclusion: Only MTHFR 1298AC and CC showed a decreased risk of pediatric ALL. The lack of impact of MTHFR 677 and MS 2756 polymorphisms is contradictory to previous reports. However, the synergistic effect of the 2 MTHFR genes is in concordance with the literature. This further emphasizes that gene-environmental interaction as a risk factor of pediatric ALL must be studied in a comprehensive way including different genes involved in one and in different metabolic pathways.

ABSTRACT 12

MOLECULAR CHARACTERIZATION OF PEDIATRIC PRECURSOR B ALL IN EGYPT

Azza M. Kamel, Yasser H. El-Nahass, Dina A. Yassin, Heba Moussa, Kevin Girtman *, Kathy Mohar *, Nahla El-Sharkawy, Khaled Shaaban and Sheila Shurtleff *
NCI, Cairo University, Cairo, Egypt and *SJCRH, Memphis, USA

e-mail: amkamel@hotmail.com and azzamkamel@yahoo.com

Introduction: Pediatric ALL is one of the few curable malignant diseases. To achieve cure, treatment has to be tailored according to various risk groups and fine tuned at the individual case level. Risk stratification is
performed according to a number of parameters including age, gender, TLC, Immunophenotype, DNA index, CNS status and molecular genetics. For the latter, certain translocations are known to be associated with good prognosis namely t(12;21). Others are known to have intermediate or high risk namely t(1;19), t(4;11) and t(9;22). In Egypt, all the parameters involved in risk stratification are well standardized. However, studies involving molecular genetics are sporadic, mostly addressing one single translocation or performed on a small number of patients. The aim of this work is to study the pattern of the four common translocations in Pediatric ALL in Egypt in a consecutive group of patients.

Patients and Methods: The study involved 110 pediatric ALL patients with an age range of 2 to < 16 years. All cases were subjected to routine workup including blood picture, bone marrow, cytochemistry, immunophenotyping, DNA index and molecular genetics. The 4 translocations were tested using RT-PCR and confirmed by real-time RT-PCR using Taqman technology.

Results: t(1;19) was the most common constituting 23/110 (20.9%) followed by t(12;21) encountered in 13/110 (11.8%). BCR/ABL p190 was encountered in 5 cases (4.5%) including 4 CALL cases, all diploid and one biphenotypic with a DNA index of 1.2. t(4;11) was encountered in 2 cases (1.8%), one pro-B and one pre-B, both diploid.

The 23 cases with t(1;19) included 10 CALL cases (43.5%), 10 pre-B (43.5%) and 3 pro-B (13%). Of the 23 cases, 15 were diploid or near diploid (65.2%); DNA index of ≤ 1.16 and aneuploidy were encountered in 4 cases each (17.4%). The 13 cases with t(12;21) included 7 CALL cases (53.8%), and 6 pre-B cases (46.2%). Diploid or near diploid was encountered in 9 cases (69.2%); a DNA index of ≤ 1.16 was encountered in 2 cases (15.4%) and tetraploidy with an index of 1.92 and aneuploidy with an index of 1.05 was encountered each in one case (7.7%).

The 67 cases with no translocations detected showed CALL in 55.7%, pre-B in 32.8% and pro-B in 11.5%. They showed diploid or near diploid DNA index in 48.6%, an index of ≤ 1.16 in 25% and aneuploidy in 26.4%.

Conclusion: The most common translocation in Egyptian pediatric ALL is t(1;19). This is in contrast to Western populations where the most common is t(12;21). This is another finding documenting the lower incidence of good prognostic features in pediatric ALL in Egypt. There was no significant association between either DNA ploidy or immunophenotype (within the precursor B phenotype) with the various translocations. t(1;19) is not specially associated with pre-B as previously reported and 30.8% of cases with t(12;21) were not diploid.

This work was supported by US/Egypt joint fund: ID code: BIO6 002 002, Cont/Ag No 150.

ABSTRACT 13

COMBINATION OF GEMCITE & CISPLATIN CHEMOTHERAPY IN UNRESECTABLE GALL BLADDER CANCER
Barman B., Ahmed R., Biswas S., Ghosh R., Mukhopadhyay S., Mukhopadhyay A.
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somasishs@vsnl.net

Background: Adenocarcinoma of the gall bladder accounts for approximately 4% of all malignant neoplasms of the gastro-intestinal tract. Though surgical resection is the treatment of choice, the majority of cases are unresectable. Different chemotherapeutic agents including 5-Fluorouracil, Mytomycin C, Cisplatin, Methotrexate, Etoposide and Doxurobicin have been tried as single agents or in combination. Partial responses lasting from weeks to several months have been observed only in about 10% – 20% of cases and the median survival for patients with gall bladder cancer is approximately 4 months. Gemcitabine is a pyrimidine analogue of Deoxycytidine and has shown strong anti-tumour activity in a variety of solid tumours. Cisplatin has synergistic activity with Gemcitabine. The aim of our study was to determine the response rate to a Gemcitabine and Cisplatin combination in unresectable gall bladder cancer and to see the tolerability in an Indian-Asian population.

Materials and Methods: During the period November 2002 to December 2004, we selected 48 consecutive patients with histologically proven, unresectable measurable, gall bladder cancer. The inclusion criteria were...
performance status more than 60% (Karnofsky), no prior radiotherapy and normal liver (bilirubin < 2) and kidney (creatinine < 2) function. All patients received Gemcitabine (1000mg/m² intravenously over 30 minutes) on day 1 and day 8 and Cisplatin (100mg/m² on D1 to D3) every 21 days. Response assessment was done by CT Scan after 3 cycles of chemotherapy. All 48 patients are eligible for efficacy and toxicity analysis.

**Results:** There were 9 (18.75%) complete responders, 15 (31.25%) partial responders, 13 (27.08%) with stable disease and 11 (22.91%) showed disease progression. The median time to progression was 20 weeks with a range of 12–26 weeks. The median duration of response was 15 weeks (range 5.5 – 60 weeks). The median overall survival was 22 weeks (range 11-27 weeks) with a 1 year survival rate of 20.4%. WHO grade III or IV anaemia was seen in 8 and 5 patients respectively. Ten patients each experienced grade III or IV neutropenia while grade III or IV thrombocytopenia was seen in 5 and 3 patients respectively.

**Conclusion:** The present study shows that the Gemcitabin & Cisplatine combination was very useful in advanced unresectable gall bladder cancer. It was well tolerated by the patients.

**ABSTRACT 14**

**ORAL CHEMOTHERAPEUTIC AGENTS IN ELDERLY PATIENTS WITH ACUTE MYELOID LEUKEMIA (AML): A STUDY FROM A DEVELOPING COUNTRY**

*Gupta P., Barman B., Sarkar R., Ghosh R., Kundu B., Mukhopadhyay S., Mukhopadhyay A.*

Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

**Background:** Almost 60% of patients with Acute Myeloid Leukemia (AML) are over the age of 60 years. Age is one of the strongest adverse prognostic factors for AML, both for achievement of remission and for survival. Studies have shown that elderly patients have reduced tolerance to aggressive chemotherapy, especially the myelosuppressive effects. Elderly patients with leukemia who receive intensive treatment often die as a result of chemotherapy. Aggressive chemotherapy is also costly which the relatives in developing country are reluctant to spend for elderly patients. The aim of our study was therefore to see the tolerability and cost effectiveness of oral chemotherapeutic agents.

**Materials and Methods:** We selected 60 consecutive patients, more than 60 years of age referred to the Hae-mato-Oncology department of NSCBMRI. After informed consent, all patients started oral chemotherapeutic agents – 6MP75mg/m², Etoposide 70mg/m² and Prednisolone 40mg/m². All were given every 3 weeks, followed by a 7 day gap, every month and continued for 6 months. The mean age of the patients was 65 years ranging from 60 – 71 years. There was male preponderance.

**Results:** Fifteen patients (25%) showed a complete response after 6 courses. Two patients (3%) died because of grade IV febrile neutropenia. The median duration of myelosuppression was 16 days (range 2 – 42 days). Six patients (10%) required hospitalization.

**Conclusion:** The combination of oral chemotherapeutic agents consisting of 6MP, Etoposide & Prednisolone was well tolerated by elderly patients with an acceptable CR rate, low mortality and reasonable median survival. It was cheaper and well accepted by the patients.
ABSTRACT 15

SURVIVAL OF PATIENTS WITH CERVICAL CANCER HAILING FROM ANDHRA PRADESH
Bhanu Kiran, Gavarasana Satyanarayana
Lions Cancer Treatment and Research Center, Visakhapatnam, India
e-mail: bhanukiranvzm@yahoo.co.in

Background: Cancer of the cervix is the most common cancer in rural areas of India. However, data on survival of patients hailing from Andhra Pradesh is not available. Our aim was to do a survival analysis of all cervical cancer patients, hailing from Srikakulam, Vizianagaram, Visakhapatnam and East Godavari Districts, that were treated during a two year period.

Methods: Extraction and computerization of data for patients with cancer treated at Lions Cancer Hospital during 1998 and 1999.

Results: Out of a total of 1495 cancer patients treated during a two year period, the proportion of women with cancer of the cervix was the highest at 27.3% (n=409). The median age was 46 years. 17 women (14.9% - age range 45 - 54 years) survived for 5-years after treatment, compared to 4 women (16.6%) from a younger age group (25 – 34 years). As expected, more women with stage 2 cervical cancer (n=23, 21.2%) survived for 5 years compared to women with stage-3 (n=189, 11.3%) (P=0.05). A higher proportion of women with a high income (n=16, 25%) survived 5 years compared to a low income group of women (n=276, 17.6%). The limitation of the study was that only 49 (11.9%) women were followed for 5 years compared to 305 women (74.5%) followed for one year and the differences in outcome may possibly be due to death or loss to follow up.

Conclusion: For the first time, a survival analysis of cervical cancer patients hailing from north coastal Andhra Pradesh is presented. 5-year survival was better in younger patients and those with a high income and in patients who presented at an early stage of cervical cancer.

ABSTRACT 16

PROGNOSTIC FACTORS IN ADULT ACUTE LYMPHOBLASTIC LEUKAEMIA (ALL) AND THEIR IMPACT ON TREATMENT OUTCOME AND LEUKAEMIA FREE SURVIVAL
Abdel Hamid Th.,* Mahmoud H., Kamel A.* Shaker H.**, and Ali El-Din N.***
Medical Oncology Dep. NCI-Cairo;** Clinical Pathology Dep. NCI – Cairo. *** Biostatistic Dep. NCI-Cairo, Egypt
e-mail: thorayaabdelhamid@yahoo.com

Objectives: The aim of this study was to improve the leukaemia free survival (LFS) of adult patients with acute lymphoblastic leukaemia through the use of more intensive postremission therapy. To weigh benefit versus risk we stratified the patients into risk adjusted treatment protocols according to their prognostic factors.

Patients and Methods: Seventy nine patients were included in this study conducted at the Medical Oncology Department – NCI-Cairo in the period between 1999 and 2004. The diagnosis was ALL in 77 patients and lymphoblastic lymphoma (LBL) in two. The diagnosis was established through clinical and radiological examination, full blood count with differential, bone marrow examination and cytchemistry, blast cells’ immunophenotype and RT-PCR for BCR-ABL fusion gene transcripts. The patients had been stratified according to their prognostic factors into standard risk (n=27) and high risk (n=58). Patients were treated with risk adapted chemotherapy protocols with more intensive treatment for the high risk group. Patients with a mature B phenotype were treated with a separate protocol and with a different definition of risk stratification.

Results: The median age was 27 years with a range of 16 to 60. Forty eight were males and 31 were females. The immunophenotyping results were pro-B (12%), C-ALL (31.8%), pre-B (27%) and mature B (4.5%). The
T phenotype was 27.7%. The BCR-ABL fusion gene transcript was positive in 22% of cases. CNS presentation was reported in 14 patients (17.7%). The complete remission (CR) rate was 73.4%; refractory disease was reported in 11 patients (14%). The relapse rate was 13.6% in the standard risk group versus 33% in the high risk cases. Associated CNS relapse was present in one patient from each group. At 15 months, the LFS was 64.6%; it was 87.5% for the standard risk versus 51% in the high risk group (p=0.04). The LFS of the pre-B and C-ALL grouped together was 73.9%, it was 64% for the T phenotype versus no survivors in the pro-B phenotype. (P=0.009 and 0.03; respectively). The median OS was 12 months. At 15 months, it was 75.8% for the standard risk group versus 28.7% in the high risk group (p=0.002).

**Conclusion:** From this study we can conclude that our risk adapted protocols are tolerable with acceptable morbidity and mortality and that stratification of the patients according to their risk criteria is mandatory.

---

**ABSTRACT 17**

**PASSIVE SMOKING AS A CAUSE OF CANCER: PROSPECTIVE ANALYSIS FROM EASTERN INDIA**

Dhara A., Roychowdhury G., Roychowdhury S., Barman B., Ghosh R., Mukhopadhyay S., Mukhopadhyay A.

Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

**Background:** Tobacco smoking is the most intensively investigated environmental cause of cancer. Smoke comes out of cigarettes, bidis, hookahs etc. contains nicotine and other chemical compounds which have been proven as dangerous carcinogens. Cancer causation by tobacco smoke is not attributable to any one chemical compound but to an overall effect of the complex mixture of chemicals in smoke. Active smokers can get lung cancer and cancers in other organs such as the larynx, oral cavity, pharynx, oesophagus, pancreas, kidney and bladder. Non-smokers who are exposed to environmental tobacco either by family members or in the workplace are also equally at risk of having lung and laryngeal cancers, other respiratory diseases and even breast cancer. Very high lung cancer rates occur in some regions of China and other Asian countries among non-smoking women who spend much of their time at home. This may be due to indoor pollution caused by tobacco smoke. This study aims to find out the incidence of cancer in passive smokers and to detect the awareness level of passive smoking in society.

**Materials and Methods:** This was a case-control study conducted from September 2004 to April 2005 in Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata. There were 1500 cases and 1000 controls who were randomly interviewed following a structured questionnaire. The age group was between 6 and 45 years. The cases have been collected among in-patients and outpatients. The age and sex matched controls were collected among the relatives of patients attending the hospital.

**Results:** Among 1500 cases of cancer of different organs, 95% were nonsmokers and were exposed to constant passive smoking. Among the cases, 25.71% were suffering from Lung Cancer, 14.28% from Cancer of the Larynx, 14.28% Breast, 14.28% Uterus, 8.57% Ovarian and 5.71% from oral cancers. The rest were suffering from Stomach, Gall Bladder, NHL and cancers of the Spinal cord. So the rate of Lung and Laryngeal cancer was much higher among passive smokers. On the other hand, among 1000 controls 29.9% were active smokers and 70.1% were passive smokers. So among adult non-smokers, constant exposure to environmental tobacco smoke (passive smoking) can be linked to lung cancer and cancers of other respiratory organs. Among children, few cases of lung cancer caused by passive smoking were noted.

**Conclusion:** In our study, passive smoking related cancer was high. Doing this study, it was seen that the general awareness level regarding passive smoking is very low among the population. The awareness level is much lower and the exposure much higher among the population from a lower socio-economic and lower education group. Demographic conditions can also be related to lower awareness level.
ABSTRACT 18

IMATINIB MESYLATE AS FIRST LINE THERAPY IN PATIENTS WITH PAEDIATRIC CHRONIC MYELOID LEUKEMIA (CML)—AN EXPERIENCE FROM EASTERN INDIA
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: Childhood cases (<18 yrs of age) represent approximately 2% of all patients who develop Chronic Myeloid Leukemia (CML). The disease in children is similar in behavior to that in adults, however the outcome of treatment with stem cell transplant is better in young individuals. The aim of our study was to see the response rate and tolerability of imatinib in Asian-Indian paediatric CML cases.

Materials and Methods: During the period from January 2002 to December 2004, we selected 36 cases of paediatric chronic myeloid leukemia who could not afford Bone Marrow Transplant treatment in the Haematology department of Netaji Subhash Chandra Bose Cancer Research Institute, a tertiary cancer center from eastern India. All cases were Philadelphia chromosome and bcr-abl molecular transcript positive. The distribution of patients in the age groups 1-5, 6-12 & 12-18 was 2 (5.55%), 8 (22.22%) and 26 (72.22%) respectively. The dose of imatinib mesylate (Veenat in Natco pharma) given was 100mg in 1-5yrs, 200mg in 6-12yrs and 400mg in older children. The maximum duration for which the drug was given was 2 years.

Results: With a median follow up of 8 months, 15 children (41.66%) showed complete haematological, major cytogenetic and molecular response. Twelve patients (33.33%) showed complete haematological, partial cytogenetic and partial molecular response. Six patients (16.66%) showed partial haematological response only. Three patients (8.33%) died during treatment because of blast crisis. The majority of the children tolerated imatinib well. The side effects seen were grade 1 & 2: retention of fluid in 8 patients (22.22%), myelosuppression in 6 patients (16.66%), muscle cramp in 5 patients (13.88%), diarrhoea in 3 patients (8.33%), hepatotoxicity in 2 patients (5.55%). Skin rashes were not seen.

Conclusion: Imatinib is a good curative drug in chronic myeloid leukemia even in paediatric patients. It was tolerated well in Asian Indian paediatric patients.

ABSTRACT 19

CHILDHOOD CANCER EPIDEMIOLOGY: A HOSPITAL BASED CANCER REGISTRY FROM A DEVELOPING COUNTRY
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: More than 80% of the world’s children live in developing countries where adequate medical care is limited. Very few studies have been done on the epidemiology of childhood cancer in developing countries. In Asia, childhood cancer is 3-5% of all cancers. The aim of our study was to determine the incidence of childhood cancer and the disease pattern from a hospital based cancer registry.

Materials and Methods: During the period from January 2000 to December 2004, we analyzed our hospital based Cancer Registry data in Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata a tertiary cancer center in Eastern India. There were a total of 10,500 patients who attended our institution as Outpatients and Inpatients. Among them 1,204 were in the childhood age group (≤15 yrs).

Results: Patients in the childhood age (≤15yrs) group were 11.46% of the total. The distribution of patients according to age group was (1-5yrs), (6-10yrs) and (11-15yrs) 289 (24%), 638 (53%) and 277 (23%) respectively.
The most frequently seen childhood cancers were Acute Lymphatic Leukemia 324 (26.91%), Lymphomas 24.16% (Hodgkin’s disease 18.10%, Non Hodgkin’s Lymphoma 6.06%), Round Cell Tumours 14.45% (Ewing’s Sarcoma 4.98%, Primitive Neuro Endocrine Tumour 3.82%, Rhabdomyosarcoma 3.65%, Neuroblastoma 1.99%), Brain Tumour 9.96% (Medulloblastoma 8.97%, Astrocytoma 0.99%), Wilms’s Tumour 72 (5.98%), Acute Myeloid Leukemia 60 (4.98%), Germ Cell Tumour 50 (4.15%), Osteosarcoma 48 (3.98%), Chronic Myeloid Leukemia 36 (2.99%), Retinoblastoma 24 (1.99%), Soft tissue sarcomas and other malignancies 28 (2.32%).

**Conclusion:** The incidence of paediatric cancer in our study was higher as compared to other studies. Children in the Indian subcontinent showed a different pattern of cancers with an excess of Lymphomas (specially Hodgkin’s Lymphoma) and Round cell tumours as compared to those reported in the Western Literature.

**ABSTRACT 20**

**ASSESSMENT OF NUTRITION IN CHILDREN WITH CANCER - A STUDY FROM A DEVELOPING COUNTRY**

Ghosh R., Barman B., Kundu B., Mahanta P., Gupta P., Mukhopadhyay S., Mukhopadhyay A.

Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

**Background:** In developing countries, 40% of children suffer from malnutrition. It has been shown that good nutritional status can reduce complications of treatment, strengthen the immune system and contribute to the patient’s general well being throughout treatment. Good nutritional status is therefore essential for optimal treatment of the child with cancer. The aim of our study was to determine the nutritional status of childhood cancer patients at diagnosis and the effect of nutrition on outcome of therapy.

**Materials and Methods:** In this study we prospectively analyzed the nutritional status of 700 paediatric cancer patients in Netaji Subhash Chandra Bose Cancer Research Institute, a tertiary cancer center of eastern India during the period January 2004 to December 2004. The parameters analyzed were height for age, weight for age, total protein, serum albumin and mid arm circumference. The height for age, the weight for age and mid arm circumference were taken as normal if they were between the 3rd and 97th percentile curve of the growth chart recommended by the Indian Council of Medical Research. The albumin level and the total protein were considered normal if the value was equal to or more than 3gm% and 5.8gm%.

**Results:** A total of 98 patients (14% children) were low weight for age, 70 patients (10%) had a low height and 118 patients (16.85%) had low mid arm circumference. A total of 77 patients (11%) had low serum albumin while 120 patients (20%) had low serum protein. Low weight for age, low serum albumin and low mid arm circumference were significant factors in disease free survival and toxicity of chemotherapy.

**Conclusion:** We conclude that malnutrition is a major finding in children with cancer in a developing country like ours. Patients with mal-nutrition had shorter disease free survival and more toxicities during therapy as compared to well-nourished children.
ABSTRACT 21

PSYCHOLOGICAL PROBLEMS OF SURVIVORS OF ACUTE LEUKEMIA IN THEIR ADOLESCENCE – AN EXPERIENCE FROM EASTERN INDIA

Mukhopadhyay S., Ghosh R., Kundu B., Sarkar R., Barman B., Gupta P., Mukhopadhyay A.
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: Adolescents who have been treated for childhood acute lymphatic leukemia not only have the substantial physical, cognitive, emotional and interpersonal problems but also have the added burden of integrating a life-threatening disease into their experiences. Persistent body image concerns, somatic preoccupation, disruptions in heterosexual relationships and deficits in social competence have all been documented in this age group. The aim of our study was to document the psychological problems of adolescent survivors of childhood acute lymphatic leukemia in a developing country like India.

Materials and Methods: We assessed 160 survivors of childhood acute lymphatic leukemia patients in their adolescent period with their families in the Psycho oncology department of Netaji Subhash Chandra Bose Cancer Research Institute during period from July to December 2004. We examined their family functioning, mental health, self-esteem, and social competence.

Results: Total 130 patients (81.25%) had excellent psychological functioning without serious social issues. They expressed a positive effect of their illness. Total 12 patients (7.5%) had expressed a little depression. Fourteen patients (8.75%) of the teenagers thought that their families were less attentive than the case with their counterparts. These adolescents were maladjusted to the society also. Four patients (2.5%) were reluctant to command. Majority of the patients, who had psychological disturbances, responded well to psychotherapy.

Conclusion: Almost 20% of the childhood acute lymphatic leukemia survivors had psychological problems in their adolescents. Hence we recommend psychotherapy strongly in their adolescent period in frequent intervals.

ABSTRACT 22

DEPRESSION IN YOUNG WOMEN WITH EARLY STAGE BREAST CANCER - A STUDY FROM EASTERN INDIA

Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: Breast cancer is the most common type of cancer among women. Various studies reveal that depression is common in patients with breast cancer. In recent years, an extensive body of literature has accumulated that examines depression in patients with medical illness and more specifically, in patients with cancer. Investigators have found a relatively high prevalence of depression in patients with certain types of cancer and some reports have suggested an association between depression and increased morbidity in cancer patients. The aim of the study was to examine and diagnose depressive symptoms in young women with early stage Breast Cancer.

Materials and Methods: 62 young women with newly diagnosed breast cancer were assessed with their family members in the Psycho Oncology Department of Netaji Subhash Chandra Bose Cancer Research Institute during period of October 2004 to March 2005. A detailed history was taken along with Mental Status Examination. Major Depression according to DSM IV criteria was evaluated by the use of the Beck Depression Inventory and Hamilton Rating Scale for Depression.
**Results:** 39% patients met the criteria for major depression and 13% had adjustment problems. Anti-depressant medication was useful in treating depressed patients with breast cancer and psychotherapy, relaxation training and family counseling were also helpful for better adjustment and to control depression.

**Conclusion:** Despite the enormous advances in brain research in the past 20 years, depression often goes undiagnosed and untreated. While studies generally indicate that about 25% of people with cancer have depression, only 2% of cancer patients in one study were receiving anti-depressant medication. Persons with cancer, their families and friends, and even their physician and oncologists may misinterpret depression's warning signs, mistaking them for inevitable accompaniments to cancer. Early intervention and psychiatric treatment may prevent the bio-psychological symptoms progressing to major depression and thus result in better adjustment to life.

**ABSTRACT 23**

**CANCER PATTERN IN EASTERN INDIA: DATA FROM A HOSPITAL BASED CANCER REGISTRY**

*Shome S., Barman B., Ghosh R., Gupta P., Mukhopadhayay S., Sen A., Mukhopadhayay A.*

*Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India*

e-mail: somashis@vsnl.net

**Background:** The first Population Based Cancer Registry (PBCR) in India was organized in Mumbai in 1963. Subsequently, under the National Cancer Registry Programme (NCRP) of the Indian Council of Medical research, a few more registries were started in different Indian cities like Bangalore, Chennai and New Delhi. The 1st PBCR was organized in Kolkata in the Chittaranjan National Cancer Institute in 1997. We started our hospital based cancer registry in 2002. The PBCR from different cities have shown that the distributions of cancers are different in different cities because of ethnic and dietary differences. The aim of our study was to show the prevailing cancer pattern in the eastern part of India.

**Materials and Methods:** From our hospital based cancer registry, we analyzed all the cancer patients who attended the Out-patient and I-patient departments of Netaji Subhash Chandra Bose Cancer Research Institute during the period from November 2002 to March 2005.

**Results:** A total of 3627 cases were registered. The age distribution was 1 month to 86 years, with a mean age of 42.5 years. The female (56%) cancer patients predominated compared to the male (44%) patients. The most frequent malignancies in males were carcinoma of the lung (13.6%), followed by carcinoma of the colon (8.22%) and cancer of the oral cavity (6.9%). The most frequently reported malignancy in females was breast cancer (30.82%), followed by cancer of the uterine cervix (21.21%), gallbladder (10.4%) and ovary (4.6%). In the paediatric age group, the most frequent malignancy was ALL (49%), followed by Ewings Sarcoma, Rhabdomyosarcoma and Brain tumour.

**Conclusion:** The cancer pattern in eastern India is a little different from that in other parts of India & the World cancer registry, because of life style and dietary habits in this part of the country.
ABSTRACT 24
EFFECT OF WHEAT GRASS JUICE IN TERMINALY ILL CANCER PATIENTS – A TERTIARY CANCER CENTER EXPERIENCE FROM INDIA
Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India
e-mail: somashis@vsnl.net

Background: The solid content of juice made from wheat grass is 70% chlorophyll. Chlorophyll is often referred to as “The blood of plant life” and has almost the same chemical structure as haemoglobin. Chlorophyll cleanses the blood by improving the supply of oxygen to the circulatory system. Wheat grass is also a complete protein with about 30 enzymes, vitamins & minerals. Wheat grass juice has been proven over many years to benefit people in numerous ways, cleansing the lymph system, building the blood, restoring balance in the body, removing toxic metals from the cells, nourishing the liver & kidneys and restoring vitality.

Methods: During the period from January 2003 to December 2003, we selected 200 consecutive cancer patients in the palliative care unit of Netaji Subhash Chandra Bose Cancer Research Institute to see the effect of wheat grass on improvement of haemoglobin level & performance status in terminally ill cancer patients. We cultivated wheat grass in our campus. When the grasses were 5 days old, we took the fresh leaves including roots and made fresh juice out of that and gave 2 table spoons of juice to all of the patients, daily, for 3 months.

Results: The mean levels of haemoglobin, white blood cell count and platelet count, Serum total protein & albumin levels were 8gm%, 400/cumm, 1.2 Lakh / cu mm, 5.4gm%, and 2.2gm%. respectively. 38 patients required transfusion support and those patients were excluded from the study. The remaining 162 patients were evaluated 3 months after giving wheat grass juice. The mean values for haemoglobin, total protein & albumin improved significantly (pvalue < .005) and were observed to be a mean of 9.6gm%, 7.4gm% and 3.1gm% respectively. The white blood cell and platelet count did not change. The performance status was improved from 50 to 70% (Karnofsky) after wheat grass treatment.

Conclusion: We concluded that wheat grass juice is an effective alternative to blood transfusion and should be considered as ‘blood of the plant’. Its use in terminally ill cancer patients should be encouraged.

ABSTRACT 25
PRELIMINARY RESULTS OF A MULTIDISCIPLINARY CLINICO-PATHOLOGICAL CHARACTERIZATION OF CONSECUTIVE CARCINOMA OF THE CERVIX UTERI PATIENTS IN ZARIA, NIGERIA
Adewuyi S. A. 1, Shittu S. O. 2, Rafindadi A. H. 3
(1) Radiotherapy and Oncology Center; (2) Department of Obstetrics and Gynaecology and (3) Pathology Department, Ahmadu Bello University Teaching Hospital (ABUTH), Zaria – Nigeria
e-mail: sadewuyi2003@yahoo.com

Purpose of Study: To investigate the clinical and pathological characteristics of Cervical Cancers seen in the Radiotherapy and Oncology Center, ABUTH, Zaria - Nigeria

Methods: A 3-year prospective, non-randomized study of 70 patients fulfilling the study criteria in consecutive order of presentation was conducted irrespective of age, performance status and clinical stage of the disease. Patients were treated with Surgery, Radiotherapy, and Chemotherapy depending on the stage of disease and the performance status. The choice of chemotherapy was a Cisplatin based regimen.
**Results:** There were a total of 70 patients with an overall age range of 30-75 years and a mean age of 49.31 years. The age range for HIV positive patients was 30-35 years, with a mean age of 31.67 years and that of HIV negative patients was 32-75 years with a mean age of 50.33 years. 85.71% of patients (60) became sexually active before the age of 17 years. 31.4% (22) had a past medical history of PID, STDs and /or D&C prior to presentation and 78.57% (55) had PV discharges, being malodorous in 42.85% (30). 32.8% (23) presented with symptoms for 6 months or less duration. Of the 33 patients screened for HIV infection, only 9.09% (3) were seropositive and presented with advanced disease (1 each with stages IIIB, IVA and IVB). 71.4% (50) had a bulky cervical mass of greater than 5 cm by ultrasound measurements in at least one dimension. The majority of patients, 65.7% (46) presented with at least stage IIIA disease, only 7.1% (5) had stage IB. The histologic types seen were SCC accounting for 90% (63); Adenocarcinoma 8.6% (6); and Adenosquamous 1.4% (1). 94.3% (66) had teletherapy; 35.7% (25) had brachytherapy, 10% (7) had surgery and only 10% (7) had chemotherapy. The post treatment Pap smear report was negative for malignant cells in 65.71% (46); and positive for malignant cells in 20% (14) (not done in 14.29% (10)). Overall, 57.14% (40) are alive, 11.43% (8) had died and 31.43% (22) were lost to follow up.

**Conclusion:** The results revealed that most of the patients were sexually active before the age of 17 years, a pattern of late presentation, predominantly locally advanced disease and a younger age group in patients with HIV infection. The predominant histological type is SCC. A significant number of patients was lost to follow up.

**ABSTRACT 26**

**A PILOT MULTIDISCIPLINARY CLINICO-PATHOLOGICAL CHARACTERIZATION OF BREAST CANCER IN NORTHERN NIGERIA: A 2-YEAR REPORT FROM ZARIA RADIOThERAPY & ONCOLOGY CENTER**

Adewuyi S. A., Sabo S. Y., Mohammed A.

(1) Radiotherapy and Oncology Center;
(2) Surgery Department and
(3) Pathology Department, Ahmadu Bello University Teaching Hospital (ABUTH), Zaria – Nigeria

e-mail: sadewuyi2003@yahoo.com

**Purpose of study:** To investigate the characteristics and peculiarities, if any, of breast cancer seen in the Radiotherapy and Oncology Center, ABUTH, Zaria - Nigeria

**Methods:** 35 patients fulfilling the study criteria were evaluated in consecutive order of presentation irrespective of age, performance status and clinical stage of the disease. Patients were treated with Surgery, Radiotherap y, Chemotherapy and Hormonal therapy depending on the stage of disease and the performance status. The choice of chemotherapy was an Anthracycline based FAC regimen.

**Results:** There were 33 females and 2 males with an age range of 24 - 64 years (Mean 40.86 yrs). 71.43% (25) were aged 30 - 49 years and 22.86% (8) were 50 years and above. The average age of menarche was 13.55 years. The mean age of first full-term pregnancy was 22.39 years and the average number of children per patient was 3.94. All the patients with children (30) breastfed their babies for at least 18 months. 79% (26) of the patients were premenopausal and 21% (7) were postmenopausal and the average age of attaining menopause was 48.71 years. Twelve percent (4) of the women used Injectable contraceptives and 9.1% (3) used Oral contraceptives. 68.57% (24) of the patients were obese with a Body Mass Index (BMI) >25 kg/m2. Only 8.57% (3) of the patients had a family history of breast cancer and 42.86% (15) had a past medical history of breast lump/abscess or mastitis. 54.3% (19) of cases involved the left breast and 45.7% (16) affected the right breast. The histologic types seen were: Intraductal carcinoma 2.9% (1), Lobular carcinoma in situ 2.9% (1), Invasive Ductal carcinoma 68.6% (24), Invasive Ductal carcinoma NOS 17.1% (6), and Invasive Lobular carcinoma 8.6% (3). Only 14.3% (5) presented with stages IIA & IIB; stage IIIA 11.4% (4), stage IIIB 34.3% (12) and stage IV 40%
(14). 37.14% (13) of patients had symptoms of distant metastases and 62.86% (22) had only local symptoms at presentation. The commonest site of distant metastases was the Lungs 50% (7). The overall 2-year survival was 71.43% (25); the 2-year survival for stage IV disease was 35.7% (5).

**Conclusion:** The results revealed in comparison with the literature, relatively younger women with early menarche, mostly premenopausal and locally advanced and metastatic disease as the predominant mode of presentation. The survival was poor. Prognostic indices like Progesterone and Estrogens receptors and other tumour oncogens could not be assessed due to non-availability of facilities for assessing them.

**ABSTRACT 27**

**CURRENT MANAGEMENT OF WILM’S TUMORS IN HCMC, VIETNAM (PRELIMINARY REPORT)**

Khuong C. Tran, Khai D. Truong, Quang T. Tran
HCMC Children Hospital & Cancer Center, Ho Chi Minh City, Vietnam
e-mail: khuong-tran@hcm.vnn.vn

**Introduction:** Wilm’s tumor - the 7th most common of all childhood cancers - represents a challenge for multi-modal treatment of pediatric solid malignancies in HCMC. Surgery remains the cornerstone of therapy in VN in the past 2 decades. Radical nephrectomy is employed to remove the affected kidney. Adjuvant chemotherapy was attempted by some pediatric surgeons without consensus. The treatment outcome was incompletely recognized. Since 2000 we started carrying out the NWTS protocol in an interhospital study (Children Hospital & Cancer Center of HCMC). This preliminary report emphasizes the benefit and the feasibility of multidisciplinary treatment in pediatric WT management in VN.

**Objectives:** This survey was to give an overview of the clinical aspects of WT in HCMC and to access the preliminary results of using the NWTS-5 treatment protocol in Viet Nam.

**Patients and Methods:** Newly diagnosed Wilms’ tumors in children younger than 15 y.o were observed and histologically identified in 2000 – 2004 in HCMC Children Hospital and Cancer Center
- Retrospective and prospective, open study
- The diagnosis was based on clinical presentation, abdominal ultrasonography and CT scan, chest XR (PA/ lateral)
- Regarding the clinical stage, we adopted the NWTS 3-4 staging system.
The NWTS-5 treatment protocol has been used:

**Favorable Histology**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Treatment</th>
<th>Duration</th>
<th>Radiotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>I – II</td>
<td>ACD/ VCR</td>
<td>x 18 weeks</td>
<td>No XRT</td>
</tr>
<tr>
<td>III</td>
<td>ACD/ VCR/ DOX</td>
<td>x 24 weeks</td>
<td>XRT to flank</td>
</tr>
<tr>
<td>IV</td>
<td>ACD/ VCR/ DOX</td>
<td>x 24 weeks</td>
<td>XRT to flank and to metastatic sites</td>
</tr>
</tbody>
</table>

**Anaplastic Histology**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Treatment</th>
<th>Duration</th>
<th>Radiotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>ACD/ VCR</td>
<td>x 18 weeks</td>
<td>No XRT</td>
</tr>
<tr>
<td>II – IV</td>
<td>VCR/ DOX/ CPM/ VP</td>
<td>-16 for 24 weeks</td>
<td>XRT to flank and to metastatic sites</td>
</tr>
</tbody>
</table>

- Assessment of the primary response, EFS, survival, toxicity and tolerability (NCI guidelines)

**Results:** 62 WT were enrolled among 80 primary renal tumors of childhood.
- 73% were diagnosed at 1-5 yo. The median age was 35 months. The boy/girl ratio: 1.28/ 1.0
- Clinical features: asymptomatic abdominal mass (82.5%), hematuria (16.3%), fever (12.5%)
- Pathology patterns: Favorable Histology WT 54/62 (87%), Anaplastic WT 8/62 (13%)
- Staging: Stage I-II (46%), Stage III-IV (49%), Stage V (04%).
- Initial surgery: radical nephrectomy 56/62 (90%), open biopsy 06/62 (10%)
Chemotherapy: adjuvant CT 45/48 (94%), preop and postop. CT 03/48 (06%). No chemotherapy or incomplete CT 14/62 (22%).

- Hematological toxicities: G.3/4 Neutropenia (30%), G2/3 Anemia (4,7%), Neutropenic fever (4%). Other adverse events were not significantly remarkable.
- Surveillance: 06.2% relapsed within 6 – 12 months 78.7% 3-5 y EFS; 50% 5y.survival.

Conclusion: Wilm’s tumor is the most frequent primary renal tumor of childhood in HCMC, VN. 73% cases occur at the age < 5 years; 50% present with advanced stage at diagnosis. 87% of cases are FHWT. NWTS treatment protocol is the best choice which can be applied in HCMC, VN because of its safety, its low cost, efficiency and feasibility in our present facilities of therapy. 3-5y EFS was 78% and 5 y. overall survival was 50%. This is only a preliminary report. Our interhospital study continues...

ABSTRACT 28

NON HODGKIN’S LYMPHOMA IN CHILDREN - PROGNOSTIC FACTORS AND SURVIVAL
Quintero M., Vizcaino M., Terselich G., Rengifo L., Quintero C.
Instituto Nacional de Cancerologia, Santa Fe de Bogota, Colombia
e-mail: mquintero@telesat.com.co

Background: Non Hodgkin’s Lymphoma (NHL) is a heterogeneous group that represents approximately 60% of lymphomas in children. Our purpose was to determine prognostic factors that influence overall survival, event free survival and disease free survival, in children with NHL.

Patients and Methods: A retrospective review of clinical records of children under 15 years of age with newly diagnosed NHL between January 1982 and December 2001 was done. Two hundred and ten patients were eligible. Disease staging was performed according to the St. Jude staging system and treatment was assigned according to the best current therapy available in our center. Statistical analysis was done using the SAS package. Overall survival was calculated from diagnosis until death or the end of the study. Event-free survival was calculated from diagnosis until the first event (relapse or death from any cause related to disease). Disease free survival was calculated from the date of remission until relapse. Survival was calculated using the Kaplan Meier method. Survival curves were compared using the Wilcoxon test. Multivariate analysis was performed using the Cox regression model to determine the simultaneous influence of covariates on survival.

Results: The median age of the 210 patients (147 boys, 63 girls) was 6 years (range 1-14). The most frequent primary site (53.8%) was abdomen (n=113), advanced stages (III and IV) were 77.7% (n=163), initial central nervous system involvement was present in 6.2% (n=13). Complete remission was achieved in 71.9% (n=151) and 19.1% of the patients (n=22) relapsed. 26.6% (n=56) of patients were lost to follow up. With a median follow-up of 560 days, for the whole group of patients, the estimated 4 year probability for overall survival (OS) was 0.67% (95% CI 0.60-0.74). Event free survival (EFS) was 0.61% (95% CI 0.56-0.70) at 5 years, and disease free survival (DFS) was 0.84% (95%CI 0.71-0.86) at 3 years. Variables with significant predictive effect on event-free survival in univariate analysis included tumor stage (p=0.010), lactate dehydrogenase > 500 (p=0.0034), uric acid > 7.0 (p=0.0001), central nervous system involvement (p=0.034), chemotherapy protocol (p=0.007) and achievement of complete remission (p=0.001). In multivariate analysis, only uric acid > 7.0 (HR 1.85, 95% CI 1.112-3.077), central nervous system involvement (HR 2.50, 95% CI 1.059-5.942) and achievement of complete remission (HR 0.05, 95% CI 0.029-0.099) were considered independent predictors of event-free survival.

For overall survival, variables with a significant predictive effect included tumor stage (p=0.017), central nervous system involvement (p=0.046), uric acid>7.0 (p=0.0002), lactate dehydrogenase>500 (p=0.0069), chemotherapy protocol (p=0.0013), radiotherapy (p=0.020), and complete remission (p=0.0001). In multivariate analysis only uric acid > 7.0 (HR 2.99, 95% CI 1.439-6.216), central nervous system involvement (HR 4.05, 95% CI 1.349-12.203) and complete remission (HR 0.018, 95% CI 0.007-0.047) were considered inde-
ependent predictors of overall survival. Variables with a significant predictive effect on disease free survival included tumor stage (p:0.0049), central nervous system involvement (p:0.0001) and type of surgery (p:0.034). In multivariate analysis, only central nervous system involvement (HR 11.34, 95% IC 3.472-37.063) and type of surgery (HR 0.292 95% IC 0.102-0.831) were considered independent predictors of disease free survival.

Conclusion: This study confirms the importance of uric acid and central nervous system involvement as prognostic factors in the outcome of children with NHL.

ABSTRACT 29

A RETROSPECTIVE REVIEW OF NASOPHARYNGEAL CARCINOMA AT B.P. KOIRALA MEMORIAL CANCER HOSPITAL, BHARATPUR, NEPAL

Hemendra Mod *, Gisup.Prasiko**, Anjani Kumar Jha ***, P.P.Chaurasia+, Mr. Raju Srivastava+, Radiation Oncologist *, **Senior Consultant and Head of Department, * Junior Consultant, and Senior Physicists, Department Of Radiation Oncology, B.P.Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal

e-mail: h_mod@rediffmail.com

Purpose: We conducted this retrospective study at B.P.Koirala Memorial Cancer Hospital, Bharatpur, Nepal to analyze the common presenting symptoms, demographics, age and stage of patients with carcinoma of the nasopharynx at the time of diagnosis and the treatment received.

Methods: Records of 80 diagnosed cases of carcinoma of the nasopharynx from 35 districts of Nepal and neighboring state of India attending the tertiary care centre - B.P.Koirala Memorial Cancer Hospital were reviewed from June 1999 to June 2005.

Results: More than 60% of the patients were males; the male to female was nearly 2:1. The minimum age was 13 years and the maximum age was 76 years with more than 60 % of the patients being above 40 years. More than 70 % of the patients presented with a neck swelling, the majority presenting in late stages (stage III and IV). The commonest histology was squamous cell carcinoma (43 %) with the next common being poorly differentiated carcinoma (33.75 %). Almost all the patients received concurrent chemo-irradiation with or without neo-adjuvant chemotherapy. Out of the patients who came for follow up, more than 50 % had residual or recurrent nodal disease. Majority of the patients were from the eastern or south eastern parts of Nepal suggesting demographic prevalence in those regions.

Conclusion: In a developing country like Nepal, there are limitations in early diagnosis, treatment facilities/ options and follow up due to illiteracy and financial constraints. In spite of the limitations of this study; a delay between the onset of symptoms and presentation to the hospital was seen; accounting for the majority of patients presenting in late stages. Awareness about the common presenting symptoms thereby leading to early diagnosis must be increased, which will help in achieving a better outcome in the management of carcinoma of the nasopharynx. Combined modality management must be considered for better survival.

Key words: Carcinoma Nasopharynx, Neo-adjuvant Chemotherapy, Concurrent Chemo-Irradiation
ABSTRACT 30

EFFICACY OF TICARCILLIN CLAVULINIC ACID AND AMIKACIN AS FIRST LINE ANTIBIOTICS IN THE EMPIRIC MANAGEMENT OF FEBRILE NEUTROPNENIA IN CHILDREN

Anupama Borker, Indumati Ambulkar, Gayatri Parchure, Gopal R., Advani S. H.
Department of Medical and Pediatric Oncology, Jaslok Hospital and Research Center, Mumbai, India

e-mail: anupamasb@hotmail.com

Introduction: Ticarcillin, clavulinic acid and amikacin is one of the recommended antibiotic combinations for empiric management of patients with febrile neutropenia.

Methods: We evaluated the efficacy of ticarcillin, clavulinic acid and amikacin as first line antibiotics in pediatric patients with febrile neutropenia.

Results: Seventy two episodes of febrile neutropenia in 29 pediatric patients from July 2003 to March 2005 were treated with this combination. There were 17 males and 12 females with a median age of 12 years (range 2 –18 years). Twenty five patients had hemato-lymphoid malignancies and only 4 patients had solid tumours. The average ANC was 24 /cmm (range 0-460). All patients had high risk neutropenia and received ticarcillin, clavulinic acid and amikacin at a dose of 300 mg/kg/day in 4 divided doses and 20 mg/kg/day in 2 divided doses respectively. Clinical response to ticarcillin, clavulinic acid and amikacin was obtained in 37 of 72 episodes (51%). Vancomycin was added in 9 episodes for suspected central line infection. Second line antibiotics were started in 35 episodes and empiric antifungal treatment in 26 episodes. Positive cultures were documented in 20 episodes (7 blood cultures, 9 stool cultures, 2 ear swabs, 1 respiratory secretions and 1 central line tip). The organisms isolated were Klebsiella pneumonia (7), Pseudomonas aeruginosa (4), Staphylococcus aureus (4), Escheria coli (3), Proteus mirabilis (1) and Shigella species (1). Clinically documented infections were present in 30 episodes (20 colitis, 4 pneumonitis, 3 otitis, 2 central line infection and 1 herpes zoster)

Conclusion: Ticarcillin, clavulinic acid and amikacin is a combination with limited efficacy for the empiric management of patients with febrile neutropenia.

ABSTRACT 31

A SURVEY OF PATIENTS ELECTING A POPULAR ALTERNATIVE THERAPY ‘HUMA’ FOR CANCER TREATMENT

Sanjoy Kumar Pal 1, S Hina Fatima 2
Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Raebareli Road, Lucknow UP 226014, India 1; Huma Cancer Society, Ganj Plaza, Hazratganj, Lucknow, India 2

e-mail: e-mail: sanjoypal@yahoo.com

Background and Aims: Cancer patients throughout the world resort to complementary and alternative medicine (CAM) when the best of conventional medicine fails to provide relief. CAM has become an important feature of modern Oncology. Many CAM modalities like acupuncture, hypnosis, relaxation therapy and massage, Traditional Chinese Medicine and Ayurveda are now integrated with conventional care for cancer management in Western countries. However, very little is known about the use of various CAM in Indian patients. The present investigation was undertaken to know about the various factors that compelled cancer patients to try a poly herbal alternative cancer therapy, ‘HUMA’ in Lucknow.

Patients and Methods: A total of 164 cancer patients (100 men and 64 women ranging from 13 to 87 years, mean age 52.03 + 15.57 years) and/or their care givers were interviewed. The aim of the interview was to record the feelings of the patients that compelled them to venture for this alternative therapy.
Results: All the patients who were interviewed received information about HUMA either from friends/relatives or read an article on HUMA in the newspaper/magazines. Sixty-five (39.6%) patients were 60 years or more. The results of the interview were as follows: 45 (27.4%) of patients wanted to try HUMA because of financial constraints; in 32 (19.5%) conventional treatment had failed; 30 (18.2%) patients felt that they were too old to tolerate conventional therapy; 21 (12.8%) had faith that they would be cured with this therapy; 15 (9.1%) wanted to try HUMA along with conventional therapy; 11 (6.7%) did not get an immediate date for radiotherapy and 10 (6%) wanted to try this therapy for tertiary chemoprevention. Ten patients (66.6%) who wanted to try HUMA along with conventional therapy did not like to inform their Oncologist about it.

Conclusion: Indian cancer patients are faced with multiple problems that compel them to venture into various alternative therapies. Proper scientific evaluation of various popular CAM practiced in India should be taken up so that any effective CAM modality could be integrated with conventional cancer care.

ABSTRACT 32

TO STUDY THE EFFECT OF A POLY HERBAL MEDICINE ‘HUMA’ IN 25 PATIENTS SUFFERING FROM ORAL MALIGNANCY

Hina Fatima S., Nikhil Moor Chung, Sanjoy Kumar Pal
Huma Cancer Society, Ganj Plaza, Hazratganj, Lucknow, India; Department of Pathology and Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, India

e-mail: humacancer@satyam.net.in

Background and Aims: Oral cancer is one of the main health burdens in India and constitutes nearly a third of all cancers. This cancer is caused mainly by the extensive use of smokeless tobacco (Guthka, Zarda etc), followed by smoking tobacco in various forms. Due to lack of awareness, lack of early cancer screening programs and complex socio economics, around 80% of cancer patients in our country have late stage incurable disease when first diagnosed. Patients with advanced malignant disease all over the world and in India try various complementary and alternative medicines for treatment and palliation. The present investigation was taken to study the effect of a popular alternative cancer therapy, ‘HUMA’ in patients suffering from oral malignancy.

Patients and Methods: A poly herbal medicine ‘HUMA’ was orally administrated to 25 patients suffering from oral cancer. In these patients, conventional treatment could not be initiated because of financial problems. Fifteen (60%) patients presented with a T4, 7 (28%) patients with T3 and 3 (12%) with T2 tumors respectively.

Results: Complete regression of the tumor/lesion was observed in 4 (16%) and marked remission in 8 (32%) patients respectively. No adverse effects of this alternative, therapy were observed in any of these patients. One patient has so far completed 5 years’ disease free survival. Five patients relapsed after stopping therapy. In 13 (52%) patients, the poly herbal medicine was not very effective.

Conclusion: The results of the present investigation suggest that ‘HUMA’ was effective in causing regression of oral carcinoma. As none of the patients received any conventional therapy, we believe that the marked tumor regression observed in 11 (44%) patients may be because of the poly herbal formulation. Proper evaluation of this alternative cancer therapy is thus required.
ABSTRACT 33

POPULATION BASED CANCER REGISTRY IN CANTHO DURING 4 YEARS FROM 2001 TO 2004
Huynh Quyet Thang et al
Cantho General Hospital, Cantho, Vietnam

e-mail: thanghuynphd@yahoo.com

Background: Cancer is one of the most devastating diseases not only in developed countries but has also become an important health problem in developing countries. As in every country worldwide, in Viet Nam, cancer registry is the unique source supplying data for evaluating the cancer burden in order to establish the strategy for cancer control and management.

Purpose of study: We carried out a study of the first population based cancer registry of Can Tho city during 4 years from 2001 to 2004 in order to participate in the national cancer registry and control programme; to present the characteristics of malignant diseases typical of the Mekong Delta river region and to establish a strategy of cancer control and management for the city of Can Tho.

Materials and Methods: 6774 cases of cancer were registered during the 4 year period, among which, there were 3155 males (46.5%) and 3619 females (53.5%). Information on each case was registered on to a registration form. Data from Can Tho’s patients, collected from 18 hospitals and health care centers in Cantho city and 12 hospitals in HCM city, were analysed using the soft ware of CANREG version 3. The CR (Crude Rate) and ASR (Age Standardized Rate) of cancers as well as of each kind of the most common cancers was evaluated in order to describe the epidemiological situation of malignant diseases of the region.

Results: The cancer crude incidence (CR) for both sexes was: 91/100000; males: 86.5/100000 and females: 95.5/100000. For both sexes, the 10 most common cancers were: liver, colorectum, stomach, lung, breast, cervix uteri, leukemia, skin, non-Hodgkin’s lymphoma (NHL) and ovary. Among male patients: Liver (ASR: 26.7); Stomach (ASR: 18.8); Lung (ASR:16.2); Colorectum (ASR:15.2); Skin (ASR: 5.2); NHL (ASR: 4.6); Leukemia (ASR: 4); NPC (3.8); Bladder (ASR: 3.6) and Pancreas (ASR: 3.1). Among female patients: Cervix uteri (ASR: 20.3); Breast (ASR: 19); Colorectum (ASR: 10.9), Lung (ASR: 8); Liver (ASR: 7.7), Stomach (ASR: 6.7), Ovary (ASR: 6.4); Leukemia (ASR: 4.5); LNH (ASR: 3.8) and Thyroid (ASR: 3.5). These statistics weren’t different from the data of surrounding countries such as Thailand, China and the countries of South-Eastern Asia.

Conclusion: The results of the study show that the characteristics of Cantho cancer incidence to be:
1. The most common cancers for both sexes were: Liver, colorectum, stomach, lung, breast, cervix uteri, leukemia, skin, NHL and ovary.
2. A predominance of liver, stomach, lung cancers followed by colorectal and skin cancer, was also remarkable among male patients
3. The predominance of cervix uteri, breast, and colorectal cancers was followed by an abundance of lung and liver cancers in female patients.
These are useful data for participating in the programme of National Cancer Control and for setting a strategy of cancer control and management in Cantho City.
ABSTRACT 34

HIGH SURVIVAL RATES IN RHABDOMYOSARCOMA: A SINGLE INSTITUTION’S RESULTS
Olgun N., Uysal K., Gunes D., Cetingoz R., Cakmakci H., Olguner M., Ozer E., Sarialioglu F.
Dokuz Eylul University, Institute of Oncology, Izmir, Turkey

e-mail: kamer.uysal@deu.edu.tr

Background: We aimed to present our treatment results in rhabdomyosarcoma (RMS) for patients who had been managed by the Pediatric Tumor Board in our institution.

Patients and Methods: Children with RMS whose diagnosis, treatment and follow up were carried out in our institution were included in the analysis. The hospital records of children were analyzed retrospectively for statistical and survival analyses.

Results: There were 16 patients (9 boys, 7 girls) with RMS who had been diagnosed and treated between 01.01.1988 and 31.12.2004 in our center. The median age was 66 (13-204) months. The primary tumor localization was head and neck in 9 (7 parameningeal, 1 orbit, 1 cheek); genito-urinary in 5 (2 paratesticular, 1 prostate, 1 bladder, 1 pelvic); gluteal in 1 and paraspinalis in 1 patient. The tumor histology was embryonal RMS in 13 and alveolar RMS in 3 cases. According to the Intergroup Rhabdomyosarcoma Study – IRS staging system, one patient presented with stage I, 3 with stage II, 5 with stage III, and 2 with stage IV disease. In all cases, IRS-based treatment regimens were used. The majority of patients (11 children) received induction chemotherapy as initial treatment. Five patients underwent primary resection of tumor at the time of diagnosis (partial resection in 4 and complete resection in one). Fourteen patients received radiotherapy - to the primary tumor site in 11 cases, to both primary tumor and metastatic sites in 2, and to recurrent tumor in one patient. One child with resistant disease underwent secondary surgical excision and another patient with a parameningeal tumor underwent delayed surgery. Complete surgical resection was achieved in both of them. The median follow up was 50 (range 8-128) months. In this small group of patients, 3 and 5-year EFS were 78% and 75% respectively. Overall survival was 85% at 3 years and 81% at 5 years.

Conclusion: The intensive treatment regimens used in developed countries may not necessarily lead to the same superior results in the developing world, depending on a variety of factors. The number of patients in our centre is small, but it is noteworthy that we achieved a high survival rate using a very intensive regimen. A well-organized interdisciplinary team approach and availability of supportive care facilities are important factors which affect survival rates. In developing countries, referring all the pediatric cancer patients to centers where essential expertise and a multidisciplinary team approach is available should not be considered a ‘luxury’ because it is critical to save lives.

ABSTRACT 35

PEDIATRIC HODGKIN’S DISEASE: A SINGLE INSTITUTION’S EXPERIENCE
Sarialioglu F., Uysal K., Cecen E., Cetingoz R., Ozer E., Cakmakci H., Olguner M., Olgun N.
Dokuz Eylul University, Institute of Oncology, Izmir, Turkey

e-mail: kamer.uysal@deu.edu.tr

Background: There is limited data on the treatment results of pediatric Hodgkin’s disease (HD) from developing countries in the English literature. In Turkey, lymphomas are the second most common malignant disease following acute leukemia in children, however, they rank third in our region (Aegean) similar to the situation in western countries. The aim of this presentation is to give some epidemiologic features and treatment results of children with HD from a single center located in western Turkey.
Patients and Methods: Between January 1988 and December 2003, 44 patients with HD under the age of 18 years were evaluated in our center. Thirty-two of them were treated and followed up only at our institution and are the subject of this analysis. All the original histological slides were obtained and reviewed during admission. The hospital records were analyzed retrospectively for descriptive statistics and survival analysis.

Results: There were 22 boys and 10 girls (M / F: 2.2) with a median age of 12 (2.5 – 18) years. The disease stage at diagnosis was as follows: stage I in 7; stage II in 12; stage III in 10; and stage IV in 3 children. The major histological subtype was nodular sclerosis (n: 22) followed by mixed cellularity in 6, lymphocyte predominance in 3 and unclassified in 1 patient. All the patients received combination chemotherapy plus low-dose involved-field radiotherapy. The primary chemotherapy regimens used in these patients were OPPA or OEPA plus COPP in 12, ABVD in 9, COPP or MOPP plus ABVD in 6, and COPP or MOPP in 5 cases. The overall survival rate was 100%, and event-free survival rate, 77% at 5 years. No secondary malignancy has been observed so far.

Conclusion: Unfortunately, the number of patients is small because of the limitations of patient referral pathways. However, it is interesting that the major histological subtype of childhood HD in our centre is nodular sclerosis which is different from other parts of our country, as well as from the data reported from other developing countries. Epidemiologic features may show variations even within the same country depending on multiple factors. Using these therapeutic regimens, the overall survival rates are comparable with those in developed countries.

ABSTRACT 36

PERCEPTION OF SIDE EFFECTS OF CHEMOTHERAPY BY PATIENTS: A CHANGING SCENARIO IN THE 21ST CENTURY

Somani N. 1, Agarwal P. 1, Bapna A. 1, Maru A. 1, Sharma S. 2, Sharma H. 3, Gupta D. 4,
1 Department of Medical Oncology,
2 Department of Radiation Oncology,
3 Department of Blood Transfusion,
4 Department of Radio Imaging, Bhagwan Mahaveer Cancer Hospital & Research Centre, Jaipur, India

e-mail: drsomani@cancerindia.com

Background: Quality of life (QOL) issues are increasingly recognized as the number of newly diagnosed cancer patients increases & survival improves. Coasts et al in 1983, published a survey of patients’ perceptions of the side effects of chemotherapy & demonstrated the importance of patients’ feedback for correct assessment of QOL (European J Cancer Clinical Oncology 1983, 19: 203-208). We carried out a different survey in 110 cancer patients with the aim of documenting (i) Patients’ perception of side effects of chemotherapy with different regimens. (ii) How often they ask their doctor about combating side effects &/or ask to delay CT in a potentially curative situation.

Materials and Methods: 110 patients attending the Out-patients/Inpatients of the Department of Medical Oncology of Bhagwan Mahaveer Cancer Hospital & Research Centre, Jaipur were interviewed between April 04 and February 05 by trained non-medical interviewers who were blinded to the patients’ chemotherapy. Concurrent Radio-Chemotherapy patients were excluded. The interview was done twice i.e. before the 4th cycle & 6th cycle of CT. Side effects were divided into two groups - Physical (Group A) consisted of a set of 38 cards & Non-Physical side effects (Group B) consisted of a set of 24 cards. Group C consisted of 2 cards, mentioning Yes or No, about the question - Did patients ask the physician to combat the side effects of CT before starting treatment? Group D again consisted of Yes or No in response to the question - Did patients ask to delay CT in “potentially curative” and “long term control” types of cancer when grade III/IV side effects were there? Group E consisted of 8 cards showing various common side effects which forced patients to request to delay CT. The first 10 side effects in the physical & non-physical groups were ranked in order of severity. Results were analyzed for the entire cohort & for type of malignancy, CT protocol / drugs, social & clinical subgroups.
**Results:** Male : Female ratio was 59 : 51; the most common malignancies were breast (33), NSCLC (31), ovary (16), GIT (16), others (14). The average no. of cards selected in the physical group was 7 (0-20), and in the non-physical group 5 (0-15). Feeling constantly tired, constipation, mucositis, nausea and fever were the most common physical symptoms according to severity, while length of time of treatment, depression, ‘the effect on my family’ & having to wait for a long time in hospital OPD were most common in the non-physical group. Only 18/110 (16.36%) patients asked about how to combat side effects before starting treatment, while 63/110 (57.27%) requested to delay CT due to grade III/IV side effects. These results are in contrast to those of Coates et al & the first of their kind in India.

**Conclusion:** The perception of side effects of CT is changing. In this study, feeling constantly tired, constipation, mucositis, nausea, fever were the predominant physical problems and length of time of treatment, depression, the effect on the family & waiting for a long time in hospital OPD were common non-physical side effects, in contrast to vomiting, nausea and negative reactions to treatment in the original survey. These findings are consistent with progress made in reducing certain CT induced toxicities. Many of these side effects are correctable to optimize QOL & we need to develop effective psychosocial support systems & re-organize hospital services.

**Key Words:** Perception, Side Effects, Chemotherapy

---

**ABSTRACT 37**

**SPECTRUM OF CHILDHOOD MALIGNANCIES IN ENUGU, NIGERIA (1999-2004)**

Ocheni S. 1, Okafor C.O. 2, Emodiij 3, Ibegbulam O.G. 1, Olusina D.B. 1, Nnakenyi E.F 2.
Departments of 1) Haematology & Immunology, 2) Morbid Anatomy and 3) Paediatrics, University of Nigeria Teaching Hospital (UNTH) Enugu Nigeria

e-mail: kcjsocheni@yahoo.com

**Purpose of the Study:** To determine the current pattern of childhood malignancies at the UNTH Enugu, Nigeria and to compare the findings with previous studies from the same Center.

**Materials and Methods:** A retrospective analysis of childhood malignancies in Enugu, Nigeria was carried out from data obtained from the Cancer Registry of the UNTH Enugu, Nigeria between 1st January, 1999 and 30th June 2004.

**Results:** A total of 78 children aged 15 years and below with various malignancies were found. There were 46 males and 32 females giving a male to female ratio of 1.4:1. The three commonest malignancies were lymphomas (38.5%), sarcomas(19.2%) and nephroblastomas (15.4%). The less common tumors seen were leukaemias (9.0%), retinoblastomas (7.7%), and neuroblastomas (5.1%). Others were carcinomas (2.6%), yolk sac tumors (1.3%) and teratomas(1.3%). Burkitt’s lymphomas constituted 63.3% of all the lymphomas seen while Kaposi’s sarcoma constituted 6.7% of all the sarcomas seen. Compared with two previous studies from the same Center, 1978-1982 and 1989-1998, lymphomas remain the commonest childhood malignancies seen in this environment. It is however noteworthy that Burkitt’s lymphoma has maintained a steady decline in frequency. There is a rising relative frequency in the occurrence of nephroblastomas, sarcomas, leukaemias and neuroblastomas.

**Conclusion:** Lymphomas remain the commonest childhood malignancy in this environment with a declining relative frequency of Burkitt’s lymphoma. Nephroblastomas, sarcomas, leukaemias and neuroblastomas have increased in frequency.
ABSTRACT 38

EPIDEMIOLOGY OF LUNG CANCER IN NORTH COASTAL ANDHRA PRADESH

Badrinath, G.,
King George Hospital, Visakhapatnam, Andhra Pradesh, India
and Research Scholar, Satyanarayana Gavarasana, Lions Cancer Treatment & Research Center,
Seethammadhara, Nepal, Visakhapatnam, Andhra Pradesh, India
e-mail: badri_mbbs@yahoo.com

Aims: Though Lung cancer is common, epidemiological studies were not previously undertaken in Andhra Pradesh. We analyzed data pertaining to patients with Lung cancer hailing from north coastal districts of Andhra Pradesh

Methods: A retrospective review of the case notes belonging to Lung cancer patients treated at the Lions Cancer Hospital, Visakhapatnam during the years 1998-99 was made.

Results: Total number of lung cancer patients = 66. Males = 60 (90.6%) and females = 6 (9.1%). Age groups: > 64 years of age = 11 (16.66%); 55-64 years = 28 (42.42%); 45-54 years = 15 (22.72%); 35-44 years = 9 (13.1%) 25-34 years = 2 (3.02%), < 24 years = one (1.51%).
43 patients (65.15%) were smokers; 23 (34.84%) were non-smokers; 42 (63.63%) were male smokers; 1 patient (1.51%) was a female smoker. 18 (27.27%) were male non-smokers; 5 (7.57%) were female non-smokers.
Out of 43 patients who smoked, 29 (67.44%) were cigarette smokers, 9 (20.93%) beedi smokers, 5 (11.62%) chutta smokers. Out of 66 patients studied 20 (30.30%) were from middle class, 20 (30.30%) were poor; 17 (25.75%) were below the poverty line; and 9 (13.63%) patients were rich.
Out of 66 patients treated, 53 patients (80.30%) received Radiotherapy treatment. 47 (71.21%) received chemotherapy; 37 (56.06%) received both chemotherapy and radiotherapy; 3 (4.5%) received chemotherapy, radiotherapy and surgery.
Out of 66 cases studied 59 patients (80.30%) had 1 year follow-up; 6 patients had 2 year follow-up, 2 had 3 year follow-up; 7 % were lost to follow-up.
Out of 66 patients treated, 45 (68.18%) were from Visakhapatnam district; 11 (16.60%) from Vijayanagaram district, 5 (7.57%) from Srikakulam districts and 5 patients (7.57%) from other districts of Andhra pradesh.

Conclusion: Men (n=60) 90.9%, 55-64 years old, hailing from north coastal Andhra Pradesh were affected with lung cancer. Male smokers (n=42) with lower economic status were predominantly affected. As lung cancer has become one of the most common cancers, population based measures of prevention of smoking should be undertaken.

ABSTRACT 39

RELAPSE IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA

Arya L. S., Padmanjali K. S., Sameer Bakhshi, Renu Saxena, Sudha Sazawal, Anshu Khattar, Bharagava M. *,
Vats T. S., Melissa Adde**, Ian Magrath**
Department of Pediatrics, Division of Pediatric Oncology, All India Institute of Medical Sciences, New Delhi, India
*INCTR, India, **INCTR, Brussels
e-mail: lsarya@rediffmail.com

Objectives: To study the relapse pattern of Indian children with acute lymphoblastic leukemia (ALL) treated with a uniform therapeutic regimen and analyze the prognostic factors.

Materials and Methods: Retrospective analysis of 254 children less than 15 years of age with ALL treated with protocol MCP-841 from June 1992 to June 2002.
**Results:** After induction therapy, 223 (87.7%) patients achieved complete remission, of which 28 (11%) patients died during induction therapy, 3 were non-responders. Of the remaining 192 patients evaluated, relapses occurred in 40 (21%). The mean age of relapsed patients was 6.5 years (range 6 months to 12 years) and their male to female ratio was 9:1. There were 23 bone marrow (BM), 7 central nervous system (CNS), 2 testes, 5 BM + testes and one each of BM + CNS, CNS + testes and isolated relapse in the bone. Thirty-six patients relapsed while on treatment or within six months of stopping treatment and four patients relapsed six months after stopping the treatment. Bone marrow was the predominant site of relapse. All CNS relapses occurred within 12 months on therapy. Five of 8 testicular relapses occurred after stopping treatment. Patients were classified into early relapse and late relapses after 12 months.

**Conclusion:** Age, white count at presentation, and lymphadenopathy were the significant prognostic features for relapse. Age and WBC count at presentation were highly significant in the early relapses, while lymphadenopathy was a risk factor for all relapses. This study identifies high risk features and emphasizes the need for early intensification of chemotherapy in the Indian population.

**Key Messages:**
1. Relapse rate of children with ALL in our study was 21%.
2. Majority of patients relapsed during treatment or within six months of completing treatment.
3. All CNS relapses occurred on therapy while the majority of testicular relapses were late relapses.
4. Age, white count at presentation, and lymphadenopathy were prognostic features of significance for relapse.

**ABSTRACT 40**

**CERVICAL CANCER SCREENING PRACTICES AMONG GENERAL PRACTITIONERS IN LAGOS-NIGERIA**

*Anorlu R.I., *Rabiu K.A., **Adebajo S.B.*

*Department of Obstetrics & Gynaecology, Lagos University Teaching Hospital, Lagos, Nigeria*

**Department of Community Health, Lagos University Teaching Hospital, Lagos, Nigeria**

*e-mail: rianorlu4@yahoo.com*

**Background:** Cervical cancer is the commonest cancer in women in some parts of Nigeria and second to breast cancer in other parts of the country. In many developed countries, general practitioners have been instrumental in the fall in the incidence of cervical cancer. The objective of this study was to assess the cervical cancer screening practices of general practitioners in Lagos state, Nigeria.

**Methods:** Between 1st June 2004 and 31st August 2004 we studied the screening practices of general practitioners in three urban and two rural randomly selected local government areas of Lagos state, Nigeria, using self-administered questionnaires.

**Results:** Of the 540 doctors surveyed, data was complete in 503 (93.1%). Only 60 (11.9%) of the respondents ever counselled their patients to have cervical cancer screening and female general practitioners were more likely to counsel their patients than their male counterparts (Chi square = 4.74, p = 0.0011971). Only 89 (17.8%) of the respondents had facilities for Pap smear, and 27 (5.4%) actually screened their patients. 126 (25.0%) and 109 (21.7%) would do Pap smears for patients with post-coital bleeding and post menopausal bleeding respectively. Screening services were more available in the urban local government areas than in the rural local government areas (chi square = 60.5820, P value = 0.0000).

**Conclusion:** Very few general practitioners in Lagos screen their patients for cervical cancer. These doctors indeed need refresher courses on cervical cancer and should be encouraged to at least start opportunistic screening of their patients pending the establishment of a national program.
ABSTRACT 41

THE PATTERN OF LYMPHOMAS AT THE UNIVERSITY COLLEGE HOSPITAL, IBADAN, NIGERIA - A 10 YEAR REVIEW

Raji A.A., Inyama M.*, Oluwasola A.O. ***, Olaniji J.A. *, Akang E.E. ** Aken’Ova Y. A.*
Department of Haematology, Ladoke Akintola University of Technology Teaching Hospital, Osogbo, Haematology* and Histopathology**, University College Hospital Ibadan, Nigeria

e-mail: niyiraji@yahoo.com

Introduction: The University College Hospital for many years was the only institution serving as a referral center for the country. The Cancer Registry in Ibadan served also as a reference point. However since many tertiary institutions began to emerge in the neighbouring cities around Ibadan, the pattern of the lymphomas changed. Okpala et al reported such a changing trend 15 years ago. The aim is therefore to review the recent pattern of lymphomas in Ibadan, Nigeria.

Materials and Methods: Records of lymphoma cases reported to the cancer registry at the University College Hospital, Ibadan were reviewed over a 10 year period (January 1993 to December 2003). The statistical analysis was done using SPSS 10 package.

Results: We reviewed 362 cases of lymphomas between January 1993 and December 2003 at the University College Hospital, Ibadan, Nigeria. Non-Hodgkin’s lymphoma was seen in 239 (66%), Hodgkin’s lymphoma in 53 (14.6%) and Burkitt’s lymphoma in 70 (19.3%) of the cases reviewed. There was an overall slight male preponderance (ratio 1.8:1) with a slightly lower ratio in the Burkitt’s group with a male to female ratio of 1.3:1. There was a decline in the number of Burkitt’s cases seen over the period when compared with a similar study done 15 years ago at the same center. Childhood lymphomas appear to be commoner constituting about 34% (123) compared with 28.4% (103) in the middle age group. Similar to other studies, non-Hodgkin’s lymphoma remains highest in the number of cases seen over the period.

Conclusion: Although the character of the diseases did not change appreciably over the period when compared to a previous study, the decline in the number of Burkitt’s cases could be attributed to the increase in number of tertiary hospitals in the neighbouring cities. We recommend that similar studies should be carried out in other centers for comparison.

ABSTRACT 42

PREVENTION OF HEPATITIS B VIRUS (HBV) INFECTION USING PASSIVE ACTIVE PROPHYLAXIS (PAP) IN CHILDREN AND ADULTS ON CHEMOTHERAPY FOR LYMPHOID MALIGNANCIES (LM)

Banavali S.D., Goyal L., Bhagwat R., Arora B., Kolhatkar B., Kelkar R., Pai S.K., Nair C.N., Kurkure P.A., Parikh P.M.
Tata Memorial Hospital, Mumbai, India

e-mail: banavali_2000@yahoo.com

Background: In developing countries, HBV infection is a major threat to patients undergoing cytotoxic chemotherapy (CT), especially for leukemia and lymphoma. In a recent study at this institution a seroconversion rate of 55% was noted among the long-term survivors of ALL (Med Ped Onc 2001; 37:275) and only active immunization had failed to prevent this (Leuk Res 1998; 22:193). The purpose of this study is to evaluate the efficacy of PAP in preventing HBV infection in patients with LM. The preliminary results of which are presented here.

Patients and Methods: Since June 2004, a total of 166 patients (male: female 120:46; median age 5.9 yrs; 151 ALL, 15 NHL), were screened for HBV. HBsAg and anti-HBs were positive prior to vaccination in 1 (0.6%) and 59 (35.5%) respectively. One hundred and five patients with negative serology received passive and/or active
immunization. Hyperimmune globulin (Inj Hepabig 0.06 cc/kg IM; max 3cc) was administered on days 0, 21, 42, 72, 102 and 132 during the intensive CT period (only 3 doses in NHL). They then received double-dose active vaccination (Inj Engerix B given on days 0, 30, 60 and 180, starting with the last dose of passive prophylaxis) during maintenance therapy. Patients who had already reached maintenance therapy when this study was started received only one or no dose of passive prophylaxis along with the 4 doses of active prophylaxis (AP). HBsAg was monitored with every CT cycle and anti-HBs was done after every 3 months.

**Results:** PAP was given in 92 patients and only active immunization in 13 (patients already on maintenance CT). Eighty one patients have completed prophylaxis with protective antibodies being noted in 35 (43 %); 24 are still undergoing prophylaxis in whom protective titers are already being seen in 5 (21 %). So far only one (0.9%) patient has become HBsAg positive during the study period.

**Conclusion:** Though the study is still ongoing, the preliminary data suggests that PAP is effective in preventing HBV infection. However, the best way to tackle the problem of HBV infection would be to include HBV vaccine as a part of a universal immunization policy also in developing countries.

**ABSTRACT 43**

**LAMIVUDINE FOR THE PREVENTION OF HEPATITIS B VIRUS (HBV) REACTIVATION IN PATIENTS UNDERGOING CHEMOTHERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL)**


Tata Memorial Hospital, Mumbai, India

e-mail: banavali_2000@yahoo.com

**Background:** HBV infection is a major problem in patients undergoing chemotherapy (CT) in developing countries with complications ranging from anicteric hepatitis to fulminant hepatic failure. Once reactivation of hepatitis occurs there is no effective treatment and interruptions in CT are common.

**Objectives:** 1) To study the efficacy of Lamivudine in prevention of HBV reactivation during CT. 2) To study the tolerance of Lamivudine in children with ALL.

**Results:** 32 patients with ALL between the ages 1.3 to 17 years were treated with Lamivudine in a dose of 3-4 mg/kg/day (maximum dose - 100 mg/day) for HBV exacerbation (after ruling out other etiologies) whilst on antineoplastic CT. HBV DNA was detected in 21 of the 22 cases in whom it was done, and HBeAg was positive in 23 out of 24 patients tested. The mean pretreatment SGOT was 159 U/l (range 37-3517) and SGPT was 386 U/l (range 44-3401). Further therapy without delays or flare up of HBV infection was possible in 25 patients. Ten (31%) patients were found to be HBsAg negative at last follow-up. Lamuvudine has been discontinued in 20 patients on completion of chemotherapy after average treatment duration of 18 months. There were no side effects noted due to Lamivudine

**Conclusion:** This data suggests the role of Lamivudine not only in preventing hepatitis B flare during antineoplastic therapy but also in eradicating it in a significant number of patients. The use of Lamivudine allows continuation of CT without delays in patients with hepatitis B reactivation improving the chances for good long term outcome. So far the data shows that Lamuvudine is safe and well tolerated in children.
ABSTRACT 44

CARCINOMA OF THE STOMACH - 9 YEAR EXPERIENCE AT A TERTIARY CARE HOSPITAL IN INDIA
Sambasivaiah K., Kumaraswamyreddy M., Gajanan Wagholikar, Ramasubbareddy P.V., Mohammad Ibrarullah, Sarma K.V.S.
Sri Venkateswara Institute of Medical Sciences, Tirupati, Andhrapradesh, India

e-mail: sambasvims@yahoo.co.in

Introduction: Carcinoma of the stomach is common in the southern states of India. We conducted a retrospective study with the aim to study epidemiology, clinical and survival patterns.

Methods: All carcinoma of the stomach patients treated at this hospital from Sep 1995 to Sep 2004 were included. Patients with other pathologies were excluded. Curative as well as palliative surgery was performed in suitable patients. Chemotherapy, which began 4 years back, was given either with palliative intent or as adjuvant therapy. Patients with locally advanced and metastatic disease, with poor PS and those who could not tolerate intravenous (i.v) combination chemotherapy were given oral etoposide at 50mg daily for 2 weeks, once every 28 days. Overall survival was computed from date of diagnosis to date of death or last follow up visit. Quality of Life (QOL) was assessed in the oral etoposide group.

Results: During the study period, 2,349 cancer patients were diagnosed. Out of these, 221 (9.4%) patients had carcinoma of the stomach. 20.8% were women and 79.2% were men. Forty-one (18.5%) had disease amenable to curative surgery, while 142 (64.3%) patients had locally advanced and metastatic disease. No data on stage was available in 17.2% of patients. One hundred forty (63.3%) were operated, out of these 38 resections were performed with curative intent.

Fifty patients with locally advanced and metastatic disease received chemotherapy. Twenty-three (46%) patients received i.v. combination chemotherapy and 27 (54%) received oral etoposide. The oral etoposide group were older than the i.v. group (57.5 vs 48 yrs, P=0.02). The median survival for the i.v group was 8.5 months and for the oral group it was 6.5 months (log rank test, P=0.36). Chemotherapy induced toxicities (grade 3 and above) were seen in the i.v group, these included mucositis (13%), colitis (13%) and neutropenic sepsis (13%). No toxicity was reported in the oral group. The QOL parameters such as sense of well being (91%), Appetite (91%), sleep (80%) and pain (83.3%) showed improvement in the oral etoposide group.

Conclusion: Oral etoposide is well tolerated by the elderly with advanced carcinoma of the stomach and results in comparable median survival to that seen with i.v. combination chemotherapy. Oral etoposide improves the QOL in these patients.

ABSTRACT 45

THE CONTENT OF CANCER CONTROL – A PERSPECTIVE FROM EASTERN INDIA
Sukanta Koner, Soumita Shome, Pinaki Gupta, Soma Mukhopadhyay, Ashis Mukhopadhyay
Netaji Subhas Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

Background: The Cancer burden in west Bengal is 5 lacs and there is an increment of 70,000 new cancer patients per year. The majority of the cancer in this part of the country is tobacco and diet related. It is estimated that, by proper preventive measures we can reduce the current level of increment of 70,000 to 15,000 annually by 2020. The aim of our state based, non-Governmental cancer control programme is to detect the risk factors for cancer and to reduce the cancer incidence.

Materials and Methods: During the period January 2002 – June 2005, we conducted a cancer screening and awareness programme in 18 districts of West Bengal once every month. The contents of our screening
programmes were: I. Preventative aspects: Tobacco Control and Dietary advice. II. Early diagnosis and therapy. We concentrated mainly on oral cancer (age > 20 years) by examining the oral cavity and taking a history of tobacco intake, breast cancer (age > 30 years) by self breast examination and cervical cancer (age > 40 years) by Pap Smear examination. Those cases that were detected, were sent to our hospital for planning of treatment and advanced cases were sent for Pain relief and palliative care at our Institution.

**Results:** We have screened a total of 120,000 people and picked up 9,600 (8%) cancer patients with different stages of disease. A total of 5,568 (58%) were female and 4,032 (42%) were male. 75% of cancer in men and 35% in women were tobacco-related, either smoking or chewing. In women, the incidence of cervical and breast cancer was 29.99% and 23.99% respectively. In men, Oral and Lung cancer incidence was 35.98% and 29.98% respectively. 65% of cancers were detected at an early stage and the rest (35%) were at an advanced stage.

**Conclusion:** More awareness is required in rural Bengal to reduce the number of advanced cases. Our programme for increase in awareness in the population continues.

**ABSTRACT 46**

**CERVICAL CANCER SCREENING PROGRAMME – AN EXPERIENCE FROM EASTERN INDIA**

Barman B., Sarkar R., Mandal A., Ghosh R., Kundu B., P.R. Gupta P.R., Mukhopadhay S., Mukhopadhay A.

Netaji Subhash Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: somashis@vsnl.net

**Background:** West Bengal is situated in the Eastern part of India and is underdeveloped in medical facilities. The total population of Bengal is 6 crores. A total of 70,000 new cancer patients are detected every year whereas the total number of cancer patients is about 5 lacs. Cervical cancer is the commonest cancer in females in rural Bengal; about 80% of them remain undetected. Even after detection, only 20% go for proper treatment. The aim of our study is to detect the incidence of Cervical Cancer, and its causative factors. We also intend to give proper awareness about the early signs of Cervical Cancers so that it can be detected earlier and possible to cure.

**Materials and Methods:** Once every month, we organise a separate Cervical Cancer screening program along with our whole cancer awareness and screening program run by Netaji Subhas Chandra Bose Cancer Research Institute, Kolkata, India. A team of 2 Gynaecologic Oncologists and 3 oncology Nurses maintain the Cervical Cancer screening program. During the period from Jan 2002 –June 2005, we screened 70 thousand females and a Pap smear was done for doubtful cases. Proper awareness about the signs of Cervical Cancer (foul Vaginal Discharge and pv bleeding) was given to them.

**Results:** A total of 1,670 patients (2.38%) were positive for Pap smear. Cervical cancer scored 29.99% of all female cancers. About 45% (751 patients) had clinical symptoms during screening, but the majority of patients were asymptomatic during screening.

**Conclusion:** The cervical cancer screening program were very useful. The majority of patients were asymptomatic and detected at an early stage and therefore cure was possible by appropriate treatment.
ABSTRACT 47

ANALYSIS OF THE IMMUNOPHENOTYPES OF DE NOVO ACUTE LYMPHOBLASTIC LEUKAEMIA (ALL) IN CHILDREN AND ADOLESCENTS OF THE INDIAN SUBCONTINENT IN RELATION TO CLINICAL SYMPTOMS AND LABORATORY TESTS, PRECEDING ITS DIAGNOSIS

Devarajan S., Chandra A., Rajalekshmi K.R., Sagar T.G.
Department of Medical Oncology, Cancer Institute (WIA), Chennai, India

e-mail: chennai_inctr0204@yahoo.com

Background: Studies from various countries have found an increasing incidence of childhood leukemia in recent decades. However, only a few examples exist in developing Asian countries of the value of determining the immunologic characteristics of patients with ALL.

Patients and Methods: In the period between January 1990 and December 2002, 395 Indian children and adolescents (aged 0-25 years) were studied in a prospective way and data analyzed from the Cancer Institute (WIA). The aim of the study was to compare the clinical picture and results of laboratory tests according to the ALL immunophenotype. Observation was carried out on 321 patients treated in the Department of Medical Oncology. Uniform treatment was given to all patients (except mature B cell type). Immunophenotypes were analysed by flow cytometry. Conventional immunological markers were used, either associated with or specific for B and T lineage.

Results: Five major immunologic subtypes were disclosed, showing a series of specific surface markers: T-cell, 42.7%; ‘common’, 31.5%; Pre-B, 7.8%; Precursor-B, 6.5%; B-cell, 1.9%. T-cell phenotype (42.7%) was the most frequently encountered followed by Common (‘CALLA-positive’) ALL (31.5%). Other interesting findings, currently of uncertain significance, include the sizeable proportions of pre-B-ALL (group V) and cortical thymocytic ALL (stage III). Although there was only slight predominance of male sex, the prevalence of B and T-ALL in males was not confirmed. Haemorrhagic diathesis, splenomegaly, mediastinal mass, enlargement of peripheral lymph nodes as well as higher values of white blood cell count, blast count, haemoglobin concentration, haematocrit and LDH activity were observed more frequently in patients with T-cell leukaemia. Multivariate analysis of these subtypes was not statistically significant.

Conclusion: Despite many years of meticulous immunophenotyping of childhood acute lymphoblastic leukaemia (ALL) cases, the prognostic significance of some subtypes remains unclear. These results show that the incidence of the different immunologic subtypes of lymphoblastic leukaemias and their distribution according to age and sex are not similar to those reported among Caucasians. The results of this study should help strengthen the emerging leukaemia database in India and thereby contribute to a successful global attack against the haematological malignancies.

ABSTRACT 48

IMPROVED OUTCOME FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) IN CHILDREN AND ADOLESCENTS OF A DEVELOPING COUNTRY: RESULTS OF THE MCP 841 (MULTI CENTRE PROTOCOL): A 20 YEARS REPORT

Chandra A., Sagar T.G., Devarajan S.
Department of Medical Oncology, Cancer Institute (WIA), Chennai, India

e-mail: chennai_inctr0204@yahoo.com

Background: In the 1970s, survival rates after treatment for acute lymphoblastic leukaemia (ALL) in children and young adults (less than 25 years) in India were poor. The introduction of a standard treatment protocol (MCP841) and improvements in supportive care led to an increase in the event-free survival rate (EFS) from less than 20% to 45-50% at 4 years. Results of treatment with protocol MCP841 between 1983 and 2002 have been
briefly reviewed here. The MCP 841 reports the first prospective, nonrandomized trial for acute lymphoblastic leukemia (ALL), in collaboration with NCI, Bethesda, US. The aim of this study was to classify immunophenotypes, to analyze clinical features and laboratory features, and to assess whether this protocol would improve the survival rate.

Patients and Materials: From January 1983 to December 2002, 566 children and adolescent (0-25 years) were diagnosed with ALL in a regional cancer center in South India and were treated on MCP841 protocol with intensive induction therapy, central nervous system directed therapy (cranial irradiation and intrathecal methotrexate), and maintenance treatment for two years.

Results: From 1983 – 1989, 171 patients were enrolled in the protocol, and achieved a complete remission rate of 74.8% with 25.1% induction deaths and 47.6% of patients relapsing after remission. During 1989-2002 with improvement in supportive care 395 patients were enrolled. Three hundred and twenty eight (83%) of the patients achieved complete remission, 45 failed to respond and 59 (11.9%) had treatment-related or disease related deaths before completing induction therapy. The overall 5-year event-free survival (EFS) rate was 38.3%. The 5-year RFS rate was 44.5%. Relapse was noted in 147 of the 328 patients (44.8%). The cumulative incidence of central nervous system (CNS) relapse was low. Age and white blood cell counts are strongly associated with outcome in Western series, but were not a risk factor for EFS. At univariate and multivariate analysis the most significant determinant of a positive outcome was the achievement of complete remission. Comparison of patient characteristics with published series from Western nations indicated that patients had more extensive disease at presentation, as measured by WBC, lymphadenopathy and organomegaly. The proportion of patients with a precursor T-cell immunophenotype, was also increased.

Conclusion: Our strategy to adapt treatment to our population of patients was effective in improving the EFS. It cannot be assumed that risk factors defined in Western populations are equally appropriate for patient assignment to risk-adapted therapy groups in less affluent countries. They also demonstrate that heterogeneity in patient populations and resources can result in significant differences in outcome.

ABSTRACT 49

LATE EFFECTS OF TREATMENT IN SURVIVORS OF CHILDHOOD CANCER. EXPERIENCES FROM THE CHILDHOOD CANCER SURVIVOR STUDY AT CANCER INSTITUTE (WIA) CHENNAI, INDIA

Rajiv R., Chandra A., Sagar T.G.
Department of Medical Oncology, Cancer Institute (WIA), Chennai, India

e-mail: chennai_inctr0204@yahoo.com

Introduction: An increasing number of survivors has led to a heightened appreciation of the late complications of treatment caused by both radiation and chemotherapy. Combination chemotherapy, often in conjunction with surgery and external radiotherapy, is utilized in most children with cancer. These agents are capable of causing a variety of delayed toxicities. This study reviews the common long-term sequelae of childhood cancer and its therapy.

Patients and Materials: A group of 100 long-term survivors of childhood cancer have been prospectively studied at the Medical Oncology Unit of the Cancer Institute(WIA), Chennai, India. The tumors were diagnosed and treated between 1968 and 2001 and the patients followed up until July 2005. The diagnoses were: Acute lymphoblastic leukemia 36; nephroblastoma 4; Hodgkin’s Disease 32; bone & soft-tissue sarcoma 10; non-Hodgkin’s lymphoma 13; germ cell tumour 4; AML 1. Long term sequelae of treatment such as impaired intellectual and psychomotor function, neuro-endocrine abnormality (2), impaired reproduction capacity (21), myopathy (1), neuropathy (1), growth abnormality (7), second malignant neoplasm (2). Other late effects includes Hepatitis B virus infection (18%), Hepatitis C virus infection (14%) There was no obvious pulmonary or cardiac damage.
Conclusion: This information may allow clinicians to better monitor childhood cancer survivors in countries with limited resources. Children with cancer—great progress, a lot of good news and some disappointments.

ABSTRACT 50

A STUDY OF THE CLINICAL CHARACTERISTICS AND IMMUNOPHENOTYPE OF ACUTE LEUKEMIA IN CHILDREN

Jin Runmin, Liu Ling, Bai Yan, et al.
Department of Pediatrics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

e-mail: jinrunm@public.wh.hb.cn and jinrunming@hotmail.com

Background: To study the relationship between the clinical significance and immunophenotypical characteristics of acute leukemia (AL) in children as well as diagnosis and individual treatment for the different sub-immunological classification.

Materials and Methods: Monoclonal antibodies directly labeled with three or two color immunofluorescence were used to analyze the surface antigens and/or cytoplasmic antigens of acute leukemic cells as molecular markers in the CD45/SSC bi-parameter gates by flow cytometry. The diagnostic standard of immunological classification was identified by an EGIL antigen score system. The data was analyzed by SpSS10.0 soft file and χ² or t-test.

Results: 85 children with acute leukemia were characterized by immunophenotyping. The undifferentiated phenotype accounted for 1 case (1.2%); Acute myeloid leukemia (AML) for 18 cases (21.2%) and acute lymphoblastic leukemia (ALL) for 59 cases (69.4%). Acute mixed lineage leukemia (AMLL) represented 7 cases (8.2%). The subtypes of acute lymphoblastic leukemia included B-ALL 50 cases (84.7%) and T-ALL 6 (10.2%) as well as T/B 3 cases (5.1%). Among fifty-nine cases of ALL, 31 (52.5%) expressed myeloid-associated antigens, including My+b-ALL 27 and My +t-ALL 4. There was no difference in the clinical characteristics and disease prognosis between the sub-group positive for myeloid-associated antigens and the negative one. Analysis of FAB classification and immunological subtype as well as response showed that patients with T-ALL have a higher WBC count at initial diagnosis but the difference was not significant. The CD19 is the most common antigen (100%) and then CD10 (88%) in B-lineage ALL. Of 18 patients with AML, 5 patients (27.8%) expressed lymphoid antigens and CD7 was the most common (60%) but the rate of ly+AML was lower than that of My+ALL. The frequency of CD14 in childhood M4/M5 was 75% and CD13/CD33 presented in 83.3% and 94.4% cases of AML, respectively. The main early antigens, such as CD34, CD38 and HLA-DR, presented 76.4%, 81.2% and 89.4% expression rates, but AML-M3 had a very low frequency of CD34+ and HLA-DR+ as compared to the AML subtypes. Among 7 cases of AMLL, B/M was 6 and T/B/M was 1 case. 5 patients were misdiagnosed as ALL by using the FAB classification alone. The antigens CD13, CD33, CD10 and CD19 could be found in almost 100% of AMLL cases but MPO was 71.4%, CD79a was 28.5% respectively in the same case group. Comparing ALL and AML, the white cells count, hemoglobin and platelets counts had no significant difference in AMLL but the complete remission rate was lower than in the above two types.

Conclusion: Acute leukemia patients could be diagnosed accurately using the Multi-color flow cytometry and it was very important, especially for mixed lineage leukemia as well as cross-antigen expression leukemia. The strategy will help us to choose the best chemotherapeutic protocol and to identify the subtype for childhood acute leukemia.
ABSTRACT 51

STUDY OF THE RELATIONSHIP BETWEEN EXPRESSION OF AN ANTI-APOPTOTIC ONCOGENE--BCL-2, APOPTOSIS AND CLINICAL FEATURES IN CHILDREN WITH ACUTE LEUKEMIA

Sun Lirong, Jin Runming, Liu Yali, et al
The Affiliated Hospital of Qingdao Medical College of Shandong University, Department of Pediatrics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

e-mail: jinrunm@public.wh.hb.cn and jinrunming@hotmail.com

Background: To study the relationship between an anti-apoptotic oncogene, Bcl-2, apoptosis and clinical features in children with acute leukemia.

Materials and Methods: Evaluation of Bcl-2mRNA expression and cell apoptosis by in situ hybridization and fluorescence assay (AFS) was carried out in a total of 30 ALL cases and 20 normal controls.

Results: Bcl-2mRNA expression was found in 93.3% of the acute lymphoblastic leukemia (ALL) cases. The level of Bcl-2mRNA decreases with chemotherapy and no Bcl-2mRNA expression could be found in normal controls. The Bcl-2mRNA levels for the children with ALL varied widely (CV=38.7%). Two groups were classified: those with high expression (>20%) and a low expression group (≤20%). Bcl-2mRNA expression was closely related to clinical subtype of ALL. There was no correlation among Bcl-2mRNA expression level, clinical features and laboratory parameters. The pre-treatment (spontaneous) apoptosis index (AI) was 8.58±3.24%. The AI of ALL was lower than that of normal controls (t=5.42, P<0.01). There was a negative correlation between Bcl-2mRNA expression level and AI in pre-treatment samples (r=-0.76, P<0.01). AI increased after prednisone and induction chemotherapy and the decrease in low Bcl-2mRNA expression cases was greater in 'low' than in 'high' expression cases. The cases with low Bcl-2mRNA expression had a higher complete remission rate on day 19 of induction chemotherapy (P=0.0012). Follow-up of 5 cases who belonged to the high risk group showed that they had higher Bcl-2mRNA expression (10%) and simultaneously had a poor response to chemotherapy. Follow-up of 5 cases who belonged to the standard risk type showed complete remission in the bone marrow at 12 months and no involvement other than bone marrow, and the Bcl-2mRNA expression level was lower (5%). One of them had high bcl-2mRNA expression (20%) at 24 months, the relapse happened at 28 months.

Conclusion: 1) Children with ALL have different levels of Bcl-2mRNA expression. There is negative correlation with AI, a close relationship with clinical types and early evidence of response as well as complete remission rate. 2) Bcl-2mRNA detection before treatment is helpful in evaluating high risk patients and primary resistant disease. 3) Follow-up of Bcl-2mRNA expression is helpful to evaluate secondary drug resistance and can be considered as a criterion of sensitivity to chemotherapy.

ABSTRACT 52

A STUDY OF APOPTOSIS INDUCED BY OUABAIN IN THE LEUKEMIA CELL LINE (JURKAT)

Xiong Anxiu, Jin Runming, Bai Yan, et al
The First College of Clinical Medical Society of China Three Gorges University and Yichang Central Hospital, Yichang, China, Department of Pediatrics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

e-mail: jinrunm@public.wh.hb.cn and jinrunming@hotmail.com

Background: Endogenous ouabain, the digitalis glycoside, is a potent specific inhibitor of the Na⁺-K⁺-adenosine triphosphatase(Na⁺-K⁺ATPase). There is some evidence to show that ouabain has dual effects on proliferation and apoptosis in human prostatic smooth muscle cells at different concentrations. Although ouabain-induced apoptosis has been reported in a few previous studies, the exact mechanisms have not been elucidated. The purpose of this study was to determine whether ouabain can induce apoptosis in Jurkat
cells and to investigate the role of the Bcl-2 gene family and cysteine containing aspartate specific protease (Caspase-3) in ouabain-induced apoptosis.

**Materials and Methods:** The MTT method was used for assaying drug sensitivity and inhibition of cell proliferation. Analysis of DNA fragment, flow cytometry (FCM), the terminal deoxynucleotidyl transferase-mediated deoxyuridine triphosphate nick end-labeling reaction method (TUNEL) and electron microscopy were performed to confirm apoptosis. The mRNAs of Bcl-2 and Bax were studied by the semi-quantitative reverse transcription PCR (RT-PCR) technique. Western blot analysis was done to detect the protein expression of Bax, Bcl-2 and caspase-3. Activities of Caspase-3 were studied by chromometry.

**Results:** The results of MTT assaying indicated that Ouabain was able to inhibit the growth of Jurkat cells in a time and dose dependent manner; DNA “ladder” with agarose gel electrophoresis was observed in Jurkat cells after ouabain treatment. Flow cytometry and TUNEL confirmed that ouabain could induce apoptosis of Jurkat cells in a time and dose dependent pattern. Protein and mRNA expression of Bax were increased after ouabain treatment, whereas significant changes in expression of Bcl-2 protein and mRNA were not detected. Ouabain could induce a profound increase of caspase-3 activity within a certain range of treating time. The active form of caspase-3 protein was also detected.

**Conclusion:** Ouabain may cause apoptosis of Jurkat cells by activating Caspase-3. The Bcl-2 gene family participates in the ouabain induced apoptosis.

**ABSTRACT 53**

**THE PROTECTIVE EFFECT OF AMIFOSTINE ON METHOTREXATE-INDUCED TOXICITY IN THE CHEMOTHERAPY OF CHILDHOOD ALL**

Li Xin, Jin Runming, Zhang Zhiquan et al.
Department of Pediatrics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

e-mail: jinrunm@public.wh.hb.cn and jinrunming@hotmail.com

**Background:** To evaluate the protective effect of amifostine on Methotrexate-induced toxicity and its adverse reactions and safety.

**Materials and Methods:** All children were divided randomly into two groups: 10 in group A (the treatment group which used Amifostine before MTX-chemotherapy) and 10 in group B (control group, No Amifostine). Indices such as peripheral blood count (neutrophil, hemoglobin, platelet) and oral mucosa were monitored before and after treatment on the 8th day. The duration of myelosuppression was also monitored.

**Results:** The deviation values of neutrophil hemoglobin and platelet in group A were lower than those in group B (P<0.05) before treatment on the 1st day and on the 8th day after chemotherapy. The degree of oral mucosa damage was weaker in group A than in group B. There was no significant difference in duration of myelosuppression between group A and group B (P>0.05).

**Conclusion:** Amifostine can protect bone marrow and oral mucosa from high-dose Methotrexate-induced toxicity. Amifostine has no effect on duration of myelosuppression. There were no notable side effects found in the treatment group.
ABSTRACT 54

A STUDY OF THE RELATIONSHIP BETWEEN THE DETECTION OF MINIMAL RESIDUAL DISEASE AND THE PROGNOSIS OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA
Jin Runming, Lin Wen, Zhang Zhiquan, et al.
Department of Pediatrics, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China
e-mail: jinrunm@public.wh hb.cn and jinrunming@hotmail.com

Background: At diagnosis, leukemic cells number 10^12 in the body of the patient with acute lymphoblastic leukemia (ALL). Complete remission (CR) after induction chemotherapy is defined as less than 5% lymphoblasts detectable by light microscopy. But a few residual leukemic cells can still survive in amounts such as 10^9 cells, which is known as MRD. Many data show that MRD is responsible for clinical relapse. Detection and quantification of minimal residual disease (MRD) after chemotherapy could improve treatment and prognosis.

Materials and Methods: The nested-polymerase chain reaction (PCR) was used to detect rearranged immunoglobulin heavy-chain (IgH) CDR gene and T-cell receptor (TCR) V6,D6 genes from 45 ALL patients. The leukemic clones were quantified through limiting dilution analysis.

Results: 29 of 45 children presented with IgH CDR gene clonal rearrangements (64.4%), 19 of 45 children presented with TCRV6,D6 gene clonal rearrangements (42.2%). Quantification of MRD was achieved by use of the nested-PCR at limiting dilution of DNA samples from these 19 patients with TCRV6,D6 gene clonal rearrangements. MRD was detected at a level of 2×10^-5 and greater at the time of first complete remission in 8 patients. 3 of these relapsed. Of 11 patients with no MRD detected (or detected at a level <2×10^-5) at first complete remission, only 1 relapsed at which point the patient’s MRD reverted to positive. The extent of MRD and its rate of change were closely related to the probability of relapse.

Conclusion: The relationship between MRD detection and outcome was significant for ALL patients. Early quantification of leukemic cells after chemotherapy may be a successful strategy for predicting outcome and hence individualising treatment in childhood ALL.

ABSTRACT 55

FREQUENCY OF VARIOUS BCR-ABL TRANSCRIPTS IN INDIAN (CML) PATIENTS WITH CHRONIC MYELOID LEUKEMIA (CML)
Pratibha Sharma, Sujata Mohanty, Lalit Kumar, Rashmi Bhardwaj, Nitin Mathur, Tulika Seth, Atul Sharma, Vinod Raina, Vinod Kochupillai.
Department of Medical Oncology, Institute Rotary Cancer Hospital (IRCH), All India Institute of Medical Sciences (AIIMS), New Delhi, India
e-mail: sujmohanty@yahoo.co.in

Aims and objectives: The Philadelphia translocation t (9; 22) generates a BCR-ABL fusion gene, the hallmark of Chronic Myeloid Leukemia (CML) but is also found in Acute lymphoblastic leukemia (ALL). The aim of this study was to investigate the prevalence of various BCR-ABL fusion transcripts b2a2, b3a2, e1a2 and e19a2 in Indian leukemia patients.

Materials and Methods: We evaluated a total of 50 patients with CML attending IRCH OPD at AIIMS for the presence of the BCR-ABL fusion transcript by the RT-PCR method. Total RNA was extracted from the WBC’s of a peripheral Blood sample and cDNA was synthesized. cDNA samples were subjected to multiplex PCR for detection of b2a2/b3a2 (p210), e1a2 (p190), and e19a2 (p230) BCR-ABL transcripts. Results were confirmed by Nested PCR technique for the same transcript.
**Results:** The mean age of the patients included in the study was 33.5 years (11-62 years) with a male to female ratio of 2.5:1. Among 50 CML patients on Imatinib Mesylate therapy, 8 patients underwent Bone Marrow Transplant before starting Imatinib therapy. 25/50 (50%) patients had a b2a2 transcript and 20/50 (40%) patients had a b3a2 BCR-ABL transcript. Only 5/50 (10%) patients had both b2a2 and b3a2 transcripts. E1a2 and e19a2 transcripts were not detected in any patient.

**Conclusion:** In conclusion, the b2a2 and b3a2 transcript was detected in 50% and 40% of patients respectively and 10 showed co-expression of both transcripts. These results are in contrast to Western reports where b3a2 is expressed in 55% and b2a2 in 40% of CML patients and only 5% cases had both transcripts. The E19a2 transcript was not detected at all and only one patient had a e1a2 transcript.

**ABSTRACT 56**

**HEMATOLOGICAL AND CYTOGENETIC RESPONSES TO IMATINIB MESYLATE IN CHRONIC MYELOID LEUKEMIA PATIENTS: IRCH EXPERIENCE**

Sujata Mohanty, Pratibha Sharma, Lalit Kumar, Rashmi Bhardwaj, Nitin Mathur, Tulika Seth, Atul Sharma, Vinod Raina, Vinod Kochupillai,
Department of Medical Oncology, Institute Rotary Cancer Hospital (IRCH), All India Institute of Medical Sciences (AIIMS), New Delhi, India

e-mail: sujmohanty@yahoo.co.in

**Background:** Chronic myelogenous leukemia (CML) is caused by the BCR-ABL tyrosine kinase, the product of the Philadelphia chromosome. Imatinib Mesylate, formerly STI571, is a selective inhibitor of this kinase and has become a standard therapy for Philadelphia (Ph) chromosome positive CML patients. We evaluated hematologic and cytogenetic response rates of CML patients being treated with 400mg of oral Imatinib daily at our centre.

**Patients and methods:** Imatinib was administered to 110 Ph +ve CML patients in various phases of the disease coming to the Out Patient Department of Medical Oncology, IRCH. Out of the total, 95 patients were in chronic phase, 10 in accelerated phase and 5 in Blast crisis. Cytogenetic responses were evaluated by conventional cytogenetic technique every 3 months during the therapy.

**Results:** Patients included in the study had a mean age of 38.2 years (11-62 yr) with a male: female ratio of 2.5:1. Complete hematological responses were observed in 97/110 (96%) of patients. 11/110 (10%) achieved complete cytogenetic responses; 41/110 (37.27%) achieved Major cytogenetic responses and 47/110 (42.72%) achieved minor cytogenetic responses. The remaining 11/110 (10%) patients had no cytogenetic response after a median follow up of 26 months.

**Conclusion:** This study indicates that Imatinib induced good hematological and cytogenetic responses in our population of Ph +ve CML patients. However, longer follow up with a larger study population is needed.
ABSTRACT 57

SURVIVAL ANALYSIS OF PATIENTS WITH CANCER OF THE LARYNX HAILING FROM NORTH COASTAL ANDHRA PRADESH

Naveen Kumar T. 1, Gavarasana S. 2
Lions District 324C-1, Cancer Treatment and Research Center, Seethammadhara, Visakhapatnam. Andhra Pradesh, India

e-mail: drthota_11@rediffmail.com

Background: Cancer of the Larynx is one of the common cancers in Andhra Pradesh. The aim of the present study is to analyse survival analysis of Laryngeal cancer patients in North coastal Andhra Pradesh, India.

Methods: A retrospective study of patients treated at the Lions Cancer hospital during the years 1998-99.

Results: Out of a total of 1,476 cancer patients treated, 6.98% (n=103) had Cancer of the Larynx. Males constituted 79.6% (n=82) and females 20.4% (n=21). The median age at presentation in males was 56 yrs and in females, 50 yrs. Smokers constituted 60.19% and nonsmokers, 34.95%. Alcoholics constituted 15.53% and nonalcoholics, 78.64%. The five-year survival rate overall was 3.88%. Five-year survival in smokers was 4.91%; all these patients had smoked, but did not take alcohol. The four-year survival in patients who smoked was 8.88% and in patients who used both alcohol and tobacco, it was 6.25%.

Conclusion: Cancer of the larynx is 3.9 times more common in males than females and 1.45 times more common in smokers compared to non-smokers. The survival rate is better in smokers when compared to smokers with an alcohol habit (p=0.6449).

ABSTRACT 58

INFECTION COMPLICATIONS DURING THERAPY OF ACUTE LYMPHOBLASTIC LEUKAEMIA AT THE CANCER INSTITUTE (WIA), CHENNAI, INDIA

Chandra A., Sagar T.G.
Department of Medical Oncology, Cancer Institute (WIA), Chennai, India

e-mail: anitchandra100@yahoo.co.in

Background: Febrile Neutropenia and documented infections are common with all intensive protocols but there is a paucity of data from Asian countries.

Methods: 100 patients with neutropenic fever following chemotherapy for acute lymphoblastic leukemia at the Cancer Institute (WIA) from August 2004 to July 2005.

Results: 5 patients died of infections. There was no difference in median age, gender ratio, or underlying disease between those who died and those who survived. Bacteria were the main pathogens following chemotherapy, and Gram negative organisms predominated. In 152 cycles of chemotherapy, there were 98 febrile neutropenic episodes during the induction and consolidation chemotherapy of acute leukaemia. 65 (42.7%) of the episodes had documented infection. 41.3% of organisms causing infection were gram-negative, 31.5% gram-positive, 8% anaerobes and 26% fungi. 6 febrile episodes were associated with pulmonary infiltrates, which progressed to adult respiratory distress syndrome and death in 3 instances. There was no significant occurrence of parasitic and tropical infections (1 tuberculosis and malaria). Haematological and gastrointestinal side effects and alopecia were expected i.e., developed in >75% of patients. Prednisolone and vincristine induced toxicities were common i.e., observed in >25% of patients.
Conclusion: The results show that the pattern of infection, during therapy of acute leukaemia in developing countries, may have important differences when compared with western centres. To improve the long-term event free survival of children with ALL, practitioners must be knowledgeable about the potential spectrum of infections, begin treatment early with appropriate antibiotics, and seek to improve the availability of supportive facilities and modern antibiotics.

ABSTRACT 59

PROGNOSTIC SIGNIFICANCE OF T-LINEAGE ACUTE LYMPHOBLASTIC LEUKEMIA IN NORTH INDIAN CHILDREN

Arya L. S., Padamanjali K. S., Sazawal S., Saxsena R., Bharagava M., Adde Melissa*, Magrath Ian*
Departments of Pediatrics and Hematology, All India Institute of Medical Sciences, New Delhi, India,
*INCTR, Brussels, Belgium

e-mail: lsarya@rediffmail.com

Background: T lineage acute lymphoblastic leukemia (ALL) is a distinct subtype of ALL, frequently associated with high risk features at presentation and an inferior outcome.

Objectives: To study the clinical features and outcome of children with ‘T’-lineage acute lymphoblastic leukemia (ALL) in comparison with B lineage ALL treated with a uniform treatment regimen (MCP 841).

Materials and Methods: Retrospective analysis of clinical data and outcome of 60 children with T lineage ALL in comparison to 139 patients with B lineage ALL less than 15 years of age. Study period was from June 1992 to June 2002.

Results: The frequency of T lineage ALL was 26.7%. High risk features at presentation like age ≥ 10 years, WBC>50,000/mm³, mediastinal mass and CNS leukemia were significantly more frequent in the T lineage group as compared to the B lineage (p=0.049, p<0.001, p<0.001 and p=0.02 respectively). Fifty five of 60 T lineage patients (91.7%) achieved complete remission after induction therapy. There were 3 induction and 10 remission deaths and 11 (20%) relapses. The overall survival (OS) and event-free survival (EFS) of T lineage patients (61.5±7.6, and 49.9 ±7.4 respectively) were similar to that of B lineage patients (68.7±4.7, 47.1±5.1 respectively). On statistical analysis, none of the traditionally described prognostic factors and recently described prognostic factors like T cell maturational groups was significant for EFS in T lineage while NCI risk groups as emerged significant in B lineage patients.

Conclusion: Even though high risk features were more frequent in T lineage ALLs, their outcome was similar to that of B lineage patients. None of the prognostic factors was found to have an adverse impact on outcome.

ABSTRACT 60

RED CELL DISTRIBUTION WIDTH (RDW) AS AN INDICATOR OF IRON DEFICIENCY ANAEMIA IN A COMMUNITY SURVEY

Dhara A., Sabir Md., Shome S., Konar S., Mukherjee A.
Netaji Subhas Chandra Bose Cancer Research Institute, Kolkata, India

e-mail: samashis@vsnl.net

Background: The Red Cell Distribution Width (RDW) is an index of the variation in cell volume within the red cell population. Red cell populations with higher than normal Red Cell Distribution Width are termed heter-
ogenous; those with normal Red Cell Distribution Width are homogeneous. In some instances, the Red Cell Distribution Width is the first test result to increase with changes in red cell population sizes. For example, in early iron deficiency, there are only low numbers of microcytic red blood cells. This will increase the standard deviation and the Red Cell Distribution Width. The Normal Range of Red Cell Distribution Width is 11.5-14.5%. The aim of our study was to screen for Iron Deficiency Anemia in females of childbearing age.

Materials and Methods: At the screening programme of Iron Deficiency Anemia in females of childbearing age, we selected thousands of women from Rural Bengal. The programme was run by the Netaji Subhas Chandra Bose Cancer Research Institute. Red Cell Distribution Width was assessed by flow cytometric analysers.

Results: 345 patients had a Red Cell Distribution Width of more than 20%. In all the patients, serum feritin level was done. In 98.6% patients, the serum feritin level was lower than normal, which is statistically significant.

Conclusion: Red Cell Distribution Width is a good indicator of Iron Deficiency Anemia & can be used as a screening test for Iron Deficiency Anemia.

ABSTRACT 61

CANCER CONTROL: A STUDY ON COMMUNITY PERCEPTIONS, DETERMINANTS OF COMMUNITY BEHAVIOUR AND PROGRAM IMPLEMENTATION IN NEW DELHI, INDIA

Seth T., Kotwal A., Thakur R. and Ganguly K.K.
All India Institute of Medical Sciences and Army Base Hospital, ICMR, New Delhi, India

e-mail: tuliseth@yahoo.com

Introduction: By the year 2020, the number of cases of cancer will double in developing countries. Most cases are preventable by simple and cost effective measures focused on primary and secondary levels of prevention. However, there is a lack of community participation and social mobilization. Behavioral research plays an important role in cancer prevention and control. Behavioral aspects influence adherence to preventive activities, screening programs and treatment. Assessment of the perceptions of the community, their determinants and development of their behavior regarding common cancers helps in establishing evidence based activities for prevention and early diagnosis of cancer. However, information on this important aspect is lacking in our country.

Methods: Qualitative methods were used to obtain this information. A methodology based on RAP (Rapid assessment procedure) was used as it permits quick and systematic data collection. Data was collected through in depth interviews and Focus Group Discussions (FGDs) with all categories of stakeholders identified for the study. In two districts of Delhi, one non-slum and one slum cluster was selected. Stratified and purposive sampling was done. Stakeholders included community members, those involved in national cancer control program policy, planning and implementation, and health care workers of all strata and facilitators. A total of 142 in depth interviews and 6 FGDs (4 of community, 2 of health workers) were conducted. A multidisciplinary team comprising clinicians, social scientists, public health specialists and epidemiologists did brainstorming and formulated the study instruments. The instrument had open-ended questions and was pre tested on stakeholders to check its validity and reliability. Strict quality assurance measures were implemented. Method and data triangulation were carried out to ensure high quality of data. The data obtained was screened on the basis of transcribed text. The responses were free listed and grouped into domains that emerged from free listed responses and coded. Coded responses were entered into the computer and data analyzed in consonance with the stated objectives of the study.

Observations: Almost all the stakeholders readily agreed to participate with the exception of 2.11%. The majority (92.96%) acceded to the request of recording the entire conversation. Perceptions of different categories of stakeholders about why many community members do not attend screening camps and other services reflect the determinants of community behavior. These determinants work independently as well as
in combination. Lack of awareness about the activities of the cancer control program was mentioned by most of the stakeholders. Lack of diagnostic and treatment facilities in government primary and secondary level facilities, was brought out by all respondents. The program was thought to be restricted only to government tertiary care facilities and some private facilities. Most of the community members and health care workers mentioned that government facilities were crowded and the visits time consuming pushing people to use private facilities. All of the facilities were cure oriented. As per providers, issues of supervision, monitoring and feedback were inadequately addressed. The program lacked effective planning, coordination and appropriate implementation at grass roots level in the capital of our country. Social mobilization was grossly inadequate as most of the community members were unaware about the existence of the program. Misconceptions about the risk factors, signs and symptoms, diagnosis, treatment, etc were common amongst community members as well as many of the providers.

**Conclusion:** The national cancer control program in our country needs further community participation and social mobilization. Accessibility, availability, acceptability and affordability of various preventive, curative and rehabilitative activities, intersectoral coordination, training, supervision and monitoring of the program activities need to be addressed to ensure success of this important public health program.

**ABSTRACT 62**

**COMPARISON OF HISTOPATHOLOGIC FINDINGS IN ENUCLEATED EYES FROM PATIENTS WITH RETINOBLASTOMA, TREATED WITH CHEMOREDUCTION VERSUS NO CHEMOTHERAPY**

Tacyildiz N., Ozdemir H., Unal E., Yavuz G., Erden E., Ugur H., Heper A., Gunduz K.

Ankara University, Medical School, Ankara, Turkey

*e-mail: nurdan@ato.org.tr*

**Background:** There is limited information about the histopathologic findings in enucleated eyes from patients with retinoblastoma following chemoreduction therapy.

**Aims:** To evaluate histopathologic findings and related risk factors in the eyes of patients with retinoblastoma (Rb) that had been treated with chemoreduction.

**Patients and Methods:** Re-evaluation of pathologic specimens and follow-up records of 37 patients, with Rb that were followed between Jan 1996 & Jan 2004 in Ankara University Department of Pediatric Oncology was performed. Eighteen out of 37 patients (48.6%) had received chemoreduction (carboplatin, etoposide, vincristin – VEC) 2-6 cycles, before the enucleation. Five out of 18 patients received local therapies besides chemoreduction.

**Results:** Optic nerve (ON) involvement was significantly lower (16.7% versus 47.4%) in Rb patients that had received chemoreduction. All of the cases with retrolaminar involvement of ON, were in the group of patients without chemoreduction. Although there was no difference between groups for choroidal, iris and ciliary body involvement, scleral invasion was lower in the chemoreduction group.

**Conclusion:** As a developing country with the problem of a high percentage of advanced-stage Rb patients, chemoreduction may decrease the number of patients with metastatic disease due to less ON and scleral invasion in that group.
ABSTRACT 63

HISTOPATHOLOGIC RISK FACTORS IN ENUCLEATED EYES WITH RETINOBLASTOMA

Ankara University, Medical School, Ankara, Turkey

e-mail: nurdan@ato.org.tr

Objectives: To evaluate histopathologic findings in the enucleated eyes of children with retinoblastoma (Rb) to find out risk factors for metastasis and prognosis.

Patients and Methods: A re-evaluation of pathologic slides and follow-up records of 37 patients with Rb that were followed between January 1996 and January 2004 at Ankara University Department of Pediatric Oncology has been performed. The degree of differentiation and growth pattern of tumor; optic nerve (ON), choroid, and scleral involvement of Rb were performed to analyse their effect on metastasis and prognosis.

Results: Twelve out of 37 eyes (32.4%) showed ON involvement (8 were pre-laminar while 4 were retro-laminar). All cases with ON involvement were in patients with unilateral Rb. There was no ON cut-end positivity. Choroid invasion was detected in 19 (51.4%) and 73.6% of the cases showed grade-III invasion. Risk of metastasis, relapse and death was higher in patients with choroid invasion. ON and choroid invasions had a trend to be higher in undifferentiated and mixed growth pattern. Seven patients showed scleral extension and they had an increased risk of metastasis, relapse and death (28.6% versus 3.3% deaths respectively, for scleral invasion positive and negative patients).

Conclusion: Undifferentiated and mixed growth pattern of tumor, choroidal, ON and scleral invasion of Rb, are major histopathologic risk factors for metastasis, relapse and death in patients with Rb.

ABSTRACT 64

T CELL RECEPTOR (TCR) γ AND δ GENE REARRANGEMENTS IN T CELL-ACUTE LYMPHOBLASTIC LEUKEMIA IN SOUTH INDIA

Sudhakar N. 1, Nirmala K. Nancy 1, Rajalekshmy K. R. 2, Raman S. G. 2, Rajkumar T. 2
1 Department of Molecular Oncology, 2 Department of Hematology and Immunology, Cancer Institute (WIA), Adyar, Chennai, India

e-mail: caninst@md2.vsnl.net.in and nirc18@hotmail.com

Background: T cell-Acute Lymphoblastic Leukemia (T-ALL) arises by clonal proliferation of lymphoid precursors arrested at a particular stage of differentiation. The incidence of T-ALL in India is 37-43% of ALL. In this study, TCR γ and δ gene rearrangements were detected in diagnostic samples of T-ALL. All clonal rearrangements detected were then used as clonal markers for the quantitation of minimal residual disease (MRD).

Patients and Methods: BM/PB from 54 T-ALL patients (34 children and 20 adults) at diagnosis, treated by the MCP 841 protocol were studied. The median age of the patients was 13. The frequency of clonal TCR γ and δ gene rearrangements was studied by Polymerase Chain Reaction (PCR) coupled with Heteroduplex analysis (HD). Allele Specific Oligos (ASO) were designed by sequencing the junctional region sequence of clonal TCR γ and δ gene rearrangements.

Results: Using PCR-HD analysis, TCRγ gene rearrangements were detected in 37 of 54 cases (68.5%) and TCRδ gene rearrangements in 16 of 54 cases (29.6%). Vγ1-Jγ1.3/2.3 was more commonly rearranged in 29 cases (53.7%) of T-ALL; Vγ1-Jγ1.3/2.3 in 14 cases (26%). Both Vγ11-Jγ1.3/2.3 and Vγ1V-Jγ1.3/2.3 rearrangements were detected in 4 cases and Vγ1-Jγ1.1/2.1 in 3 cases. Vδ1-Jδ1 rearrangement was detected in 9 cases (16.6%);
Vα2-Dβ3 in 5 cases and Dα2-Dβ3 in 4 cases of T-ALL. Both TCRγ and δ gene rearrangements were detected in 8 cases (14.8%). The junctional region in TCRγ rearrangements ranged from 5bp to 13bp (Mean 10bp) and in TCR δ rearrangements 21bp to 38 bp (Mean 28 bp).

**Conclusion:** Using the ASO and TCR γ or δ gene rearrangements at diagnosis, Real Time PCR was standardized to quantify the MRD in follow up samples. This will help to quantitate the accurate amount of residual leukemic load, predate relapse and assess the response to treatment.

**ABSTRACT 65**

**PROCEDURAL SEDATION AND ANALGESIA BY NON-ANESTHESIOLOGISTS IN A PEDIATRIC HEMATOLOGY - ONCOLOGY UNIT**

Borker Anupama, Ambulkar Indumati, Parchure Gayatri, Saraf Oneile, Gopal R., Advani S.H.

Department of Medical and Pediatric Oncology, Asian Institute of Oncology, S. L. Raheja Hospital, Mumbai, India

e-mail: anupamasb@hotmail.com

**Background:** Children often require relief of pain and anxiety while undergoing diagnostic and therapeutic procedures. Procedural sedation and analgesia (PSA) is the safe and effective control of pain, anxiety and motion so as to allow a necessary procedure to be performed and to provide an appropriate degree of memory loss or decreased awareness.

**Objectives:** To prospectively describe procedural sedation and analgesia as performed in the Pediatric Oncology unit and to report the success of sedation and the incidence of complications.

**Methods:** IV Midazolam and IV Ketamine were used for PSA in Pediatric Oncology patients undergoing painful procedures.

**Results:** Between June 2004 and July 2005, 120 diagnostic and therapeutic procedures were performed using PSA in 32 children. There were 19 boys and 13 girls with a median age of 11 years. Twenty five patients had hematolymphoid malignancies and 6 patients had solid tumours. The indication for PSA were bone marrow aspiration and/or biopsy in 19 patients, therapeutic lumbar puncture in 93 patients, bone marrow aspiration and lumbar puncture in 7 patients and skin biopsy in 1 patient. All 120 procedures were successfully completed. Adverse events occurred in 25 (21 %) episodes and included transient drop in oxygen saturation, vomiting, dizziness, disinhibition with crying spells and hypersalivation. Average time to arousable state and full recovery was 22 minutes and 31 minutes respectively. None of the patients complained of post procedure pain nor recalled the procedure at the follow up visit.

**Conclusion:** Procedural sedation and analgesia using midazolam and ketamine is a safe and efficient method of limiting anxiety and procedure related pain and can be successfully administered by non-anaesthesiologists. The complication rate is low and can be easily managed.

**ABSTRACT 66**

**LIMITATIONS FOR CANCER DIAGNOSIS IN A RESOURCE CONSTRAINT SETTING: EXPERIENCE AT AHMADU BELLO UNIVERSITY TEACHING HOSPITAL (ABUTH), ZARIA - NIGERIA**

Shehu S.M., Samaila MOA. Department of Pathology, ABUTH, Zaria, Nigeria

e-mail: msshehu2@yahoo.com
Background: Correct diagnosis and typing of solid cancers requires histopathological evaluation of surgical biopsies using routine and conventional special stains. This is sometimes inadequate for proper evaluation. In these circumstances, immunohistochemistry and (or) molecular techniques are necessary for correct diagnosis and typing. The latter technique(s) are sadly unavailable in most resource constraint settings, thus posing a significant limitation for cancer diagnosis, research and treatment. Our aim was to document the frequency of tumours requiring special techniques for diagnosis in our centre.

Materials and Methods: Cancer cases in the files of the Department of Pathology, Ahmadu Bello University Teaching Hospital, Zaria between January 2000 and December 2004 were retrieved. These were scrutinized for conclusiveness of diagnosis and typing made on haematoxylin and eosin stained sections of the surgical biopsies. Cases requiring ancillary tests despite conventional special stains formed the materials for this study.

Results: There were 1,678 malignant tumours diagnosed during the study period, out of which 206 cases (12.3%) needed ancillary tests for a conclusive diagnosis or typing. The majority of these tumors were Non- Hodgkin’s lymphomas 91 cases (44.2%); “small blast/blue cells” tumours of childhood , 47 cases (22.8%) and 35 cases of undifferentiated carcinoma including some cases resembling metastatic undifferentiated nasopharyngeal carcinoma. The remainder was made up of mesenchymal tumours including 3 cases of presumed malignant gastrointestinal stromal tumors whose current diagnostic criterion is based on c-kit immunostaining. Overall 46.1% of these tumours occurred during childhood. Additionally, some aspects of tissue handling (poor fixation/processing) have also hindered proper evaluation of about 17% of the lesions.

Conclusion: Lack of immunohistochemistry is a major limitation for cancer diagnosis especially in childhood malignancies. There is a need for collaboration with reference laboratories in cases where conclusive tumour diagnosis and or typing cannot be made.

ABSTRACT 67

DEVELOPING A HOSPITAL-BASED CANCER REGISTRY ALLOWS ASSESSMENT OF THE QUALITY OF CARE AND FACILITATES CLINICAL TRIALS, EPIDEMIOLOGIC RESEARCH, AND MOLECULAR INVESTIGATIONS

Glass A.G., Ajaikumar B.S.
Center for Health Research, Kaiser Permanente, Portland, Oregon, USA and Cancer Centers of India, Mysore, Karnataka, India

e-mail: andy_5241@msn.com

Introduction: Cancer registration is the systematic recording of data items about newly diagnosed and treated cancer patients in a defined location over a set period of time. Population-based registries concentrate on cancer incidence in a defined geographic area. They offer a view of cancer patterns in a large region but can report only limited data about individual sites. Hospital-based cancer registries, on the other hand, register all patients seen within their four walls. Reports from these registries include diagnostic and treatment practices at their hospital and, with attention to follow-up, survival of their patients and long-term side effects of the disease and its treatment. Ascertaining all cancer cases at a hospital opens up a wealth of opportunities for measurement and improvement of cancer care as well as clinical, epidemiologic and basic science research.

Methods: We have applied our experience gathered in the U.S. in this field at two cancer hospitals in Karnataka to implement cancer registration as an integral part of daily practice. At both locations every new patient was initially registered at the time of admission and initial interview. The process of registration included basic demographic information including primary and secondary contacts for subsequent follow-up. The system of registration intentionally included all patients coming to that hospital. At the Curie Centre, Bangalore cases were enrolled in an electronic medical record program that included modules for radiation and chemotherapy as well as nursing and physician notes. A subset of items were reserved for registry variables — date of diagnosis, primary site, histology, stage at diagnosis, treatment, outcome — and these have been separately processed. Cases have been abstracted retrospectively as well, back to the initial opening of this Centre in 1994.
To date some 9200 cases have been abstracted. They cover the entire range of cancer cases typically seen in such settings. The registry at the Bharat Hospital in Mysore is slightly different. There, social investigators performing intake were given a simple data entry program written in Microsoft Access that allowed them to begin the process of cancer registration at the same time as they interviewed new patients coming to the hospital for the first time. The initial abstract was printed at that visit, placed into the medical record to be completed in stages as the patient progressed through diagnosis and treatment. Social investigators have been trained in the rudiments of coding the primary site, histology and stage according to the ICD-O-3 and SEER Summary Stage. To date some 2500 cases have been registered. Because of the methods used, they are at varying stages of completion.

**Results:** We have provided training for local personnel and frequent monitoring of performance in addition to the simple data entry program. The initial registration has been easy to accomplish. It has been considerably more difficult to train individuals in the process of diagnostic coding and the recording of stage and treatment. We will present the materials and software used and demonstrate the general techniques that can be applied to similar settings. In addition, we will report summary data concerning the cases that have been abstracted at Bharat since July, 2004 and Curie since 1994. The analyses will include such variables as the distribution of tumor types and histologies, the initial stage at diagnosis and patterns of work-up and treatment. Examples of how these analyses can be helpful to physicians and hospitals in improving cancer care of individual patients at their institutions will be stressed.

**Conclusion:** The principal role for hospital-based cancer registries should be the measurement and improvement of cancer care at their institution. Registries can provide accurate and comprehensive data about the patterns of cancer care at a hospital, where it needs improvement and where it excels. In order to measure accurately the performance of a hospital cancer program, comprehensive data needs to be gathered and reported on all cases coming to that hospital. A system such as the one described enrolls all such patients and renders possible thorough analysis of the pattern of care both to measure what is being done and to improve what is not being done well.

**ABSTRACT 68**

**THE PERU PREVENTORIUM DEMONSTRATION PROJECT: A MODEL FOR REDUCING THE CANCER BURDEN IN DEVELOPING COUNTRIES**

Arti Patel 1, Gerald Hill 1, V.G. Srinivas Kumar 1, Karishma Desai 1, Chirag Shah 1, Elmer Huerta 2

1 Capital Technology Information Services, Inc., Rockville, Maryland, USA,
2 Washington Cancer Institute, Washington Hospital Center, Washington, DC, USA

e-mail: Arpatel@ctisinc.com

**Objectives and Conclusion:** Launched in May 2005, the Peru Preventorium Demonstration Project (PDP) in Lima, Peru introduces a paradigm shift in the management of disease from a disease-based approach to a prevention-based approach. A collaborative effort between public and private institutions in Peru and the United States, the Peru PDP is based on the work of Dr. Elmer Huerta at the Washington Cancer Institute in Washington, DC, where he created a novel public education cancer prevention program termed the Cancer Preventorium more than 10 years ago. The Preventorium is built on an information technology (IT) platform that maintains connectivity with the individual preventorium attendee or “preventee” and the Preventorium staff. Additionally, the IT infrastructure fosters collaboration and communication between physicians, nurses, researchers and administrators, thereby leveraging often limited resources. The Peru Preventorium was established through a reallocation of local resources and in-kind and cash support from organizations abroad. For example, the building that houses the Peru Preventorium was in existence, but remodeled to serve the needs of the Preventorium. In total the approximate, initial cash investment, which includes staff salaries for approximately 5 individuals, was $330,000. During its first 3 months of existence, the Preventorium saw 297 individuals, with 77% being female and 23% being male. Of these individuals, approximately 28% were 30-44 years old, 43% were 45-64 years old, and 19% were 65-84 years old. Information was collected on lifestyle
behaviors, such as smoking, alcohol consumption and physical activity, as well as family history of cancer. Individuals were then recommended for screening based on cancer and chronic disease risk factors. Overall, the Peru PDP has experienced a successful beginning. It is encouraging to see significant numbers of younger individuals using the Preventorium, which will hope to in turn reduce the cost of treatment, premature death, and the overall negative impact that cancer has on the economics of both family and country. The Preventorium model is especially relevant to developing countries where the number of new cancer cases is expected to increase by 50% over the next 20 years and to reach 15 million by 2020 with 80% of individuals presenting with late-stage, incurable disease. Implementation of this novel prevention paradigm will require adjustments in both private and public policy in order to increase the efficiency of the healthcare system, but provides a viable mechanism for reducing the cancer burden in developing countries. Through the IT platform, the Preventorium will establish new information collaborations within the healthcare system, will integrate with existing cancer control, prevention and epidemiology programs, and will improve existing patient registry systems, expanding the patient data base, which will allow more efficient monitoring and surveillance of not only cancer, but chronic disease in general.

ABSTRACT 69

ePROTOCOL - RB: AN INNOVATIVE WEB-BASED CLINICAL TRIAL MANAGEMENT TOOL

Ahasan N. 1, Nayak A. 1, Mazumder A. 1, Sharma R. 1, Truong T. 2, Gallie B. 2, Verma R. 3

1 CAL2CAL India, Ltd, Kolkata, India,
2 University Health Network, Toronto, Canada,
3 CAL2CAL Corporation, California, USA

e-mail: rini@cal2cal.com

Introduction: The challenge to study the rare pediatric cancer of the eye, retinoblastoma, led to the partnership of two organizations to design, develop and implement a unique clinical trials management tool. ePROTOCOL -RB is a web-based tool for protocol and patient management in clinical trials. ePROTOCOL -RB contains clinical trial protocols and automatically monitors the patient electronic record to notify the clinicians when a patient is eligible. After a patient is registered, ePROTOCOL -RB recommends the details of protocol-specific therapy including doses through the patient’s electronic record.

Methods: ePROTOCOL-RB is a PHP/Oracle/Apache Windows web-based solution. ePROTOCOL -RB defines study plan/guidelines with Treatment Cycles, Procedures, Labs, Medication and Adverse Events. Adverse event standards underlie automated toxicity grading in the context of each institution’s lab value ranges with automatic flagging and notification of relevant events. ePROTOCOL -RB can specify events, timing of encounters and audit and report on compliance, toxicity and endpoints to designated authorities.

Results: ePROTOCOL -RB provides comprehensive role-based management for different user groups. An authenticated user will create treatment plans, automatically track changes of protocol status, manage eligibility criteria, and download adverse event standards from regulatory agencies. ePROTOCOL -RB automatically calculates toxicity grading in the context of an institution’s lab value ranges and flags relevant events. The audit feature automatically keeps log of different operations on the database including addition, deletion or modification of any treatment plans, medications, and lab tests. DEPICT (Disease-specific electronic Patient Illustrated Clinical Timeline), ePROTOCOL-RB’s dynamic graphical display of protocol and patient activities, captures the medications, lab tests, procedures and physical exams in an elegant, simple, clear format. DEPICT can graphically monitor the progress of a specific protocol, from the creation of the protocol to the finalization of the protocol. DEPICT will graphically display the progress of each individual patient enrolled in a particular protocol and track patient progress under that protocol.

Conclusion: ePROTOCOL -RB provides an innovative tool to create, maintain, track and view graphically all stages of a clinical trial in a web based electronic format. ePROTOCOL -RB will enhance patient care and clinical research for rare, and also frequent and complex cancers.
ABSTRACT 70

CYTOGENETIC CHARACTERISTICS OF ALL PATIENTS AND THEIR CLINICAL, HAEMATOLOGICAL, MORPHOLOGICAL AND IMMUNOPHENOTYPIC IMPLICATIONS
Susheela Mungamuru, Shanthi Joy Abarna and Kamalalayam Raghavan Rajalekshmy
Cancer Institute (WIA), Chennai, India

e-mail: cancer_institute_wia@vsnl.com

Introduction: Cytogenetic study plays an integral role in the diagnosis and evaluation of prognosis in haematological malignancies. Correlated findings of Morphology, Immunology and Cytogenetic sub groups appear to have distinct clinical and prognostic features which strongly indicate that they represent biologically meaningful entities.

Methodology: Investigations were carried out using bone-marrow aspirate and peripheral blood samples from 494 ALL patients. The samples were subjected to short term cultures and karyotypes were made using the International System for Human Cytogenetic Normenclature (ISCN). Morphological, clinical, haematological and immunophenotypic findings were correlated with cytogenetic findings.

Results: Haematologtical and clinical investigations revealed Hb <10gms/dl in 59% of patients and 10gm/dl in 22% of patients. TC was <1,44,000 cmm in 68% of patients. Fever was the most characteristic feature and was found in 81% of patients followed by lymphadenopathy in 71% of patients. Hypodiploidy was found in 82% of patients. 80% of patients had chromosomal translocations t(10;14)(q24;q11), t(10;14)(q24;p11) and t(11;14)(p13;q11) was found in T-ALL with L2 morphology. Other groups comprised less than 10% of patients.

Conclusion: Fever, lymphadenopathy and hypodiploidy were the most common findings. 80% of patients had chromosomal translocations t(10;14)(q24;q11) and t(10;14)(q24;p11). t(11;14)(p13;q11) was found in T-ALL with L2 morphology. These sub-groups of Morphology, Immunophenotype and Cytogenetics (MIC) can give a more precise diagnosis and can predict for treatment response.

ABSTRACT 71

PLOIDY, DOUBLE Ph AND TRISOMY 8 IN CML PATIENTS AFTER CHEMOTHERAPY AND THEIR CLINICAL AND HAEMATOLOGICAL FINDINGS
Susheela Mungamuru, Shanthi Joy Abarna and Kamalalayam Raghavan Rajalekshmy
Cancer Institute (WIA), Chennai, India

e-mail: caninst@md2.vsnl.net.in

Introduction: Additional chromosomal abnormalities in CML have prognostic importance. Conflicting results have been reported with regards to the prognostic importance of additional chromosomal aberrations in blast crisis. In all patient groups, the occurrence of additional chromosome changes is an ominous sign indicating that disease progression is imminent.

Methods: Investigations were carried out using 782 samples from CML patients. The samples were subjected to short term cultures following harvesting. Karyotype analysis was performed following the International System for Human Cytogenetic Normenclature (ISCN). The samples were evaluated for cytogenetic, clinical, haematological and cytochemical features.

Results: Haematological characteristics revealed: Hb <10gm/dl in 38.40% patients and >10gm/dl in 51.45% patients. TC was >1,44,000 in 60.86% of patients. 64.49% patients were found to be hyper cellular. 82.2% patients revealed 0.5 blasts. 66.4% patients with 20-40% myelocytes. Abdominal pain was the most common characteristic feature found in 65.22% patients followed by body pain, fever, weight loss, hepatomegaly and
spleenomegaly in 36.23%, 26.86%, 26.08%, 20.29% and 22.46% patients respectively. The Ph chromosome was present in 90.05% patients and no Ph in 9.42% patients. A double Ph was present in 20.0% patients, trisomy 8 in 25% patients and ploidy in 30.0% patients.

**Conclusion:** Patients having only t(9;22)(q34;q11) had a longer survival period than the patients having additional chromosomal aberrations of ploidy, double Ph, trisomy 8 and other non-random chromosome aberrations. The presence of additional chromosomal abnormalities was found to constitute an independent, unfavourable prognostic variable.

**ABSTRACT 72**

**TELECOMMUNICATING RADIATION ONCOLOGY: MULTISITE LINEAR ACCELERATOR IMPLANTATION AS A POSSIBLE MODEL FOR DEVELOPING COUNTRIES?**

*Deneufbourg J-M.*

Radiation Oncology Department, University Hospital, Liege, Belgium

e-mail: jmdeneufbourg@ulg.ac.be

**Background:** In curative cancer treatment, radiation therapy represents a major tool either exclusively or associated with surgery. While greatly improving the potential for a positive outcome, technological advances bring increasing complexity at a cost sometimes unaffordable for organizations or governments.

**Purpose:** Customizing radiation therapy not only to the needs but also to the finances is a solution which would help make better treatment available for cancer patients.

**Materials and Methods:** An innovative technical platform was implemented in the form of a central radiation therapy location linked to three satellite remote treatment sites through an optic fiber network. The main unit constitutes a comprehensive center with all facilities: simulators, treatment planning systems, and low to high energy teletherapy machines. Special techniques (stereotactic, intensity modulation, total body irradiation) and all types of brachytherapy are centralized. A Primus® linear accelerator with full functionalities operates at each remote unit. In spite of distances up to 100 kilometers between sites of activity, the department works in complete interactivity with real time transmission of data and images. The entire workflow is managed by Lantis® Siemens through an integrated single database and a network representing the world’s largest installed architecture of the system.

**Results:** The multisite radiation oncology center allows easy accessibility for cancer patients from a wide geographic area. Hierarchical implantation among the different sites ensures optimal use of expensive equipment. Unnecessary duplications are avoided while advanced therapeutic technologies can enter into routine clinical practice. Coordination of all oncological activities boosts their quality level. Caregivers constitute an homogeneous team even if part of their relationships are virtual. Treatment guidelines, technical protocols, evaluation and follow-up activities are fully integrated. Clinical trials are conducted in common.

**Conclusion:** A multisite linear accelerators implantation linked through an Internet network could represent a valuable model for developing countries. With telecommunicating radiation oncology, the dilemma between high quality of care for most cancer patients and limited financial resources might represent the beginning of a solution.
INCTR would like to thank the following organizations for their support of the Annual Meeting 2005

At the Institut Pasteur, Rue Engeland 642, B-1180 Brussels, Belgium, Tel: +32 2 373 93 24, Fax: +32 2 373 93 13, www.inctr.org

6TH INCTR ANNUAL MEETING
2005