Abstract Book

The 25th Annual Congress of Romanian Society for Radiotherapy and Medical Oncology (RSRMO)

Sibiu, 15-17 October, 2015
ABSTRACT BOOK

The 25th Annual Congress of Romanian Society for Radiotherapy and Medical Oncology (RSRMO)

Sibiu, 15-17 October, 2015
Romanian Society for Radiotherapy and Medical Oncology working to improve quality of cancer care

By VIORICA NAGY, MD, PhD, Professor and head of the Oncology-radiotherapy Department at the University of Medicine and Pharmacy “Iuliu Hațieganu” in Cluj-Napoca, Romania and the head of the Radiotherapy III Department at the Oncology Institute “Prof. Dr. Ion Chiricuță” in Cluj-Napoca, Romania and DIRCK RADES, MD, head of the Department of Radiation Oncology, University-Hospital Schleswig-Holstein, Campus Lübeck, Germany

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The Romanian Society for Radiotherapy and Medical Oncology (RSRMO) (initially named the Romanian Society for Radiation Oncology) was established in the Institute of Oncology “Ion Chiricuță” Cluj-Napoca on October 8, 1991 at the initiative of Prof. Dr. Nicolae Ghilezan, with 28 radiotherapists as founding members. It is a dedicated professional society for radiotherapy but open to individuals in all oncology specialties (surgeons, biologists, medical oncologists, pathologists, physicists, radiotherapy technologist, etc). In 2010 the General Assembly of the society decided to change the name to the Romanian Society for Radiotherapy and Medical Oncology (RSRMO) due to the increasing number of medical oncologist members and increased financial support from this branch of the profession.

The Romanian Society for Radiotherapy and Medical Oncology (RSRMO) (http://www.srrrom.ro) is a nonprofit, nonpolitical professional organization having its domicile in Cluj-Napoca (Figure 2), with 246 current active members.

Main Objectives

The purpose of RSRMO is to bring together specialists in the field of medical oncology and radiotherapy in order to contribute to the increase in quality of oncological care. RSRMO aims to establish a high professional standard through supporting specialist education at all levels (university, post-graduate, doctoral) for all its members (physicians, physicists, biologists, etc.). An important objective of the society is to protect the interest of its members and of oncology and radiotherapy in general in dealings with the organizations overlooking their activities – the Ministry of Health, the Government, the Ministry of Education, county health departments. The society promotes equal and unrestricted access for all patients to optimal cancer treatment.

RSRMO aims to promote the collaboration of specialists in the field of oncology and radiotherapy, as well as the collaboration with specialists in other oncology-related fields. It promotes collaboration with international organizations of medical oncology and radiotherapy, cancer foundations, universities, patient groups and the representatives of the pharmaceutical and medical technology industries.

The society proposes to inform and educate patients, the civil society and the general public about the issues related to the prevention, diagnosis and treatment of all malignant disorders.

The Executive Board of the Society is elected by the General Assembly for a term of three years and it consists of five members: the Secretary, three Presidents (the Executive President and two Vice Presidents) and the treasurer. Each President heads the Executive Board for one year. The Executive Board conducts its activities with the help of a number of committees appointed by it: the committee for organizing the National Congress, the scientific committee, the education committee, the ethics committee, the elections committee, etc.

The General Assembly consists of all the members of the Society and meets at least once a year at the National Congress. Every year RSRMO organizes a congress for specialists in radiotherapy and medical oncology with the participation of its members as well as other specialists involved in RSRMO activities and specialists of oncology-related fields (surgeons, physicists, radiobiologists, pathologists, etc).
RSRMO has a prolific activity both nationally and internationally, promoting collaboration and mutual recognition of professional organizations in the field.

RSRMO organizes Annual Congresses focusing on contemporary topics, building relationships amongst the different specialists involved in cancer care and research. For example in 2010 the congress was entitled “Gynaecological Cancers: a Continuous Challenge” and was officially endorsed by the European Society of Gynaecological Oncology (ESGO). In 2011 the congress focused on ETHICS, EFFICIENCY and EFFECTIVENESS in ONCOLOGY, in 2013 on MODERN APPROACH IN ONCOLOGY: FROM SCREENING TO STATE-OF-THE ART THERAPY – both with de official endorsement of ESMO and recommended by ESTRO. (http://www.srrom.ro)

The opening session of each year’s congress is called ‘The Resident’s Afternoon’ and it is aimed at residents. This is the forum where residents of radiotherapy, medical oncology and other specialties present the results of their research, with prizes going to the three most significant presentations.

The Society’s publication is called “Journal of Radiotherapy and Medical Oncology”. The first issue was published in 1995 in Romanian and since 2008 it is being published in English, with four issues annually. Our Journal publishes papers which are of a high standard and which contribute to the advancement of knowledge in the field of radiotherapy and medical oncology. The journal also publishes review articles, case reports and brief communications (including book reviews) on those specific topics. The website address of the Journal is http://www.jradonco.ro.

RSRMO is involved in education at national level: it develops and updates the national curriculum for radiotherapy and medical oncology in keeping with the European curriculum developed by ESTRO and ESMO. Similarly, RSRMO contributes to the development of medical education by courses for medical specialists organised by the University of Medicine and Pharmacy Cluj-Napoca or by the two National Romanian Cancer Institutes (of Bucharest and of Cluj-Napoca).

RSRMO offers fellowships and grants (travel, registration fees for international courses and congresses) for residents in radiotherapy or medical oncology, as well as of radiotherapy physicists.

RSRMO is involved in clinical practice through regular evaluations of the radiotherapy practice in Romania and analysis of clinical results in all cancer centers (e.g. the evaluation of therapeutic methodology and results of cervical cancer and breast cancer treatment at 5 year intervals, etc.). The evaluation reports have been published in the Journal of the Society.


RSRMO has a close relationship with ESTRO. At the annual National Societies Meeting organized by ESTRO, RSRMO has an active presence through the participation of one or two members of its Executive Board. The current Romanian national representative for ESMO is a member of RSRMO and is very active within ESMO. Our society was present and had a booth set up at the ESTRO International Oncology Forum 8-12 May 2011, London, UK (Figure 3), as well as at the ESMO Congress 28 Sept.–2 Oct. 2012, Vienna, Austria, displaying significant moments in the Society’s activity, the Society’s Journal, etc. and generated genuine interest amongst the delegates of these events.

Of the various other national societies with whom we have been in collaboration we must mention a number who have supported our society through continuous medical education programs that many of our members benefited from, as well as through conferences and courses given at various RSRMO events. First of all we would like to mention the long-lasting collaboration (of over 20 years) and support offered by the French Society for Radiotherapy and Oncology (SFRO) and implicitly the major cancer centers from France (Institut Gustave Roussy, Villejuif, Paris; Hospital Universitaire Henri
Mondor, Paris), by the Italian Association of Oncological Radiotherapy (AIRO) and by the European Institute of Oncology, Milan, Italy.

We also need to mention the course organized by our society in collaboration with the University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca in 2006 which also had international lecturers: renowned radiotherapists and medical physicists from William Beaumont Hospital, Royal Oak, USA and the 2009 Brachytherapy course organized in collaboration with a team from the Radiotherapy Department of the Vienna General Hospital (AKH). Another course which RSRMO organized with international collaboration was the 2011 ASCO International Clinical Trials Workshop.

However, there are still a number of unsolved problems in radiotherapy in Romania, primarily due to the great deficiency in radiotherapy equipment which makes it difficult for patients to access radiotherapy treatment. Other problems include the deficiency in reimbursement of cancer treatment, the inconclusive dialogue with central authorities, etc. RSRMO has made repeated appeals to the Ministry of Health pointing out the problems and proposing solutions for the improvement of the situation of radiotherapy in Romania.

Recent achievements

This year RSRMO has had two important achievements. The society has established a Resident Group for radiotherapy and medical oncology residents which has 83 members. This group aims to establish a high professional standard for residents, to protect the interest of residents, to collaborate with residents in other fields, to collaborate and develop common projects with international societies of residents of radiotherapy and medical oncology, with cancer organizations and foundations, universities, patient groups, etc.

Also in the current year RSRMO, as founding member, had a crucial role in the establishment of the FEDERATION OF ROMANIAN CANCER SOCIETIES (FRCS) whose purpose is to promote, coordinate and develop collaboration amongst the various organizations in different fields of oncology in Romania.

Even though RSRMO is a small national society, in its existence it has had a very fruitful activity, seeking to fulfill the main objectives of its statute. We propose to maintain the high standard we have established and to increase the society’s activity both nationally and internationally.
## SCIENTIFIC PROGRAMME

**THURSDAY, 15 OCTOBER 2015**

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<tr>
<th>Time</th>
<th>Room</th>
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<tr>
<td>09:00 – 11:05</td>
<td>ATLAS ROOM</td>
<td>Precongress course: „2015 news in molecular targeted therapy”</td>
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<td>Coordinator: Prof. Dr. T.E. Ciuleanu</td>
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<td>University of Medicine and Pharmacy „Iuliu Hatieganu” Cluj-Napoca</td>
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<tr>
<td>09:00 – 09:05</td>
<td></td>
<td><em>Introduction</em></td>
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<td>09:05 – 09:35</td>
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<td><em>Immune oncology versus targeted therapies in solid tumors – is there a winner?</em></td>
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<td>09:35 – 10:05</td>
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<td><em>De ente et essentia. Understanding cancer genomics in the selection of the best targeted therapy.</em></td>
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<td><em>Resist the resistance. How to use a TKi when TKi is not working</em></td>
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<td>10:05 – 10:35</td>
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<td><em>Non-Small Cell Lung Cancer</em></td>
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<td>10:35 – 11:05</td>
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<td><em>Precision medicine insights in breast cancer</em></td>
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<td>09:00 – 11:05</td>
<td>HERA ROOM</td>
<td>Educational session on physics: „Physics Principles for IG-IRMT”</td>
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<td>Dr. N. Corradini, Clinica Luganese, Lugano, Switzerland</td>
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<tr>
<td>11:05 – 11:30</td>
<td>FOYER</td>
<td>Coffee break – all sessions</td>
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<tr>
<td>11:30 – 13:00</td>
<td>ATLAS ROOM</td>
<td>Precongress course: „2015 news in molecular targeted therapy”</td>
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<td>11:30 – 12:00</td>
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<td><em>Medley in precision medicine:</em></td>
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<td>12:00 – 12:30</td>
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<td><em>Update in brain tumors</em></td>
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<td>12:30 – 13:00</td>
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<td><em>Digestive tumors</em></td>
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<td>11:30 – 14:00</td>
<td>HERA ROOM</td>
<td>Educational session on contouring: „Volume Delineation for Thoracic Tumors”</td>
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<td>Prof. M. Ozhahin, CHUV, Lausanne, Switzerland</td>
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<td>Dr. S. Adeberg, University Hospital of Heidelberg, Germany</td>
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<tr>
<td>13:00 – 13:45</td>
<td>RESTAURANT</td>
<td>Lunch – Precongress course</td>
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<td>14:00 – 14:45</td>
<td>RESTAURANT</td>
<td>Lunch – Educational session on contouring</td>
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<td>13:45 – 15:30</td>
<td>ATLAS ROOM</td>
<td>Precongress course: „2015 news in molecular targeted therapy”</td>
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<td>13:45 – 14:15</td>
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<td>Medley in precision medicine: <strong>Prostate cancer</strong></td>
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<td>14:15 – 14:45</td>
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<td>G. Kacso</td>
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<td>14:45 – 15:15</td>
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<td><strong>Renal cancer</strong></td>
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<td>15:15 – 15:30</td>
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<td>Dana Stanculeanu</td>
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<td>13:45 – 15:45</td>
<td>BETA ROOM</td>
<td>Session: Medical physicists</td>
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<td>14:45 – 15:00</td>
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<td>Moderators: Adina Madalina Badiu, A. Chis</td>
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<td>15:00 – 15:15</td>
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<td><strong>Characteristics of brachytherapy sources used for the treatment of prostate cancer</strong></td>
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<td>15:15 – 15:30</td>
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<td>Edina Dordai</td>
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<td>15:30 – 15:45</td>
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<td><strong>Treatment planning using Volumetric Modulated Arc Therapy for esophageal tumors</strong></td>
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<td>15:45 – 16:00</td>
<td>FOYER</td>
<td>Coffee break – Precongress course</td>
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<td>15:45 – 16:00</td>
<td>FOYER</td>
<td>Coffee break – Session: Medical physicists</td>
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<tr>
<td>16:00 – 19:40</td>
<td>ATLASS ROOM</td>
<td>SRROM Congress Session</td>
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<td>16:00 – 18:00</td>
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<td>Resident afternoon</td>
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<td>16:00 – 16:10</td>
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<td>Moderators: Viorica Nagy, Rodica Anghel</td>
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<td>16:00 – 16:10</td>
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<td><strong>Evaluation of dosimetry parameters and their clinical implication in 3D CRT – IMRT – VMAT-RAPIDARC® radiotherapy techniques for esophageal cancer</strong></td>
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<td>16:10 – 16:20</td>
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<td>G.C. Mihaila</td>
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<td>16:20 – 16:30</td>
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<td><strong>Volumetric modulated Arc therapy in the treatment of rectal adenocarcinoma: initial experience</strong></td>
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<td>16:30 – 16:40</td>
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<td>Elena Manea</td>
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<td>16:40 – 16:50</td>
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<td><strong>Solid pseudopapillary tumor of the pancreas: clinicopathologic features and management of 13 cases</strong></td>
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<td>16:50 – 17:00</td>
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<td>O.V. Bochis</td>
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<td>17:00 – 17:10</td>
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<td><strong>Treatment with folfirinox in locally advanced and metastatic pancreatic cancer</strong></td>
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<td>17:10 – 17:20</td>
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<td>R. Vidra</td>
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<td>17:10 – 17:20</td>
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<td><strong>Chemoresponsiveness to neoadjuvant chemotherapy – novel prognostic factor for patients with locally advanced cervical carcinoma</strong></td>
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<td>17:10 – 17:20</td>
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<td>Dominica Carpov</td>
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<td>17:10 – 17:20</td>
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<td><strong>Efficacy and toxicity of treatment with cetuximab in metastatic colorectal cancer: the experience of the Oncology Institute Cluj-Napoca</strong></td>
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<td>17:10 – 17:20</td>
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<td>Adina Nemes</td>
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<td>17:10 – 17:20</td>
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<td><strong>The role of sequentiality in the multidisciplinary treatment of cervical cancer</strong></td>
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<td>17:10 – 17:20</td>
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<td>Claudia-Diana Sabau</td>
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<td>17:10 – 17:20</td>
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<td><strong>Three-dimensional conformal radiotherapy in cervical cancer, stage IIIB-IIIB: experience of the Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca</strong></td>
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<td>17:10 – 17:20</td>
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<td>Anamaria Sipos</td>
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</table>
| 17:20 – 17:30| *The role of the induction chemotherapy followed by radiochemotherapy in advanced rectal cancer-assessed by MRI*  
Andrea Craciunescu |
| 17:30 – 17:40| *Clinical aspects and results of whole brain radiotherapy for multiple brain metastases*  
Patricia Suteu |
| 17:40 – 17:50| *Short-course radiotherapy outcomes in neoadjuvant treatment of rectal carcinomas*  
C. Hopirtean |
| 17:50 – 18:00| *Efficiency assessment of paclitaxel and carboplatin regimen in patients with ovarian cancer*  
Amalia Moldovan |
| 18:00 – 19:40| Partners Symposia                                                             |
| 18:00 – 18:30| Symposium JANSSEN  
*Rolul antraciclinelor în managementul cancerului mamar metastatic*  
R. Tanaseasu |
| 18:30 – 18:50| Symposium SANOFI  
*Inhibitori de factori angiogenici multipli cu ameliorarea supravietuirii generale vs. FOLFIRI + placebo*  
Cristina Cebotaru |
| 18:50 – 19:20| Symposium BRISTOL MYERS SQUIBB  
*Perspectives in melanoma: Immuno-Oncology the New Treatment Paradigm*  
D. Schadendorf |
| 19:20 – 19:40| Symposium ASTRazenECA  
*De la Tamoxifen la Fulvestrant: ce am invatat?*  
R. Tanaseasu, R. Curca |
| 16:00 – 19:40| Session: Medical physicists  
Moderators: Mihaela Papiu, R. Popa |
| 16:00 – 16:15| *Daily image guidance with cone-beam computed tomography for head and neck cancer IMRT*  
Adina Madalina Badiu |
| 16:15 – 16:30| *Image guidance with CBCT in lung cancer radiotherapy*  
Claudia Irina Sarca |
| 16:30 – 16:45| *Dosimetric check-up of dose distribution considering the influence of positioning errors in modern radiotherapy*  
A. Chis |
| 16:45 – 17:00| *Treatment planning using Volumetric Modulated Arc Therapy for lung tumours*  
M. Suditu |
| 17:00 – 17:30| *Innovative Technologies: Indications & Clinical Benefits*  
M. Ozsahin |
| 17:30 – 18:00| *Clinical Outcomes and Challenges of Lung SBRT*  
X. Mirabel |
| 18:00 – 18:20| Symposium MEDIST/ACCURAY  
*CyberKnife and TomoTherapy Systems in a Busy Department: Impact on Organization*  
X. Mirabel |
| 18:20 – 19:40| *Medical physicists Meeting*  
A. Chis |
| 20:00 – 22:00| WELCOME RECEPTION  
Ramada Hotel Sibiu |
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<tr>
<td>09:00 – 10:00</td>
<td>Opening Ceremony</td>
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<tr>
<td>ATLASS ROOM</td>
<td>A. Moga – RSROM President</td>
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<tr>
<td>10:00 – 11:50</td>
<td>Epidemiology, Screening &amp; Diagnosis Session</td>
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<tr>
<td>ATLASS ROOM</td>
<td>Moderators: Ofelia Suteu, D. Vancea</td>
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<tr>
<td>10:00 – 10:15</td>
<td>Time trends of incidence and mortality by lung cancer</td>
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<td>Ofelia Suteu</td>
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<td>10:15 – 10:30</td>
<td>Initiatives for improving diagnosis of lung cancer - what is different for Romania?</td>
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<td>Ruxandra Rajnoveanu</td>
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<td>10:30 – 10:45</td>
<td>Time-scale enhancement of chest radiographs improving cancer diagnosis and treatment</td>
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<td>Iolanda Dumitrescu</td>
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<td>10:45 – 11:00</td>
<td>Why we need TNM Staging in Lung Cancer?</td>
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<td>D. Vancea</td>
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<td>11:00 – 11:15</td>
<td>Software-assisted quality improvement in thoracic X-RAY imaging aiding cancer follow-up</td>
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<td>Iolanda Dumitrescu</td>
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<td>11:15 – 11:30</td>
<td>Early detection of lung cancer and diagnosis of genetic predisposition</td>
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<td>Z. Fekete</td>
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<td>11:30 – 11:50</td>
<td>Symposium ASTRAZENECA</td>
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<td>Schimbarea paradigmei de tratament în cancerul bronhopulmonar: de la abordarea holestică la cea personalizată</td>
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<td>T. E. Ciuleanu</td>
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<tr>
<td>11:50 – 12:10</td>
<td>Coffee break/posters session A (1-4) – Moderators: T.E. Ciuleanu, A. Moga</td>
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<tr>
<td>12:10 – 14:15</td>
<td>Medical Oncology Session</td>
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<tr>
<td>ATLASS ROOM</td>
<td>Moderators: T.E. Ciuleanu, M. Dediu</td>
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<tr>
<td>12:10 – 12:40</td>
<td>New molecules under development in lung cancer at Gustave Roussy</td>
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<td>J.P. Armand</td>
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<td>12:40 – 13:05</td>
<td>NSCLC management 2015: an update</td>
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<td>D. Paul</td>
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<td>13:05 – 13:20</td>
<td>Current status and further perspectives in squamous cell NSCLC</td>
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<td>M. Dediu</td>
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<td>Dana Clement</td>
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<td>13:35 – 14:15</td>
<td>Symposium ROCHE</td>
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<td>Statusul EGFR - factor determinant în alegerea tratamentului pacienţilor cu cancer pulmonar</td>
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<td>R. Curca</td>
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|              | Importanţa tratamentului cu Avastin la pacientele cu cancer de sân - forma agresivă | Dana Grecea

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<tr>
<td>12:10 – 14:15</td>
<td>Radiotherapy Session</td>
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<tr>
<td>HERA ROOM</td>
<td>Moderators: Rodica Anghel, Petronela Rusu</td>
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<tr>
<td>12:10 – 12:25</td>
<td>The role of radiotherapy (RT) in improving treatment outcome in small cell lung cancer (SCLC)</td>
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<td>Petronela Rusu</td>
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<tr>
<td>12:25 – 12:40</td>
<td>The role of radiotherapy in treatment outcome in lung cancer – the experience of the Radiotherapy Department of Sibiu</td>
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<td>A. Moga</td>
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<tr>
<td>12:40 – 12:55</td>
<td><em>The future looks bright – multidisciplinary approach for lung resections in T4 disease with great vessel involvement</em></td>
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<td>12:55 – 13:10</td>
<td><em>State of art in the intensity modulated radiotherapy of the lung cancer</em></td>
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<td>13:40 – 13:55</td>
<td><em>Brachytherapy for lung cancer: utopia or reality in Romania?</em></td>
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<td>13:55 – 14:15</td>
<td><strong>Symposium MERCK</strong></td>
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<td><em>Head and Neck – Multidisciplinary approach and Treatment optimization</em></td>
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<td>14:15 – 15:00</td>
<td><strong>Lunch/Posters Session B (5-11) – Moderators: G.Kacso, C. Cainap</strong></td>
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<tr>
<td>15:00 – 17:35</td>
<td><strong>Medical Oncology Session</strong></td>
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<tr>
<td>15:00 – 15:15</td>
<td><em>Small cell lung cancer-promises and pitfalls in 2015</em></td>
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<tr>
<td>15:15 – 15:30</td>
<td><em>Malignant pleural mesothelioma- overview of the literature and 15 years experience of “Prof Dr Ion Chiricuta” Institute of Oncology Cluj-Napoca</em></td>
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<td>15:30 – 15:45</td>
<td><em>Neuroendocrine tumors of the thorax</em></td>
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<tr>
<td>15:45 – 16:00</td>
<td><em>Drug interactions in the therapy of lung cancer</em></td>
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<td>16:00 – 16:15</td>
<td><em>Nonhodgkin lymphoma diffuse large B CELL CD20 +. Difficulties in therapeutic management</em></td>
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<td>16:15 – 16:35</td>
<td><strong>Symposium TORUS PHARMA</strong></td>
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<td><em>SIRFLOX – integration of SIR-Spheres Y-90 resin microspheres into the earlier management of colorectal liver metastases</em></td>
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<td>16:35 – 16:55</td>
<td><strong>Symposium PFIZER</strong></td>
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<td><em>NSCLC – oncogene driven subtypes</em></td>
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<td>16:55 – 17:15</td>
<td><strong>Symposium AMGEN</strong></td>
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<td><em>Panitumumab + FOLFOX sau FOLFIRI in prima linie de tratament al cancerului colorectal metastazat RAS WT</em></td>
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<td>17:15 – 17:35</td>
<td><strong>Symposium BOEHRINGER – INGELHEIM</strong></td>
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<td><em>Afatinib efficacy data in NSCLC</em></td>
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<td>15:00 – 17:35</td>
<td>Radiotherapy Session&lt;br&gt;Moderators: M. Savu, A. Moga</td>
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<td>15:00 – 15:15</td>
<td>Different modalities of irradiation in superior vena cava compression syndrome – historical perspective&lt;br&gt;M. Savu</td>
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<td>15:15 – 15:30</td>
<td>SBRT lung with TOMO in Heidelberg&lt;br&gt;V. Tarcea</td>
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<td>15:30 – 15:45</td>
<td>Hypofractionation with TOMO in Heidelberg&lt;br&gt;S. Adeberg</td>
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<td>15:45 – 16:00</td>
<td>Pulmonary adverse events in combined treatment of locally-advanced non-small cell lung cancer (la NSCLC)&lt;br&gt;Petronela Rusu</td>
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<td>16:00 – 16:15</td>
<td>Incidence, severity and management of skin toxicity associated with EFG1R inhibitors therapy in head and neck and lung cancer patients&lt;br&gt;Rodica Anghel</td>
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<td>16:15 – 16:30</td>
<td>State of art in the intensity modulated radiotherapy of the esophageal cancer&lt;br&gt;I.C. Chiricuta</td>
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<td>16:30 – 16:45</td>
<td>Esophageal cancer. A retrospective study from the Institute of Oncology Prof. Dr. I. Chiricuta.&lt;br&gt;Z. Fekete</td>
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<td>16:45 – 17:00</td>
<td>Strategies of nutritional support for the esophageal cancer patient&lt;br&gt;Ioana Irina Mateies</td>
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<td>17:00 – 17:15</td>
<td>Testing new biohribid structures for therapeutic potential in oncology and regenerative medicine&lt;br&gt;Ioana-Carmen Brie</td>
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<tr>
<td>17:15 – 17:35</td>
<td>Symposium ASTELLAS&lt;br&gt;Treatment decision in a new therapeutic landscape – mCRPC&lt;br&gt;G. Kacso</td>
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<tr>
<td>17:35 – 18:00</td>
<td>Coffee break/&lt;br&gt;Posters Session C (12-16) – Moderators: Petronela Rusu, S. Pop</td>
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<tr>
<td>18:00 – 18:55</td>
<td>Partners Symposiums</td>
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<tr>
<td>18:00 – 18:20</td>
<td>Symposium ELI LILLY&lt;br&gt;Alimta (pemetrexed) prima linie de tratament în NSCLC&lt;br&gt;S. Negru</td>
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<td>18:20 – 18:35</td>
<td>Symposium BAYER&lt;br&gt;Impact of sorafenib dosing on outcome from the European patient subset of the GIDEON study&lt;br&gt;Adina Croitoru</td>
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<td>18:35 – 18:55</td>
<td>Symposium NOVARTIS&lt;br&gt;Rolul terapiei țintite în tratamentul de linia întâi al melanomului metastatic&lt;br&gt;A. Ungureanu&lt;br&gt;Perspective terapeutice în tratamentul sarcoamelor de țesuturi moi&lt;br&gt;TBD</td>
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<tr>
<td>18:00 – 19:40</td>
<td>RSRMO 25th Festive General Meeting&lt;br&gt;Only members SRROM</td>
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Posters Sessions

Session A – Friday, 16 October 2015, 11:50 – 12:10
Moderators: T.E. Ciuleanu, A. Moga

1. METFORMIN ASSOCIATED WITH PHOTODYNAMIC THERAPY – A NOVEL ONCOLOGICAL DIRECTION AGAINST MELANOMA

Nenu Iuliana1, Tudor Diana1, Olteanu Diana1, Popescu Tiberiu1, Filip Adriana1, Baldea Ioana1

1”Iuliu Hatieganu” University of Medicine and Pharmacy – Physiology Department, Cluj, Romania

2. ANTINEOPLASTIC EFFECTS OF METFORMIN ENHANCE ANTITUMORAL EFFECT OF PH TALOCYANINE-MEDIATED PHOTODYNAMIC THERAPY AGAINST MALIGNANT MELANOMA

Tudor Diana1, Nenu Iuliana2, Popescu Tiberiu1, Olteanu Diana4, Decea Nicoleta5, Filip Adriana6, Baldea Ioana7

1”Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, 2”Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, 3”Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, 4”Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca, 5”Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca

3. LIPOSARCOM DE COAPSA – ABORDAREA RADIOTERAPEUTICA POSTCHIRURGICALA PRIN TEHNICA IMRT

Păguțe Ovidiu Nicolae01, Mihăilă George Cristian01, Mireștean Camil01, Firtea Cosmin Mihai01, Manea Elena01, Iancu Dragos Teodor01,02

1Institutul Regional de Oncologie Iasi, 2Universitatea de Medicina si Farmancie Gr.T.Popa Iasi

4. A RARE TUMOR – PRIMARY LEIOMYOSARCOMA OF PULMONARY ARTERY. CASE PRESENTATION

Laura Rebegea1,2, Dorel Firescu2,3, Mihaela Dumitru4

1 ”Sf. Ap. Andrei” Emergency Clinical Hospital, Radiotherapy Department, Galati, 2”Dunarea de Jos” University of Galati, Faculty of Medicine, Clinical Department, 3 ”Sf. Ap. Andrei” Emergency Clinical Hospital, Surgery Clinic II, Galati
5. STUDIU DE CAZ: INTEGRAREA SCINTIGRAFIEI OSOASE IN DIAGNOSTICUL IMAGISTIC AL LIMFOMULUI LIMFOPLASMOCITAR

Iulia Andreea CHIRIAC1, Olga NICULESCU1, Raluca MITITELU1, Catalin MAZILU1, Mihaela Georgiana LEPUS1

1Laboratorul de Medicina Nucleara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti

6. THE USE OF THREE-PHASE BONE SCAN IN SOFT-TISSUE NEOPLASMS – CASE REPORT

CARMEN TIPAR1, RALUCA MITITELU1, CATALIN MAZILU1, OLGA NICULESCU1

1Dept of Nuclear Medicine Central Universitary Emergency Military Hospital “Dr Carol Davila”, Bucharest

7. ASPECTUL IMAGISTIC SCINTIGRAFIC IN FIBROMATOZA AGRESIVA DESMOIDA – PREZENTARE DE CAZ

Iulia Andreea CHIRIAC1, Olga NICULESCU1, Raluca MITITELU1, Catalin MAZILU1, Carmen TIPAR1, Emilian STEFAN2, Mihaela Georgiana LEPUS1

1Laboratorul de Medicina Nucleara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti, Romania, 2Sectie Ortopedie-Traumatologie, Spitalul CF2, Bucuresti, Romania

8. ROLE OF POSITRON EMISSION TOMOGRAPHY (PET/CT) IN IDENTIFYING UNKNOWN PRIMARY IN PATIENTS WITH LUNG METASTASIS.

sukanta barai1, Arun P2, Gambhir G3

1Additional Professor, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India, 2Senior Resident, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India, 3Professor and Head, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India

9. DERMATOFIBROSARCOMA PROTUBERANS

MIHAELA CRAESCU1,2, LAURA REBEGEA1,2, MIHAELA DUMITRU3, DOREL FIRESCU1,2, AUREL NECHITA2,3

1Emergency Clinical Hospital “Sf. Ap. Andrei” Galati, Romania, 2Faculty of Medicine and Pharmacy “Dunarea de Jos” University of Galati, Romania, 3Emergency Clinical Pediatric Hospital “Sf. Ioan”, Galati, Romania
10. DOSIMETRIC COMPARISON AND EVALUATION OF RAPIDARC AND 3D-CRT TECHNIQUES FOR LEFT-SIDED BREAST CANCER

Anisoara Anghelache, Irina Butuc, Calin Gh. Buzea, Anamaria Constantin, Silvana Ojica, Mihaela Oprea, Manuela Oprisan, Alina Rogojanu, Alexandru D. Zara, Catalina Zetiu

IRO Iasi

11. NEUTROPHIL-TO-LYMPHOCYTE RATIO IS AN INDEPENDENT PROGNOSIS FACTOR IN STAGE IV LUNG ADENOCARCINOMA PATIENTS WITH BRAIN METASTASES

Teodora Alexa, Ingrith Miron, Marius Păduraru, Adela Calancea, Lucian Miron

Medical Oncology, University of Medicine and Pharmacy “Gr. T. Popa”, Iași, Pediatric Oncology, University of Medicine and Pharmacy “Gr. T. Popa”, Iași

Session C – Friday, 16 October 2015, 17:35 – 18:00
Moderators: Petronela Rusu, S. Pop

12. CONSIDERATIONS ON THE PSYCHOTHERAPEUTIC TREATMENT FOR PATIENTS WITH NEOPLASIA

Clinical Psychologist Adina Moraru

Amethyst Radiotherapy Centre

13. TIME TRENDS AND SURVIVAL RATES OF ORAL CAVITY AND PHARYNGEAL CANCERS BY SITES, IN CLUJ COUNTY

Ofelia Șuteu, Patricia Șuteu, Daniela Coza, Florian Nicula, Patriciu Achimaș-Cădariu

Iuliu Hațieganu University of Medicine and Pharmacy Cluj-Napoca, „Prof. Dr. Ion Chiricuță” Oncology Institute, Cluj-Napoca, Romania

14. DOSIMETRIC VERIFICATION OF RAPIDARC TREATMENT PLANS IN PROSTATE CANCER

Aurel Chis, Veronica Mandea, Cristina Taflan

Institutul Oncologic “Prof. I. Chiricuta” Cluj, Centrul de Diagnostic si Tratament Oncologic Brasov
15. “EARLY DETECTIONS IN POST-THERAPEUTIC RELAPSES IN METASTATIC COLORECTAL CARCINOMA BY FOLLOWING UP SOME BLOOD IMMUNOLOGIC MARKERS”

Nicoale Miron¹, Chereches Gabriela¹, Barbos Otilia¹, Rares Buiga¹, Ovidiu Balacescu¹, Dana Iancu¹, Nicolae Todor², Ciuleanu Tudor¹²

¹1. Oncology Institute “I. Chiricuta” Cluj-Napoca, 2. UMF Cluj-Napoca, 3. Internal Medicine and Surgery Clinic III Cluj-napoca

16. RARE GYNECOLOGICAL TUMORS. CLINICIANS’ VIEW.

Todor Irina¹, Nagy Viorica¹², Rancea Alin¹², Coza Daniela², Todor Nicolae²

¹University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, ²Oncology Institute “Ion Chiricuta” Cluj-Napoca

20:00 – 22:00 DINNER

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**SATURDAY, 17 OCTOBER 2015**

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>09:00 – 11:30</td>
<td>Health Policy Session</td>
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<td>HERA ROOM</td>
<td>Moderators: V. Cernea, S. Pop</td>
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<tr>
<td>09:00 – 09:15</td>
<td>Health policies and cultural elements in oncology</td>
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<td>09:15 – 09:30</td>
<td>Radiotherapy coverage in Romanian</td>
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<td>V. Cernea</td>
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<td>09:30 – 09:45</td>
<td>ESMO – MESC criteria for evaluating the new drugs</td>
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<td>A. Eniu</td>
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<td>09:45 – 10:00</td>
<td>The status of pediatric radiotherapy in Romania and IAEA recommandations</td>
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<td>Dana Cernea</td>
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<td>10:00 – 10:15</td>
<td>Medisprof 5 years of experience in private oncology services</td>
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<td>B. Lavoue</td>
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<td>10:15 – 10:30</td>
<td>National Cancer Plan, between ambition and reality</td>
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<td>C. Irimia</td>
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<td>10:30 – 11:30</td>
<td>Symposium JANSSEN</td>
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<td>Latest updates on the management of mCRPC</td>
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<td>Eleni Efthathiou, M. V. Marinca</td>
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<td>G. Kacso</td>
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<td>2. Target and organ at risk delineation for RECTAL cancer</td>
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<td>G. Kacso</td>
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<td>3. Target and organ at risk delineation for CERVIX cancer</td>
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<td>Viorica Nagy</td>
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<td>4. Target and organ at risk delineation for PROSTATE cancer</td>
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<td>13:30 – 13:45</td>
<td><em>A case of complete regression of a prostate adenocarcinoma treated with EBRT (external beam radiotherapy) and ADT (androgen deprivation)</em>&lt;br&gt;C.M. Firtea</td>
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<td>14:00 – 14:15</td>
<td><em>Our experience regarding hypofractionated radiotherapy in breast cancer</em>&lt;br&gt;Amalia Constantinescu</td>
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<td>11:45 – 13:30</td>
<td><strong>BETA ROOM</strong>&lt;br&gt;Postgraduate Medical Course: Contouring targets and organs at risk for pelvic cancers&lt;br&gt;Coordinator: Conf. Dr. G. Kacso&lt;br&gt;University of Medicine and Pharmacy „Iuliu Hatieganu” Cluj-Napoca&lt;br&gt;&lt;br&gt;b. Practical part: contouring (pre- &amp; postop). Real rectal, cervix or prostate cancer cases will be provided on electronic support, including cross sectional imaging&lt;br&gt;Attendees are kindly asked to bring laptops</td>
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<td>11:20 – 13:30</td>
<td><strong>STUDIO ROOM</strong>&lt;br&gt;Course for Oncology Nurses&lt;br&gt;Coordinator: Dr. Claudia Ordeanu&lt;br&gt;Institute of Oncology „Ion Chiricuta” Cluj-Napoca&lt;br&gt;&lt;br&gt;11:20 – 11:40</td>
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<td>14:00 – 14:15</td>
<td><strong>HERA ROOM</strong>&lt;br&gt;CONCLUSIONS – Congress closure</td>
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16:00 EVALUATION OF DOSIMETRY PARAMETERS AND THEIR CLINICAL IMPLICATION IN 3D CRT – IMRT – VMAT-RAPIDARC® RADIOTHERAPY TECHNIQUES FOR ESOPHAGEAL CANCER.
GC Mihaila1, CC Mirestean1, ON Pagute1, Elena Manea1, Irina Butuc1, Silvana Ojica, Manuela Oprisan1, Anamaria Constantin, Mihaela Oprea, Catalina Ursache1, Alina Rogojanu Anisoara Anghelache1, AD Zara C Buzea1, DT Iancu1,2
1Regional Institute of Oncology Iasi, 2Gr. T. Popa University of Medicine and Pharmacy, 3Medical Physics Department, Regional Institute of Oncology Iasi
George Cristian Mihaila

16:10 VOLUMETRIC MODULATED ARC THERAPY IN THE TREATMENT OF RECTAL ADENOCARCINOMA: INITIAL EXPERIENCE
Elena Manea1, Manuela Oprisan2, Anisoara Anghelache2, Silvana Ojica2, Mihaela Oprea2, Alina Rogojanu2, Irina Butuc2, Anamaria Constantin2, AD Zara, C Buzea1, Andreea Marinca1
1Radiotherapy Department, Regional Institute of Oncology Iasi, 2Medical Physics Department, Regional Institute of Oncology Iasi
Elena Manea

16:20 SOLID PSEUDOPAPILLARY TUMOR OF THE PANCREAS: CLINICOPATHOLOGIC FEATURES AND MANAGEMENT OF 13 CASES
Bochis Ovidiu Vasile1,2, Mihut Emilia1, Buiga Rares1, Irimie Alexandru1,2
1The Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca, Romania, 2University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, Romania
Ovidiu Vasile Bochis

16:30 TREATMENT WITH FOLFIRINOX IN LOCALLY ADVANCED AND METASTATIC PANCREATIC CANCER
Radu Vidra1, Adina Nemes1, Calin Cainap1,2
1Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca, 2The “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca
Radu Vidra

16:40 CHEMORESPONSIVENESS TO NEOADJUVANT CHEMOTHERAPY – NOVEL PROGNOSTIC FACTOR FOR PATIENTS WITH LOCALLY ADVANCED CERVICAL CARCINOMA.
Carpov Domnica1, Andreea Marita1, Nicolae Todor1, Viorica-Magdalena Nagy1,2
1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca, 2University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca
Domnica Carpov

16:50 EFFICACY AND TOXICITY OF TREATMENT WITH CETUXIMAB IN METASTATIC COLORECTAL CANCER: THE EXPERIENCE OF THE ONCOLOGY INSTITUTE CLUJ-NAPOCA
Adina Nemes1, Alina-Simona Muntean1, Tudor Ciuleanu1,2, Calin Cainap1,2, Cristina Cebotaru1
1Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca, 2The “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca
Adina Nemes
17:00 THE ROLE OF SEQUENTIALITY IN THE MULTIDISCIPLINARY TREATMENT OF CERVICAL CANCER
Claudia-Diana Sabău, Amalia Zah, Sorin Gavriş, Mihai Mureşan, Nicolae Todor, Viorica Nagy
1"The Oncology Institute “Prof Dr Ion Chiricuţă”, Cluj-Napoca, 2Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca
Claudia-Diana Sabău

17:10 THREE-DIMENSIONAL CONFORMAL RADIOTHERAPY IN CERVICAL CANCER, STAGE IIB-IIIB: EXPERIENCE OF THE ONCOLOGY INSTITUTE “PROF.DR. ION CHIRICUTA” CLUJ-NAPOCA
Anamaria Sipos¹, Noemi Besenyodi¹, Claudia Ordeanu¹, Ovidiu Coza¹,², Alin Rancea¹,², Nicolae Todor¹, Viorica Nagy¹,²
¹Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca, ²University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca.
Anamaria Sipos

17:20 THE ROLE OF THE INDUCTION CHEMOTHERAPY FOLLOWED BY RADIOCHEMOTHERAPY IN ADVANCED RECTAL CANCER-ASSESSED BY MRI.
Andrea Craciunescu¹, Alina-Simona Muntean¹
¹Institutul Oncologic “Prof.Dr. Ion Chiricuta”, Cluj-Napoca
Andrea Craciunescu

17:30 CLINICAL ASPECTS AND RESULTS OF WHOLE BRAIN RADIOTHERAPY FOR MULTIPLE BRAIN METASTASES
Patricia Şuteu¹,², Daniela Martin¹, Petronela Rusu¹, Valentin Cernea¹,², Viorica Nagy¹,²
¹"Prof.Dr.I.Chiricuţă” Oncology Institute Cluj-Napoca, ²Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca
Suteu Patricia

17:40 SHORT-COURSE RADIOTHERAPY OUTCOMES IN NEOADJUVANT TREATMENT OF RECTAL CARCINOMAS
Hopirtean Claudiu¹, Dedean Florina¹, Fekete Zsolt¹,², Muntean Alina¹
¹Oncology Institute “Prof. Dr. Ion Chiricuţă”, ²Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca
Claudiu Hopirtean

17:50 EFFICIENCY ASSESSMENT OF PACLITAXEL AND CARBOPLATIN REGIMEN IN PATIENTS WITH OVARIAN CANCER.
Amalia Moldovan¹, Tudor Moisiu¹, Daniel Sur², Costica Adrian Costin², Claudia Burz¹,²
¹UMF “Prof. Dr. Iuliu Hatieganu” Cluj Napoca, ²Oncology Institute Cluj Napoca
Costica Adrian Costin

15/10/2015
MEDICAL PHYSICISTS (I)

14:45 CHARACTERISTICS OF BRACHYTHERAPY SOURCES USED FOR THE TREATMENT OF PROSTATE CANCER
Edina Dordai¹, Dan Dordai², Gabriel Kacso³
¹Institutul Oncologic “Prof. Dr. I. Chiricuta” Cluj-Napoca, ²Amethyst Radiotherapy Center Cluj, ³Universitatea de Medicină și Farmacie “Iuliu Hatieganu” Cluj-Napoca
Edina Dordai
15:00 TREATMENT PLANNING USING VOLUMETRIC MODULATED ARC THERAPY FOR THORACIC TUMOURS
Popa Raducu01, Ciocaltei Violeta02, Adam Daniela03, Suditu Mihai04
1Clinica de Radioterapie Amethyst Bucuresti, 2Clinica de Radioterapie Amethyst Bucuresti, 3Clinica de Radioterapie Amethyst Bucuresti, 4Clinica de Radioterapie Amethyst Bucuresti

Raducu Adrian Popa

15:15 “HELCICAL” AND “TOMODIRECT” TECHNIQUES FOR BREAST CANCER TREATMENT WITH TOMO HD SYSTEM
Papiu Mihaela01, Radu Maria02, Bucur Tudor Danut03, Moga Adrian Stefan04
1Clinica Polisano, Sibiu, Romania, 2Clinica Polisano, Sibiu, Romania, 3Clinica Polisano, Sibiu, Romania, 4Clinica Polisano, Sibiu, Romania

Mihaela AnaMariea Papiu

15:30 LEFT SIDED BREAST CANCER RADIATION THERAPY. TECHNICAL ISSUES OF TREATMENT PLANNING AND DOSE OPTIMIZATION.
Morvay Szabo Edina01, Virag Vasile02, Hardut Carmen02
1University of Oradea, Faculty of Medicine and Pharmacy, 2Clinical Municipal Hospital “Gavril Curteanu “ Oradea

Edina Eva Morvay Szabo

15/10/2015

MEDICAL PHYSICISTS (II)

16:00 DAILY IMAGE GUIDANCE WITH CONE-BEAM COMPUTED TOMOGRAPHY FOR HEAD AND NECK CANcer IMRT
Adina Madalina Badiu1, Dan Demeter1, Ovidiu Parv1, Dan Dordai1, Noemi Schultes1, Renata Zahu1
1Amethyst Radiotherapy Center Cluj

Badiu Madalina

16:15 IMAGE GUIDANCE WITH CBCT IN LUNG CANCER RADIOTHERAPY
Claudia Irina Sarca1, Dan Vatca1, Daniela Persa1, Lavinia Negrut1, Andrea Eva1, Renata Zahu1
1Amethyst Radiotherapy Center Cluj

Claudia Sarca

16:30 DOSIMETRIC CHECK-UP OF DOSE DISTRIBUTION CONSIDERING THE INFLUENCE OF POSITIONING ERRORS IN MODERN RADIOTHERAPY
Aurel Chis1,2, Spunei Marius2, Ioana Scarlatescu1
1Institutul Oncologic “Prof. I. Chiricuta” Cluj-Napoca, 2Asociatia OncoHelp Timisoara

Aurel Chis

16:45 TREATMENT PLANNING USING VOLUMETRIC MODULATED ARC THERAPY FOR LUNG TUMOURS
Suditu M.
1Amethyste Otopeni, Bucuresti

Suditu M.

17:00 INNOVATIVE TECHNOLOGIES: INDICATIONS & CLINICAL BENEFITS
Ozsahin M.
1Radiation Oncologist, CHUV, Lausanne, Switzerland

Ozsahin M.
17:15 CLINICAL OUTCOMES AND CHALLENGES OF LUNG SBRT
Xavier Mirabel
1Radiation Oncologist, Centre Oscar Lambret in Lille, France
Xavier Mirabel

16/10/2015
EPIDEMIOLOGY, SCREENING & DIAGNOSIS

10:00 TIME TRENDS OF INCIDENCE AND MORTALITY BY LUNG CANCER
Ofelia Șuteu1,2, Daniela Coza2, Lumița Blaga2, Florian Nicula2
1“Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca, 2“Prof. Dr. Ion Chiricuță” Oncology Institute, Cluj-Napoca
Șuteu Ofelia

10:15 INITIATIVES FOR IMPROVING DIAGNOSIS OF LUNG CANCER – WHAT IS DIFFERENT FOR ROMANIA?
Ruxandra Rajnoveanu1, Florin Mihaltan1, Ruxandra Ulmeanu1
1Societatea Romana de Pneumologie
Ruxandra Rajnoveanu

10:30 TIME-SCALE ENHANCEMENT OF CHEST RADIOGRAPHS IMPROVING CANCER DIAGNOSIS AND TREATMENT
Iolanda Dumitrescu1
1Institute of Oncology “Prof. Dr. Alexandru Trestioreanu” Bucharest, Romania
Iolanda Dumitrescu

10:45 WHY WE NEED TNM STAGING IN LUNG CANCER?
Vancea Dorin1
1Spitalul clinic “Dr. Victor Babes Timisoara”, Clinica de pneumologie
Vancea Dorin

11:00 SOFTWARE-ASSISTED QUALITY IMPROVEMENT IN THORACIC X-RAY IMAGING AIDING CANCER FOLLOW-UP
Iolanda Dumitrescu1
1Institute of Oncology “Prof. Dr. Alexandru Trestioreanu” Bucharest Romania
Iolanda Dumitrescu

11:15 EARLY DETECTION OF LUNG CANCER AND DIAGNOSIS OF GENETIC PREDISPOSITION
Zsolt Fekete1,2
1UMF Iuliu Hațieganu Cluj-Napoca, 2Institute of Oncology Prof. Dr. I. Chiricuță
Zsolt Fekete

16/10/2015
RADIOTherAPY (I)

12:10 THE ROLE OF RADIOTHERAPY (RT) IN IMPROVING TREATMENT OUTCOME IN SMALL CELL LUNG CANCER (SCLC)
Petronela Rusu1
1 Institute of Oncology “Ion Chiricuta”, Cluj – Napoca, Romania

**Petronela Rusu**

12:25 THE ROLE OF RADIOTHERAPY IN TREATMENT OUTCOME IN LUNG CANCER – THE EXPERIENCE OF THE RADIOTHERAPY DEPARTMENT OF SIBIU

Adrian Moga, Maria Radu, Tudor Bucur, Mihaela Papiu

1 Polisano Clinic Sibiu, 2 Polisano Clinic Sibiu, 3 Polisano Clinic Sibiu, 4 Polisano Clinic Sibiu

**Adrian Moga**

12:40 THE FUTURE LOOKS BRIGHT – MULTIDISCIPLINARY APPROACH FOR LUNG RESECTIONS IN T4 DISEASE WITH GREAT VESSEL INVOLVEMENT.

Victor S. Costache, Mihai B. Chiloflischii, Radu Hulpus, Adrian Moga, Adrian Santa, Mugurel Bosanceanu

1 European Hospital Polisano Sibiu, 2 “Lucian Blaga” University of Sibiu

**Victor Sebastian Costache**

12:55 STATE OF ART IN THE INTENSITY MODULATED RADIOTHERAPY OF THE LUNG CANCER

Chiricuta IC

1 AMETHYST Radiotherapy Center, Otopeni, Romania

**Ion – Christian Chiricuta**

13:10 IS CONCOMITANT CHEMORADIATION AN UNDISPUTABLE GOLD STANDARD FOR LOCOREGIONALLY ADVANCED DISEASE?

Renata Zahu, Carmen Bodale, Andrei Ungureanu, Vlad Manolescu, Catalin Iacob, Gabriel Kacso

1 Amethyst Radiotherapy Center Cluj, 2 University of Medicine and Pharmacy Cluj Napoca

**Renata Zahu**

13:25 PRINCIPLES OF MEDICAL TREATMENT FOR NEUROENDOCRINE TUMORS

Rodica Anghel, Laurentia Gales, Xenia Bacinschi

1 Institute of Oncology “Prof Dr Al trestioreanu” Bucharest

**Rodica Anghel**

13:40 BRACHYTHERAPY FOR LUNG CANCER: UTOPIA OR REALITY IN ROMANIA?

Gabriel Kacso, Maria Simon, Renata Zahu, Dan Dordai, Calin Pop, Catalin Iacob

1 UMF “Iuliu Hatieganu “ Cluj, 2 RTC Amethyst Cluj, 3 Clinica Pneumoﬁziologie “Leon Daniello” Cluj

**Gabriel Kacso**

16/10/2015

**RADIOTHERAPY (II)**

15:00 DIFFERENT MODALITIES OF IRRADIATION IN SUPERIOR VENA CAVA COMPRESSION SYNDROME – HISTORICAL PERSPECTIVE

Mircea Savu, Amalia Constantinescu, Lucia Enciu, Alex Oprea, Valentin Gosu

1 Institutul Oncologic “Prof Dr. Alexandru Trestioreanu” Bucuresti

**Mircea Savu**

15:15 SBRT LUNG WITH TOMO IN HEIDELBERG

Tarcea Valentin

1 University of Heidelberg, Division of Radiotherapy

**Valentin Tarcea**
15:30  HYPOFRACTIONATION WITH TOMO IN HEIDELBERG
Adeberg Sebastian¹
¹University of Heidelberg, Division of Radiotherapy
Sebastian Adeberg

15:45  PULMONARY ADVERSE EVENTS IN COMBINED TREATMENT OF LOCALLY-ADVANCED NON-SMALL
CELL LUNG CANCER (LA NSCLC)
Petronela Rusu¹
¹Institute of Oncology “Ion Chiricuta”, Cluj – Napoca, Romania
Petronela Rusu

16:00  INCIDENCE, SEVERITY AND MANAGEMENT OF SKIN TOXICITY ASSOCIATED WITH EGFR
INHIBITORS THERAPY IN HEAD AND NECK AND LUNG CANCER PATIENTS
Rodica Anghel¹,², Laurentia Gales¹,², Luiza Serbanescu¹, Oana Trifanescu¹,²
¹Al. Trestioreanu Bucharest Institute of Oncology , ²”Carol Davila” University of Medicine and Pharmacy
Rodica Anghel

16:15  STATE OF ART IN THE INTENSITY MODULATED RADIOTHERAPY OF THE ESOPHAGEAL CANCER
Chiricuta IC⁰¹
¹AMETHYST RADIOTHERAPY CENTER, Otopeni, Romania
Ion – Christian Chiricuta

16:30  ESOPHAGEAL CANCER. A RETROSPECTIVE STUDY FROM THE INSTITUTE OF ONCOLOGY PROF.
DR. I. CHIRICUȚĂ.
Zsolt Fekete¹,², Zeliko Dervišević¹, Zsuzsanna Pálfi², Alina Muntean², Gabriel Lazăr², Ţefan Hica²
¹UMF Iuliu Hațieganu Cluj-Napoca, ²Institute of Oncology Prof. Dr. I. Chiricuță
Zsolt Fekete

16:45  STRATEGIES OF NUTRITIONAL SUPPORT FOR THE ESOPHAGEAL CANCER PATIENT
Dr Ioana Irina Mateies⁰¹
¹Amethyst Radiotherapy Center Cluj
Ioana Irina Mateies

17:00  TESTING NEW BIOHIBRID STRUCTURES FOR THERAPEUTIC POTENTIAL IN ONCOLOGY AND
REGENERATIVE MEDICINE
Ioana-Carmen Brie¹, Olga Soritau¹, Catalin Popa², Noemi Dirzu², George Dindelegan³
¹Institute of Oncology Prof. Dr. I. Chiricuta Cluj-Napoca, ²Technical University Cluj-Napoca, ³University of Medicine and Pharmacy Iuliu Hatieganu Cluj-Napoca
Ioana-Carmen Brie

16/10/2015

MEDICAL ONCOLOGY (I)

12:10  CHANGING LANDSCAPE IN THE METHODOLOGY OF THE CLINICAL TRIALS IN THE ERA OF
TARGETED AND IMMUNE THERAPY OF CANCER
Jean Pierre Armand¹
¹Institute Gustave Roussy, Paris
Jean Pierre Armand

12:40  NSCLC MANAGEMENT 2015: AN UPDATE
Doru Paul¹²³
13:05 CURRENT STATUS AND FURTHER PERSPECTIVES IN SQUAMOUS CELL NSCLC
Mircea Dediu¹
¹SANADOR Hospital Bucharest
Mircea Dediu

13:20 CURRENT AND FUTURE THERAPY FOR MESOTHELIOMA
Dana Clement¹
¹Regional Institute of Oncology, Iasi
Dana Clement

16/10/2015

MEDICAL ONCOLOGY (II)

15:00 SMALLCELL LUNG CANCER-PROMISES AND PITFALLS IN 2015
Lucian Miron¹,²
¹Disciplina de Oncologie, UMF „Gr.T. Popa” Iasi,²Institutul Regional de Oncologie Iasi
Lucian Miron

15:15 Malignant pleural mesothelioma- overview of the literature and 15 years experience of “Prof Dr Ion Chiricuta” Institute of Oncology Cluj-Napoca
Alexandra Gherman¹,², Radu Vidra¹
¹“Prof Dr Ion Chiricuta” Institute of Oncology Cluj-Napoca,²“Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca
Gherman Alexandra

15:30 NEUROENDOCRIN TUMORS OF THE THORAX
Calin Cainap¹,²
¹University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj Napoca,²Oncology Institute “Ion Chiricuta” Cluj Napoca
Calin Cainap

15:45 DRUG INTERACTIONS IN THE THERAPY OF LUNG CANCER
Pharm. Budău Laura Veronica¹
¹Amethyst Radiotherapy Clinic Cluj
Laura-Veronica Budău

16:00 NONHODGKIN LYMPHOMA DIFFUSE LARGE B CELL CD20 + . DIFFICULTIES IN THERAPEUTIC MANAGEMENT
Catana Alina¹, Benedek Erzebeth¹, Beca Corina¹, Birlutiu Victoria¹, Mihaila Romeo¹, Sandu Mariana¹, Olariu Tania¹, Dobra Dina¹, Manitiu Ioan¹, Noor Cristina, Mondoc Lidia-Maria¹
¹Spitalul Judetean Sibiu, Clinica de Hematologie
Alina Catana
16/10/2015

POSTER A

11:50 METFORMIN ASSOCIATED WITH PHOTODYNAMIC THERAPY – A NOVEL ONCOLOGICAL DIRECTION AGAINST MELANOMA
Nenu Iuliana1, Tudor Diana1, Olteanu Diana1, Popescu Tiberiu1, Filip Adriana1, Baldea Ioana1
1“Iuliu Hatieganu” University of Medicine and Pharmacy – Physiology Department, Cluj, Romania
Iuliana Nenu

ANTINEOPLASTIC EFFECTS OF METFORMIN ENHANCE ANTITUMORAL EFFECT OF PHHTALOCYANINE-MEDIATED PHOTODYNAMIC THERAPY AGAINST MALIGNANT MELANOMA
Tudor Diana1, Nenu Iuliana2, Popescu Tiberiu1, Olteanu Diana2, Decea Nicoleta2, Filip Adriana3, Baldea Ioana4
1“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca,2“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca,3“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca,4“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca
Diana Tudor

12:00 LIPOSARCOM DE COAPSA – ABORDAREA RADIOTERAPEUTICA POSTCHIRURGICALA PRIN TEHNIKA IMRT
Păguțe Ovidiu Nicolae01, Mihăilă George Cristian01, Mireștean Camil01, Firtea Cosmin Mihai01, Manea Elena01, Iancu Dragos Teodor01,02
1Institutul Regional de Oncologie Iasi,2Universitatea de Medicina si Farmancie Gr.T.Popa Iasi
Ovidiu Nicolae Păguțe

12:05 A RARE TUMOR – PRIMARY LEIOMYOSARCOMA OF PULMONARY ARTERY. CASE PRESENTATION
Laura Rebegea1,2, Dorel Firescu2,3, Mihaela Dumitru1
11 “Sf. Ap. Andrei” Emergency Clinical Hospital, Radiotherapy Department, Galati,22 “Dunarea de Jos” University of Galati, Faculty of Medicine, Clinical Department,3 “Sf. Ap. Andrei” Emergency Clinical Hospital, Surgery Clinic II, Galati
Laura Rebegea

16/10/2015

POSTER B

14:15 STUDIU DE CAZ: INTEGRAREA SCINTIGRAFIEI OSOASE IN DIAGNOSTICUL IMAGICISTIC AL LIMFOMULUI LIMFOPLASMOCITAR
Iulia Andreea CHIRIAC1, Olga NICULESCU1, Raluca MITITELU1, Catalin MAZILU1, Mihaela Georgiana LEPUS1
1Laboratorul de Medicina Nucelara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti
Iulia Andreea Chiriac

14:20 THE USE OF THREE-PHASE BONE SCAN IN SOFT-TISSUE NEOPLASMS – CASE REPORT
Carmen Tipar1, Raluca Mititelu1, Catalin Mazilu1, Olga Niculescu1
1Dept of Nuclear Medicine Central University Emergency Military Hospital “Dr Carol Davila”, Bucharest
Carmen-Mihaela Tipar
14:25 ASPECTUL IMAGISTIC SCINTIGRAFIC IN FIBROMATOZA AGRESIVA DESMIOIDA – PREZENTARE DE CAZ
Iulia Andreea CHIRIAC1, Olga NICULESCU1, Raluca MITITELU1, Catalin MAZILU1, Carmen TIPAR1, Emilian STEFAN2, Mihaela Georgiana LEPUS1
1Laboratorul de Medicina Nucleară, Spitalul Universitar de Urgenţă Militar Central “Dr. Carol Davila”, Bucureşti, Romania; 2Sectia Ortopedie-Traumatologie, Spitalul CF2, Bucureşti, Romania
Iulia Andreea Chiriac

14:35 ROLE OF POSITRON EMISSION TOMOGRAPHY (PET/CT) IN IDENTIFYING UNKNOWN PRIMARY IN PATIENTS WITH LUNG METASTASIS.
Sukanta Barai1, Arun P2, Gambhir G3
1Additional Professor, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India; 2Senior Resident, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India; 3Professor and Head, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India
Sukanta Barai

14:40 DERMATOFLIBROSARCOMA PROTUBERANS
MIHAELA CRAESCU1,2, LAURA REBEGEA1,2, MIHAELA DUMITRU1, DOREL FIRESCU1,2, AUREL NECHITA1,3
1Emergency Clinical Hospital “Sf. Ap. Andrei” Galati, Romania; 2Faculty of Medicine and Pharmacy “Dunarea de Jos” University of Galati, Romania; 3Emergency Clinical Pediatric Hospital “Sf. Ioan”, Galati, Romania
Mihaela Craescu

14:45 DOSIMETRIC COMPARISON AND EVALUATION OF RAPIDARC AND 3D-CRT TECHNIQUES FOR LEFT-SIDED BREAST CANCER
Anisoara Anghelache01, Irina Butuc01, Calin Gh. Buzea01, Anamaria Constantin01, Silvana Ojica01, Mihaela Oprea01, Manuela Oprisan01, Alina Rogojanu01, Alexandru D. Zara01, Catalina Zetiu01
01IRO Iaşi
Alexandru Dumitru Zara

14:50 NEUTROPHIL-TO-LYMPHOCYTE RATIO IS AN INDEPENDENT PROGNOSIS FACTOR IN STAGE IV LUNG ADENOCARCINOMA PATIENTS WITH BRAIN METASTASES
Teodora Alexa1, Ingrith Miron2, Marius Păduraru1, Adela Calancea1, Lucian Miron1
1Medical Oncology, University of Medicine and Pharmacy “Gr. T. Popa”, Iaşi, 2Pediatric Oncology, University of Medicine and Pharmacy “Gr. T. Popa”, Iaşi
Teodora Alexa

16/10/2015
POSTER C

17:35 CONSIDERATIONS ON THE PSYCHOTHERAPEUTIC TREATMENT FOR PATIENTS WITH NEOPLASIA
Clinical Psychologist Adina Moraru01
01Amethyst Radiotherapy Centre
Adina Moraru

17:40 TIME TRENDS AND SURVIVAL RATES OF ORAL CAVITY AND PHARYNGEAL CANCERS BY SITES, IN CLUJ COUNTY
Ofelia Şuteu1,2, Patricia Şuteu1,2, Daniela Coza2, Florian Nicula2, Patriciu Achimas-Cădariu1,2
1„Iuliu Haţieganu” University of Medicine and Pharmacy Cluj-Napoca, 2„Prof. Dr. Ion Chiricuţă” Oncology Institute, Cluj-Napoca, Romania
Ofelia Suteu
17:45 DOSIMETRIC VERIFICATION OF RAPIDARC TREATMENT PLANS IN PROSTATE CANCER
Aurel Chis1,2, Veronica Mandea2, Cristina Taflan2
1Institutul Oncologic “Prof. I. Chiricuta” Cluj; 2Centrul de Diagnostic si Tratament Oncologic Brasov
Aurel Chis

17:50 “EARLY DETECTIONS IN POST-THERAPEUTIC RELAPSES IN METASTATIC COLORECTAL CARCINOMA
BY FOLLOWING UP SOME BLOOD IMMUNOLOGIC MARKERS”
Nicoale Miron1, Chereches Gabriela1, Barbos Otilia1, Rares Buiga1, Ovidiu Balacescu1, Dana Iancu1, Nicolae Todor1, Ciuleanu Tudor1,2
1Oncological Institute “I.Chiricuta “Cluj-Napoca,” 2UMF Cluj-Napoca
Gabriela Chereches

17:55 RARE GYNECOLOGICAL TUMORS. CLINICIANS’ VIEW.
Todor Irina1, Nagy Viorica1,2, Rancea Alin1,2, Coza Daniela2, Todor Nicolae2
1University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, 2Oncology Institute “Ion Chiricuta” Cluj-Napoca
Irina Todor

17/10/2015

HEALTH POLICY

9:00 HEALTH POLICIES AND CULTURAL ELEMENTS IN ONCOLOGY
Stelian Pop1
1Emergency County Hospital Satu Mare, Oncology
Stelian Pop

9:15 RADIOTHERAPY COVERAGE IN ROMANIAN
Valentin Cernea1,2
1University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj Napoca, 2Oncology Institute “Prof. Dr. Ion Chiricuta”
Cluj Napoca
Valentin Cernea

9:30 ESMO – MESC CRITERIA FOR EVALUATING THE NEW DRUGS
Alexandru Eniu1
1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj Napoca
Alexandru Eniu

9:45 THE STATUS OF PEDIATRIC RADIOTHERAPY IN ROMANIA AND IAEA RECOMMENDATIONS
Dana Michaela Cernea1
1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca
Dana Michaela Cernea

10:00 MEDISPROF 5 YEARS OF EXPERIENCE IN PRIVATE ONCOLOGY SERVICES
Anghel Adrian Udrea01, Brendan Lavoue01
01Medisprof srl
Brendan Lavoue

10:15 NATIONAL CANCER PLAN, BETWEEN AMBITION AND REALITY
Irimia C.1
1Association of Cancer Patients from Romania
Irimia C.
17/10/2015

VARIA

11:45 CLINICAL EXPERIENCE WITH PRIMARY NEUROECTODermal ADULT BRAIN TUMOR. CASE PRESENTATION AND REVIEW OF THE LITERATURE
Morvay Szabo Edina01, Mihutiu Simona01
1Faculty of Medicine and Pharmacy, University of Oradea

Edina Eva Morvay Szabo

12:00 ADJUVANT CHEMOTHERAPY IN PANCREATIC ADENOCARCINOMA
Adina Croitoru1, Ioana Dinu1, Iulia Gramaticu1, Flórina Buica1, Ioana Luca1, Traian Dumitrascu2, Olimpia Dima2, Cristian Gheorghe1, Mihai Ciocarlan2, Vlad Herlea, Mona Dumbrava, Gabriel Becheanu, Irinel Popescu2
1Fundeni Clinical Institute, medical oncology department, 2Fundeni Clinical Institute, digestive surgery Clinic and liver transplantation, 3Fundeni Clinical Institute, gastroenterology clinic

Adina Croitoru

12:15 EFFICIENCY ASSESSMENT OF GEMCITABINE AND CARBOPLATIN REGIMEN IN PATIENTS WITH UROTHELIAL CARCINOMA.
Tudor Moisoiu1, Amalia Moldovan1, Daniel Sur2, Dan Luchian2, Adrian Costin2, Claudia Burz1,2
1University of Medicine and Pharmacy Cluj-Napoca, 2Cancer Institute “I Chiricuta” Cluj-Napoca

Daniel Sur

12:30 PROGNOSTIC FACTORS IN PATIENTS WITH BREAST CANCER AND CEREBRAL METASTASES – EXPERIENCE OF ONCOLOGY INSTITUTE “PROF.DR. I.CHIRICUTA”
MARTIN DANIELA1, CHIRIAC VALENTINA-FINETA1, TODOR NICOLAE1, GODJA GEORGE1, HOSU SORIN1, TANASESCU RADU1
1The Oncology Institute “I. Chiricuta”, Cluj-Napoca

Valentina-Fineta Chiriac

12:45 EVALUATING SKIN TOXICITY IN HEAD AND NECK CANCER PATIENTS TREATED WITH IMRT
Silvia Negrean1, Oana Sipos1, Daniel Vatca1, Dan Dordai1, Noemi Schultes1, Renata Zahu1
1Amethyst Radiotherapy Center Cluj

Silvia Negrean

13:00 LONG TERM RESULTS IN GIST TREATMENT – FROM THE LITERATURE TO OUR PRACTICE
Laurentia Gales1, Rodica Anghel1, Xenia Bacinschi1
1Institute of Oncology “Prof Dr Al trestioreanu” Bucharest

Laurentia Gales

13:15 BIPHENOTYPIC ACUTE LEUKEMIA AND GRANULOCYTIC MEDIASTINAL SARCOMA. AGRESIV CYTOSTATIC TREATMENT AND PERIPHERAL STEM CELL ALLOTRANSPLANT.
Catana Alina1, Benedek Erzebeth1, Ioan Maniu1, Miclea Ion1, Dobrea Camelia1, Cocisiu Gabriela1, Mocanu Liliana1, Zaharia Ioan1, Mihaila Romeo1, Olariu Tania1; Dr. Sandu Mariana; Dr. Dobra Dina; Dr. Noor Cristina Mondoc Lidia-Maria1
1Spitalul Judetean Sibiu, Clinica de Hematologie

Alina Catana

13:30 A CASE OF COMPLETE REGRESSION OF A PROSTATE ADENOCARCINOMA TREATED WITH EBRT (EXTERNAL BEAM RADIOTHERAPY) AND ADT (ANDROGEN DEPRIVATION)
Firtea Cosmin Mihai1, Mihaila George1, Mirestean Camil1, Pagute Ovidiu1, Calistru Tudor1, Iancu Dragos1
1IRO Iasi

Cosmin Mihai Firtea
14:45  OUR EXPERIENCE REGARDING HYPOFRACTIONATED RADIOThERAPy IN BREAST CANCER
Amalia Constantinescu¹,², Mircea Savu¹,², Viorica Primjdie¹,², Lucia Encriu¹,², Alex Oprea¹,²
¹Institutul Oncologic “Prof. Dr. Alexandru Trestioreanu” Bucuresti, ²Clinica NeoLife Bucharest
Amalia Constantinescu
ABSTRACTS
RESIDENTS’ AFTERNOON

EVALUATION OF DOSIMETRY PARAMETERS AND THEIR CLINICAL IMPLICATION IN 3D CRT – IMRT – VMAT-RAPIDARC® RADIOTHERAPY TECHNIQUES FOR ESOPHAGEAL CANCER.

GC Mihaila¹, CC Mirestean¹, ON Pagute¹, Elena Manea¹, Irina Butuc², Silvana Ojica, Manuela Oprisan³, Anamaria Constantin, Mihaela Oprea, Catalina Ursache¹, Alina Rogojanu Anisoara Anghelache¹, AD Zara C Buzea³, DT Iancu¹²

¹Regional Institute of Oncology Iasi, ²Gr. T. Popa University of Medicine and Pharmacy, ³Medical Physics Department, Regional Institute of Oncology Iasi

Keywords: esophagus, dosimetry, irradiation technique

Purpose/Objective(s): Esophageal cancer is a challenge in terms of establishing best therapy due to late diagnosis and aggressivity.

The study objective is to assess the dosimetric parameters with predictive role in cardiac and pulmonary complications for the patients with esophageal cancer through 3D Conformal (3D CRT), Intensity Modulated Radiation Therapy (IMRT) and Volumetric Modulated Arc Therapy (VMAT) – RapidArc® radiotherapy techniques.

Materials/Methods: The study included a total of 6 patients diagnosed with esophageal cancer and treated with curative intent in Radiotherapy Department of Regional Institute of Oncology Iasi between May 2013 – May 2015. Inclusion criteria for this study is the thoracic location and the total dose of 60Gy/30 fr.

Results: All patients received chemotherapy and radiotherapy.

Radiotherapy was delivered by 3D CRT technique but IMRT and VMAT-RapidArc® treatment plans were made for dosimetric comparison.

Evaluation was made for: target volume included in 95% isodose (V95) for the Planning Target Volume (PTV); lung volumes that received 5Gy (V5), 20Gy (V20), 30Gy (V30) and Mean Lung Dose (MLD); heart volumes that received 5Gy (V5), 50Gy (V50) and Mean Heart Dose (MHD) trough 3D CRT, IMRT, VMAT-RapidArc® techniques.

All three techniques provide a good coverage of the PTV in the 95% isodose.

Heart values for V5, V50 and MHD are within accepted range.

Decreased V20 and V30 without V5 increase for the lungs are obtained through IMRT. Values above 13Gy for MLD are associated with pulmonary toxicity and may constitute in some cases contraindication of IMRT.

VMAT-RapidArc® technique is associated with a significant decrease of V20 and V30 and the increase of V5. Values above 50% for V5 are associated with the deterioration of ventilatory function and quality of life and increased mortality.

Conclusions: For cases associated with pulmonary pathology and increased risk of radic acute pneumonia or patients receiving simultaneous chemotherapy, IMRT could be an alternative treatment option by reducing lung V30.

VMAT-RapidArc® could be a treatment option only in specific cases where it can be obtained a lung V5 below 50%.

VOLUMETRIC MODULATED ARC THERAPY IN THE TREATMENT OF RECTAL ADENOCARCINOMA: INITIAL EXPERIENCE

Elena Manea¹, Manuela Oprisan², Anisoara Anghelache², Silvana Ojica², Mihaela Oprea², Alina Rogojanu², Irina Butuc², Anamaria Constantin², AD Zara, C Buzea², Andreea Marinca¹

¹Radiotherapy Department, Regional Institute of Oncology Iasi, ²Medical Physics Department, Regional Institute of Oncology Iasi

Keywords: rectal, VMAT, efficacy, toxicity

Purpose/Objective(s): Neoadjuvant radiochemotherapy is the standard treatment for locally advanced rectal cancer. The aim of this study is to evaluate external radiotherapy
SOLID PSEUDOPAPILLARY TUMOR OF THE PANCREAS: CLINICOPATHOLOGIC FEATURES AND MANAGEMENT OF 13 CASES

Bochis Ovidiu Vasile1,2, Mihut Emilia1, Buiga Rares1, Irimie Alexandru1,2

1The Oncology Institute “Prof. Dr. Ion Chirica” Cluj-Napoca, Romania; 2University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, Romania

Background: Solid pseudopapillary tumor (SPT) of the pancreas is a rare neoplasm, representing about 1-3% of exocrine pancreatic neoplasms. SPT usually occurs in young females, without notable symptoms, with a low malignant potential and excellent prognosis.

Study design: A retrospective study during the period January 2005 – January 2015.

Patients and method: SPT patients admitted in our institution were reviewed by describing demographic data, clinicopathologic and radiological features, therapeutic management and prognosis records.

Results: Thirteen patients with SPT were identified (10 women and 3 men), with a median age of 30 years. The main clinical presentation was abdominal pain (92.3%) followed by abdominal discomfort (69.2%). The tumor was mostly located in the body or tail of the pancreas (77%), and the mean size was 8.2 cm. Regarding surgical approach there were 5 distal pancreatectomies with splenectomy, 3 body and tail pancreatectomies, 2 body and tail pancreatectomies with splenectomy, 2 pancreaticoduodenectomy, 1 partial enucleation and of all only 2 partial resections. Postoperative hematoxylin- eosin staining and immunohistochemistry confirmed the diagnosis in all cases. None of the patients had lymph nodes metastases. There was one case of local invasion and one of death due to postoperative complications. Four cases followed adjuvant systemic chemotherapy. Median follow-up was 18 months, without evidence of recurrence during this period.

Conclusion: SPT should always be considered in the differential diagnosis in young women with a pancreatic mass. Surgical resection is dictated by tumor location. The decision to administer systemic therapy must be individualized. Complete surgical excision is the treatment of choice, and is usually curative.

TREATMENT WITH FOLFIRINOX IN LOCALLY ADVANCED AND METASTATIC PANCREATIC CANCER

Radu Vidra1, Adina Nemes1, Calin Cainap1,2

1Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca, Romania; 2The “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca

Background and aims: Pancreatic cancer represents one of the localizations associated with poor prognosis and poor survival, many patients being diagnosed in locally advanced and metastatic stages. For over 15 years, gemcitabine-based therapy has been the standard-of-care in the first line treatment of metastatic pancreatic cancer. In recent years new treatment regimens were introduced in the oncologist’s arsenal. Since 2012 FOLFIRINOX has been the standard treatment for patients with stage III and IV pancreatic cancer and good performance status, showing benfits in terms of progression free survival (PFS) without compromising the safety profile. This study conducted in the Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca (OICN) represents a retrospective study in which we analyzed the efficacy and toxicity of treatment with FOLFIRINOX in...
patients with locally-advanced and metastatic pancreatic cancer. (LAMPCa). Methods: In this study were included 18 patients with histologically and imagistically confirmed LAMPCa who were treated with FOLFIRINOX in the first line in the OICN between January 2011-June 2015. All patients received chemotherapy with FOLFIRINOX until progression or unacceptable toxicity. The imagistic response was evaluated every four cycles according to the RECIST 1.1 criteria. Toxicity was evaluated at every chemotherapy cycle according to CTCAE 4.0. The primary end-point was median progression free survival (PFS); secondary end-points were imagistic response and safety profile. Results: 18 patients with locally advanced (7, 39%) and metastatic (11, 61%) pancreatic adenocarcinoma were included in this study. Of the 18 patients included in this study 11 were women and 7 men, with a median age at diagnosis of 61 years (44-68 years old). A median of 7.5 cycles (1-31 cycles) of FOLFIRINOX were administered. The hematologic toxicity observed in FOLFIRINOX was mild or moderate, most common toxicities were grade 1-2. The most significant grade 3-4 hematologic toxicity was neutropenia, occurring in 39% of patients, with no febrile neutropenia recorded during treatment. 8 (44%) of patients required dose adjustments due to hematologic or digestive toxicity. Conclusion: Treatment with FOLFIRINOX demonstrates efficacy in patients with LAMPCa with manageable toxicity and it represents an option for the treatment of patients with locally-advanced and metastatic pancreatic cancer and good performance status.

CHEMORESPONSIVNESS TO NEOADJUVANT CHEMOTHERAPY – NOVEL PROGNOSTIC FACTOR FOR PATIENTS WITH LOCALLY ADVANCED CERVICAL CARCINOMA.

Carpov Domnica1, Andreea Marita1, Nicolae Todor1, Viorica-Magdalena Nagy1,2

1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca, 2University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

Background: Despite introducing in 1999 concurrent radio-chemotherapy (CRT) as standard of care, treatment of locally advanced cervical (LACC) still remains suboptimal due to a high rate of pelvic failures with or without systemic component. Thus, new therapeutic options are needed. Materials and methods: In this non-randomized, retrospective study conducted in the Oncology Institute "Prof Dr. Ion Chiricuta" we aimed: 1. To assess prognostic value of chemoresponsiveness to neoadjuvant chemotherapy (NACT) in terms of survival and disease outcome; 2. To evaluate the relationship between tumor response to NACT and tumor response at the end of CRT as well as pathological response in patients with LACC treated with NACT before CRT or radical surgery (RS). Were included 136 patients with histologically proven, previously untreated stage IIB-IIIB cervical cancer treated in OICN between November 2010 – December 2012. All patients received 1-3 cycles of platinum based NACT: Paclitaxel+Carboplatin or Topotecan+Cisplatin followed by concurrent RCT to a total dose (TD) of 46 Gy/pelvis+10 Gy boost/cervix when patients were evaluated for surgery. Patients with favorable parametrial response underwent surgery. The rest of the patients received radiotherapy for definite therapy to a TD of 60Gy/pelvis+14Gy boost/cervix. Clinical response was evaluated by pelvic examination after completing the last NACT cycle, at the end of CRT and for operated patients by pathological outcome. Results: Baseline characteristics were: median age at diagnosis-52 years; stage IIB (30%), IIIA (42%), IIIB (28%). Complete and partial response rate (CR-PR) was 55% after NACT and a complete response (CR) rate of 24%,3% at the end of CRT, statistically associated with response to NACT (p<0.01), NACT regimen (p<0.01), tumor size (p<0.01). The operability rate was 42.6% (58 patients) with pathological CR in 69% of patients statistically associated with CR-PR after NACT (p<0.01). The median follow up was 40 months. Overall survival at 3 years was 85% (CI 78-90) with better outcome for patients with CR-PR after NACT (90%) vs. SB (78%) p=0.04, and those who received 3 cycles of NACT (90%), p=0.02. Also better survival rates were obtained in patients with CR-PR after NACT who underwent surgery (92%) vs. CRT (90%) vs. patients with SD who received CRT(69%), p<0.01. Conclusion: The chemoresponsivness to NACT might represent a novel predictive marker for tumor response at the end of concurrent RCT, as well as pathological outcome and overall survival.

EFFICACY AND TOXICITY OF TREATMENT WITH CETUMIXAB IN METASTATIC COLORECTAL CANCER: THE EXPERIENCE OF THE ONCOLOGY INSTITUTE CLUJ-NAPOCA

Adina Nemes1, Alina-Simona Muntean1, Tudor Ciuleanu1,2, Calin Cainap1,2, Cristina Cebotaru1

1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca, 2The “Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca

Background and aims: This study conducted in the Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca (OICN) represents a retrospective study in which we analyzed the efficacy and toxicity of treatment with Cetuximab in patients with metastatic colorectal cancer (mCRC).

Methods: In this study were included 37 patients with histologically and imagistically confirmed mCRC who were
treated in the OICN between October 2005-December 2013. Patients received treatment with weekly Cetuximab and chemotherapy (CT) with FOLFOX or FOLFIRI regimens. Results: Of the 37 patients included in this study 15 were women and 22 men, with a median age at diagnosis of 57 years (36-73 years old). 54% of patients had adenocarcinoma of the colon and 46% adenocarcinoma of the rectum. 26 patients had metastases confined to one site (liver) and 11 patients had multiple metastatic sites (liver, lung, peritoneum, lymph nodes).

A median of 24 cycles (4-163 cycles) of Cetuximab were administered. 57% of patients received CT with FOLFOX and 43% with FOLFIRI with a median of 8 cycles (3-16 cycles) of associated CT administered. 3% of patients presented complete response (CR) during treatment with Cetuximab, 40% partial response (PR) and 57% stable disease (SD), evaluated according to the RECIST criteria. The biochemical response was evaluated in 54% of patients: 70% of the 20 patients presented a decline in the CEA levels of more than 50%(CEA>50%). RR was 43%. Median TTP was 10 months (2-40 months) and median PFS was 6 months (1-40 months).

Median OS was 20 months (1-76 months). At the time of this analysis five patients were still alive. Grade 1-2 hematological toxicity on all medullary lines were the most common hematological toxicity observed to treatment with Cetuximab associated with chemotherapy. Grade 3-4 hematologic toxicity occurred in 22% of patients, with a higher incidence of neutropenia. 84% of patients presented grade 1-2 cutaneous toxicity to the administration of Cetuximab, toxicity observed beginning with the second administration of Cetuximab. 16% of patients presented grade 3-4 cutaneous toxicity at a median of 16 cycles of Cetuximab administered.

There was no difference in the overall response rate to Cetuximab plus chemotherapy when analysed by sex (47% F vs. 41% M), concomitant CT regimen (44% FOLFOX vs. 43% FOLFIRI) and biochemical response (36% CEA>50% vs 50% CEA<50%).

Conclusion: Treatment with Cetuximab associated to chemotherapy demonstrates efficacy and safety in patients with mCRC, as the results we have obtained show, results that are consistent with recently published data. Results of the latest trials with Cetuximab have propelled it in the first line treatment of patients with mCRC.

THE ROLE OF SEQUENTIALITY IN THE MULTIDISCIPLINARY TREATMENT OF CERVICAL CANCER

Claudia-Diana Sabău, Amalia Zah, Sorin Gavriș, Mihai Mureșan, Nicolae Todor, Viorica Nagy, Mihai Mureșan, Viorica Nagy

1The Oncology Institute “Prof Dr Ion Chiricuţă”, Cluj-Napoca; 2Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca

Background: Cervical cancer benefits from multidisciplinary treatment that associates radiation therapy, chemotherapy and surgery. The seriality of these treatment modalities has major importance in obtaining therapeutic results.

Objectives: To analyze the impact of different treatment association and sequencing options in terms of results in patients with cervical cancer treated in the Oncology Institute “Prof Dr Ion Chiricuţă”, Cluj-Napoca.

Material and method: The study included 69 patients with cervical cancer, treated between 01-12/2008 in the Oncology Institute “Prof Dr Ion Chiricuţă”, Cluj-Napoca, according to one of the following options: exclusive surgery, neoadjuvant radiotherapy (RT) with or without (±) chemotherapy (CT) followed by surgery (S), respectively surgery followed by adjuvant radiotherapy±chemotherapy.

Results: The median age at diagnosis was 50 years (28-75). 40 (58%) patients had stage I disease, 23 (33%) stage II and 6 (9%) stage III. A number of 15 (22%) patients had exclusive S, 20 (29%) patients had S followed by RT±CT and 34 (49%) patients had neoadjuvant RT±CT followed by S. The 5 year OS for patients in stage I was 85% and in stages II-III 76% (p=0.11). In patients with neoadjuvant RT±CT followed by S, the 5-year OS was 88%, and for patients with S followed by adjuvant RT±CT was 74% (p=0.4). In patients with neoadjuvant RT±CT followed by S, there were 17 (25%) complete pathological responses in the surgical specimen. The 5-year OS in patients receiving neoadjuvant RT±CT followed by S was 94% for patients with complete pathological response compared to 82% for patients with residual disease.

Conclusions: Although not statistically significant, there was a 14% benefit in OS for patients with neoadjuvant RT±CT followed by S, demonstrating the superiority of RT±CT as first sequence compared to S in the multimodal treatment of cervical cancer. These results justify the extension of the study to a larger number of cases.

THREE-DIMENSIONAL CONFORMAL RADIOTHERAPY IN CERVICAL CANCER, STAGE IIB-IIIB: EXPERIENCE OF THE ONCOLOGY INSTITUTE “PROF.DR. ION CHIRICUTA” CLUJ-NAPOCA

Anamaria Sipos, Noemi Besenyodi, Claudia Ordeanu, Ovidiu Cozza, Alin Rancea, Nicolae Todor, Viorica Nagy

1Oncology Institute “Prof.Dr.Ion Chiricuta” Cluj-Napoca.; 2University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca.

Purpose: The objective of this study was to evaluate local tumor control, toxicity and overall survival, after 3D external beam radiotherapy (3DCRT), in patients with stage IIB-IIIB cervical cancer.
Methods: In this study were included 209 patients, treated with 3DCRT in IOCN Cluj, between 2011–2013, all histologically confirmed, stage IIB-IIIB cervical cancer. 50% of the patients received between two and five cycles of neoadjuvant chemotherapy(NACT). All underwent concurrent radio-chemotherapy(RCT) with Cisplatin or Carboplatin. At 46 Gy/23fr + cervical boost, all patients were evaluated for surgery and those with favorable parametrical response surgery(S) was performed, the other ones received 60 Gy/30fr on the pelvis + cervical boost. 3DCRT was delivered with high-energy, 16 MV photon beams, using four-field technique, with standard fractionation.

Results: Median age was 51 years [22-83], in stage IIB were 102p(48.80%), IIIA 62p(29.67%) and IIIB 45p(21.53%), squamous cell carcinoma was predominant in 181p (86.61%), median tumor size was 4 cm[1-10], 100 patients performed NACT. 47p(22.48%) performed NACT + RCT, 53p(25.36%) NACT + RCT + S, 52p(23.88%) exclusive RCT and 57p(27.27%) RCT + S. 55% of the 110p operated patients presented pCR(pathological complete response). At a median follow-up of 26.7 months, 169 p (80.86%) presented CR, 2 p (0.96%) PR, 3 p (1.44%) ST and 35p(16.75%) PD. Local control obtained was 87.56% and overall survival at 2 years was 91% IIB, 84% IIIA and 76% for IIIB.

In terms of late toxicity, the incidence of grade 3-4 bladder and rectum morbidity was 0.96% and 0%, and vaginal stenosis grade 2 and 3 was 2.87% and 1.44%.

Conclusion: 3DCRT gives a significantly good target coverage and leads to a better local control and survival for cervical cancer patients. It also caused a low incidence of grade 3-4 toxicity in the bladder and rectum. Local-regional failure remains the main cause of failure, with local recurrence rate demonstrating the main objective indication of 3DCRT, in terms of minimizing the complications in healthy tissues correlating with disease stage.

THE ROLE OF THE INDUCTION CHEMOTHERAPY FOLLOWED BY RADIOCHEMOTHERAPY IN ADVANCED RECTAL CANCER-ASSESSED BY MRI.

Andrea Craciunescu1, Alina-Simona Muntean1

1Institutul Oncologic “Prof.Dr. Ion Chiricuta”, Cluj-Napoca

Objective: Obiectivul principal al studiului este evaluarea cu rezonanta magnetica nucleara a eficacitatii chimioterapiei de inductie si a radiochimioterapiei concomitente (RCT) la pacientii cu adenocarcinom de rect avansat loco-regional.

Obiective secondare: toxicitate, complianta, rata de rezectie R0, RMN corelat cu raspunsul histopatologic.

Material si Metoda: Pacientii inclusi in studiu au efectuat 4 cicluri de CT de inductie CapeOx (Capecitabina si Oxaliplatin) si RCT concomitenta preoperatorie. Toti pacientii au fost restadializati RMN dupa fiecare securve terapeutica cu scopul evaluarii eficacitatii tratamentului de inductie, tradus prin reducerea dimensiunii tumorii primare (T), reducerea numerica si in dimensiune a adenopatiilor (N) si a evlarului MRF. TME a fost planificata la 6 saptamani dupa terminarea RCT.

Rezultate: In perioada ianuarie-iunie 2015, 31 de pacienti diagnosticati clinic si imagistic cu adencarcinom de rect stadiul cTNM II si III, au fost inclusi intr-un studiu prospectiv de faza II in cadrul Institutului Oncologic „Prof. Dr.Ion Chiricuta” Cluj-Napoca. Toti pacientii au terminat tratamentul neoadjuvant. RMN efectuat inainte de debutul tratamentului a relevat un stadiu clinic cT2 la 9,68%, cT3 la 80,65%, cT4 la 9,68% din pacienti, cN0 la 3,2%, cN1 la 54,84%, cN2 la 38,7%, cN3 la 3,2%; 74,19% au prezentat invazia fasiciei mezorectului (MRF+). Dupa chimioterapia de inductiei, restadializarea prin RMN a evidenitiat reducerea in dimensiuni a TP la 54,8% din pacienti, a N la 35,48%; MRF a devenit negativ la 39,13% din pacienti. RMN de restadializare post RCT a evidenitat un raspuns T la 41,93% din pacienti, pentru N: 35,48% ; MRF negativa a fost inregistrata la 64,27%. Eficacitatea tratamentului neoadjuvant a fost demonstrata prin: reducerea in dimensiuni a T la 93,55% pacienti, in numar si dimensiune a N la 77,41% si 86,96% din pacientii au avut MRF negativa. Din 31 de pacienti, TME s-a efectuat, pana in prezenz, la 11 pacienti. S-au inregistrat 4 raspunsuri complet patologice (pCR), raspuns partial la 5 pacienti si boala stabila la 2 pacienti. Rata de rezectie R0, pana in prezent, a fost 100%. Complianta la tratament a fost 100%. Nu s-au inregistrat toxicitati G3,4;

Concluzii: Eficacitatea chimioterapiei de inductie cu Capecitabina si Oxaliplatin (CapeOx) urmata de radiochimioterapie concomitenta, RCT a fost demonstrata prin reducerea substantiala in dimensiuni a tumorii primare, a reducerii in dimensiuni si numar a adenopatiilor, MRF negativ ceea ce creste rata de rezectie R0. Toxicitatea inregistrata a fost de G1 si G2, rezultand o completanta la tratament de 100%.

Cuvinte cheie: cancer de rect, chimioterapie de inductie, radiochimioterapie concomitenta, RMN

CLINICAL ASPECTS AND RESULTS OF WHOLE BRAIN RADIOTHERAPY FOR MULTIPLE BRAIN METASTASES

Patricia Șuteu1,2, Daniela Martin1, Petronela Rusu1, Valentin Cernea1, 2, Viorica Nagy1, 2

1”Prof.Dr.1.Chiricuță” Oncology Institute Cluj-Napoca, 2“Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca

Background: In the past decades, overall survival for cancer patients increased, bringing along the challenges of palliation for symptoms and clinical situations, in order to improve progression-free survival and quality of life. An important
A proportion of cases addressed for radiotherapy in “Prof. Dr.I.Chiricuţă” Oncology Institute Cluj-Napoca are in need of palliative treatment for brain metastases. Standard treatment for multiple brain metastases is whole brain radiotherapy (WBRT), alongside medical management of symptoms.

**Objectives:** To analyze clinical characteristics and outcomes of patients with brain metastases from different primary tumors and to compare various WBRT regimens in terms of median survival time.

**Materials and methods:** A retrospective study was performed using data on patients with multiple brain metastases who received WBRT in our institution during 7.01.2013-20.12.2013. We included patients with all sites of primary tumors. Patients who underwent complete surgery for oligometastatic disease were excluded from the analysis.

**Results:** A total of 102 patients with brain metastases were included. The median age at the diagnosis of the primary was 58 years. The male to female ratio was 1.3:1. The most frequent primary site was lung with 56 cases (54.9%), followed by breast in 22 cases (21.57%), melanoma in 9 (8.82%), gynecologic tumors in 8 cases (7.84%) and digestive tumors in 7 (6.86%). A proportion of 19.6% of cases (20 patients) were diagnosed with brain metastases at the time of the initial diagnosis of the primary. The remainder 82 patients (80.4%) developed brain metastases later in the course of the disease. In these patients, the median time from diagnosis of the primary to the development of brain metastases was 15 months. There were 54 patients (52.9%) not metastatic (brain or other sites) at diagnosis. In these patients, local control of the primary after treatment with curative intent was obtained for 51.85%. The median time from diagnosis of brain metastases to the initiation of WBRT was 7 days. The most employed WBRT regimen was 5X4 Gy in 50 cases (49%), followed by 10X3 Gy in 36 cases (35.3%), 4X5 Gy in 13 cases (12.7%) and 1X8 Gy in 3 cases (4%). The median survival with brain metastases was 5 months for all patients. Patients who underwent WBRT with the 5X4 Gy regimen had 5 months survival, followed by 10X3 Gy with 4 months, 4X5 Gy with 3 months and 1X8 Gy with 1 month.

**Conclusions:** Lung and breast cancer were the most frequently associated with brain metastases. The 5X4 Gy regimen was the most commonly used in our institution, entailing a median survival superior to the other regimens, although the difference in survival may be due to individual prognostic factors which led to the choice of a certain regimen. Further studies are required in order to identify prognostic factors necessary for stratification of patients in view of deciding the optimal radiotherapy regimen.

**SHORT-COURSE RADIOThERAPY OUTCOMES IN NEOADJUVANT TREATMENT OF RECTAL CARCINOMAS**

Hopirtean Claudiu¹, Dedean Florina¹, Fekete Zsolt¹,², Muntean Alina¹

¹Oncology Institute “Prof. Dr. Ion Chiricuţă”, ²Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca

**Objectives:** Evaluation of local control and overall survival in patients with rectal adenocarcinoma who received short-course radiotherapy (25Gy/5 fractions) followed by surgery.

**Materials and methods:** Between 2000 and 2011 a number of 62 patients with rectal carcinoma were treated in the Oncology Institute “Prof. Dr. Ion Chiricuţă” and received neoadjuvant short-course radiotherapy (25Gy/5 fractions) followed by surgery.

**Results:** 62 patients were identified: 37 men (59.6%) and 35 women (40.4%); 60 (96.7%) had adenocarcinoma histology. The median follow-up was 59.5 months and the median age was 61 years, 3 (4.8%) patients were stage I, 28 (45.2%) patients stage II, 26 (42%) stage III and 5 patients (8%) were stage IV disease. A number of 35 (56.5%) patients had the tumor located at over 5 cm from the anal orifice (AO), 27 patients (43.5%) had the tumor located in the inferior rectum (<5 cm from AO). 59 patients underwent surgery, 44 (70.97%) abdominoperineal resection and 15 (24.19%) lower anterior resection. 5-year overall survival (OS) was 58% (CI: 45%-69%), disease specific survival (DSS) was 72% (CI: 59%-82%). Patients under 60 years had a better OS than the ones over 60 years: 75% vs. 42% (p<0.01). OS in patients with stage II was superior to that of patients with stage III disease (88% vs. 53%, p=0.01). OS considering the distance to AO was better in patients with tumors located at <5cm from AO (86% vs. 61%, p=0.03). Local control was obtained in 44 patients (70.97%), 18 patients (29.03%) developed local failure.

**Conclusions:** Short-course radiotherapy is a viable therapeutic option for patients with early rectal carcinoma, offering a good local control and OS.

**EFFICIENCY ASSESSMENT OF PACLITAXEL AND CARBOPLATIN REGIMEN IN PATIENTS WITH OVARIAN CANCER.**

Amalia Moldovan¹, Tudor Moisiu¹, Daniel Sur², Costica Adrian Costin², Claudia Burz¹,²

¹UMF “Prof. Iuliu Hatieganu” Cluj-Napoca, ²Oncology Institute Cluj-Napoca

**Abstract:** Efficiency assessment of Paclitaxel and Carboplatin regimen in patients with ovarian cancer.

Ovarian cancer represent the fifth type of cancer in women being the fourth cause of death by cancer in women. Only a small percentage of women with epithelial ovarian cancer can be treated with surgery alone. Chemotherapy with a platinum agent and a taxane (paclitaxel) is considered the standard of care for treatment of ovarian carcinoma.

**Methods:** A total of 24 patients with stage III–IV received six courses of chemotherapy PT at 3-week intervals.
The aim of this study was to evaluate the toxicity of this regimen, the response to treatment and to investigate the predictive and prognostic value of tumor marker CA 125. The patients were treated using Paclitaxel 175 mg/m 2 IV over 3 h plus carboplatin area under the curve (AUC) 6 IV over 30 min on day 1; every 21 d for three to six cycles. Median age of patients was 55 (range between 41-73).

Results: The treatment was generally well tolerated. The most frequent grade 3-4 toxicity were hematologic and neurologic (62% vs 48%). The most frequent grad 1-2 nonhematologic toxicity was nausea and vomiting (78%). The overall response rate was 70.8%, with a good correlation between the value of CA 125 and the response to chemotherapy, being a good factor of prognostic of the treatment.

Conclusion: TC is active in patients with ovarian cancer and has a acceptable toxicity profile. CA125 represents a important biomarker for monitoring the response of treatment.

15/10/2015

MEDICAL PHYSICISTS (I)

CHARACTERISTICS OF BRACHYTHERAPY SOURCES USED FOR THE TREATMENT OF PROSTATE CANCER

Edina Dordai1, Dan Dordai2, Gabriel Kacso3
1Institutul Oncologic “Prof. Dr. I. Chiricuta” Cluj-Napoca, 2Amethyst Radiotherapy Center Cluj, 3Universitatea de Medicină și Farmacie “Iuliu Hațieganu” Cluj-Napoca

Prostate cancer is one of the most common forms of cancer in men. Brachytherapy has been widely used for treatment, as a standalone option or boost to external beam radiotherapy. Short half time and low energy photons emitting radioactive sources are used for permanent implants (125 I and 103Pd ~30keV). Also temporary implants use fractionated or single session HDR brachytherapy treatments usually with 192 Ir source (0.38MeV).

The good results of brachytherapy treatments determined the development of new sources to increase efficiency. For the clinical use of these sources AAPM Task Group No 43 recommends accurate determination of all the relevant dosimetric data both experimentally and theoretically before use.

The aim of this work was to compare the physical and dosimetric characteristic of a few brachytherapy sources used for the treatment of prostate cancer.

TREATMENT PLANNING USING VOLUMETRIC MODULATED ARC THERAPY FOR THORACIC TUMOURS

Popa Raducu01, Ciocaltei Violeta02, Adam Daniela03, Suditu Mihai04

Volumetric modulated arc therapy (VMAT) is a novel form of intensity modulated radiation therapy that allows the radiation dose to be delivered in a single or double gantry rotation using modulated fields.

Lung radiation injury is a critical complication of radiotherapy (RT) for thoracic esophageal carcinoma (EC). Therefore, the goal of this study was to investigate the feasibility and dosimetric effects of reducing the lung tissue irradiation dose during RT for thoracic EC by applying volumetric modulated arc radiotherapy (VMAT).

The capability of VMAT to reduce heart and cord dose, while maintaining lung receiving 20 Gy < 35% was evaluated for esophageal cancer. Also the PTV coverage was evaluated according ICRU recomendations.

The quality assurance for each treatment planning is another goal of this type of treatment technique and ensures that the treatment will be delivered correctly.

By analyzing all cases treated in our clinic, we can say that VMAT plans resulted in superior dose distribution with a reduction in dose to lung and heart.

VMAT can be a better option in treating thoracic tumours.

“HELICAL” AND “TOMODIRECT” TECHNIQUES FOR BREAST CANCER TREATMENT WITH TOMO HD SYSTEM

Papiu Mihaela01, Radu Maria02, Bucur Tudor Danu03, Moga Adrian Stefan04

Aims: The goal of this work was to implement new planning strategies for breast cancer treatment with
TomoDirect and TomoHelical techniques by using the TomoHD system of Polisano Clinic, Sibiu.

**Materials:** The TomoHD accelerator has a special geometry similar with that of a helical CT scanner. The 6MV accelerator is mounted on a slip ring gantry. The generated beam passes through a primary collimator and is collimated into a fan beam shape. Further collimation and modulation is obtained by using a binary MLC. During treatment, the ring gantry continuously rotates while the patient is translated through the beam plane. The patients were immobilized by using Orfit Thorax Abdomen Lateral support and AIO base plate.

**Methods:** There are presented IMRT treatment plans for different breast cancer cases in order to prove the feasibility and the benefits of helical tomotherapy (HT) for complex situations such as breast/chest wall with positive axillary and supraclavicular lymph nodes. The standard tangential technique remains the base for breast cancer treatment when no lymph nodes are involved. Comparative studies have been discussed by making helical and tangential plans for the same patient in order to analyze which are the benefits and the drawbacks of each method (PTV coverage, average doses for organs at risk and the treatment time).

**Conclusions:** The advantages of helical tomotherapy include better conformity of treatment and homogeneity indexes, lowering the dosages to organs of risk, especially for heart and ipsilateral lung. The classical tangential technique is applied successfully for situations when only the breast/chest wall has to be irradiated or when the geometry of the patient thorax is suitable for this method even the lymph nodes are positive and must be irradiated. Similar results for the average dose for PTV (planning target volume), V20 and V5 for the ipsilateral lung were obtained with both techniques proving the feasibility of helical tomotherapy for breast cancer treatment.

**LEFT SIDED BREAST CANCER RADIATION THERAPY. TECHNICAL ISSUES OF TREATMENT PLANNING AND DOSE OPTIMIZATION.**

Morvay Szabo Edina, Virag Vasile, Hardut Carmen

1University of Oradea, Faculty of Medicine and Pharmacy; 2Clinical Municipal Hospital “Gavril Curteanu” Oradea

**Background:** modern conformal 3D radiation therapy treatment planning should take into consideration an optimal coverage of the target volume between the 95%-107% isodose keeping the dose delivered to the organs at risk at the lowest level. Since radiation therapy is an important sequence in multimodal treatment of breast cancer, the authors studied different situations of left sided breast cancer. Material and Method: the authors have studied the possibilities of treatment planning with Isogray planning system for Siemens Artiste Linear Accelerator for 3D conformal radiation therapy with photons 6, 18 MV and or electron beam with MLC in different clinical situation of postmastectomy radiation therapy, irradiation after breast conservation surgery with or without irradiation of the regional lymphatic’s. Results: after initial field setup the dose constrains for lung parenchyma V20≤15%; V10≤35%; V5 V5≤50%, for the whole heart V20≤5%; V10≤30%, mean dose ≤400cGy, spinal cord <45Gy; thyroid gland<45Gy, brachial plexus <60-66Gy, esophagus mean dose <34Gy, whole organ<55Gy is taken into consideration after Enami paper and the Quantec paper. To achieve all these requirements the authors evaluate how changing the position of the patient’s arm, how irradiation in a right oblique position and how irradiation with two isocenter versus one isocenter realizes all these constrains. Conclusion: for left sided radiation therapy of breast cancer, in the majority of the cases, both the dose at the level of target volume and the dose of radiation received by the organs at risk can be correctly covered by optimal isodose set-up. In some cases of specific chest wall anatomy reduction of the mean heart dose can be achieved placing the patient on the breast board in a slightly right oblique position. Prone breast irradiation and different IMRT techniques should be studied in the future.

**Keyword:** breast cancer radiation therapy, target volume, organs at risk
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MEDICAL PHYSICISTS (II)

DAILY IMAGE GUIDANCE WITH CONE-BEAM COMPUTED TOMOGRAPHY FOR HEAD AND NECK CANCER IMRT

Adina Madalina Badiu1, Dan Demeter1, Ovidiu Parv1, Dan Dordai1, Noemi Schultes1, Renata Zahu1

1Amethyst Radiotherapy Center Cluj

Purpose: To evaluate daily positioning errors of patients undergoing intensity modulated radiotherapy for head and neck cancers.

Material and methods: We have included 40 patients with various cancers in the head and neck region, treated on our Elekta Synergy linear accelerator. All patients were immobilized with Civco thermoplastic masks. All patients received IMRT with a rotational technique VMAT. Patients were verified with daily or weekly CBCT. We have evaluated the translational errors in x, y, z direction in all patients, and also the rotational errors in 6 patients.

Results: In total a number of 1074 CBCT were studied. The mean set-up errors per patient varied between 0-2.6 mm (x), 0.6-2.6 mm (y), 0.4-2.9 mm (z). The overall population mean set-up errors were 2.1 mm, 2.1 mm, 2.4 mm in the lateral (x), cranio-caudal (y) and anterior-posterior (z) direction. The systematic errors for the population were 0.08 mm, 0.14 mm, 0.1 mm in the x, y, z. The individual random errors varied between 0.037 mm and 0.97 mm. The mean population random were 0.157 mm (x), 0.237 mm (y), 0.327 mm (z).

Mean rotational errors were 0.27°, -0.23°, -0.12°.

Conclusions: CBCT is an effective way to analyze and correct random and systematic set-up errors. Calculating the mean population set-up errors allows a reduction in the clinical target volume to planning target volume margins. In our clinic the margins have been reduced from 5 to 3 mm following the results of the first 20 patients.

IMAGE GUIDANCE WITH CBCT IN LUNG CANCER RADIOThERAPY

Claudia Irina Sarca1, Dan Vatca1, Daniela Persa1, Lavinia Negrut1, Andrea Eva1, Renata Zahu1

1Amethyst Radiotherapy Center Cluj

Purpose: The scope of our study was to determine the impact of setup errors identified by cone beam CT during radiotherapy for lung cancer.

Material and methods: We have included in this observational study 14 patients. Patients were treated on our 6 MV Linac (Elekta Synergy) with IMRT/VMAT technique. Image guidance was done with the cone beam CT mounted on the linac. Verification strategies were online with daily imaging or offline with e-NAL protocol (extended no action level). We have analyzed translational errors in x, y, z direction and rotational errors.

Results: A total of 383 CBCTs were done. 13 patients had daily imaging, 1 patient had weekly imaging. Individual mean setup errors in the x, y, z directions varied between 0.2 and 4.2 mm in the x direction, 0.1 and 4.3 mm in the y direction and 0.1 and 3 mm in the z direction. Overall population mean setup errors: x = 0.5 mm, y = 0.7 mm, z = 0 mm. The systematic component for the population is x = 0.2 mm, y = 0.3 mm, z = 0.2 mm. Population random error were: x = 0.7 mm, y = 0.7 mm, z = 0.4 mm. Mean rotational errors for 5 patients were -0.2 degrees on the x axis, -0.1 degrees on the y axis and 0.1 degrees on the z axis. In one patient we have noted an asymptomatic pneumothorax during radiotherapy which needed treatment interruption because of possible geometrical miss.

Conclusion: CBCT is an effective method to use in daily or weekly image guidance strategies especially in this patient population where it can identify changes like pneumothorax, atelectasis in the irradiated lungs.

DOSIMETRIC CHECK-UP OF DOSE DISTRIBUTION CONSIDERING THE INFLUENCE OF POSITIONING ERRORS IN MODERN RADIOTHERAPY

Aurel Chis1,2, Spunei Marius2, Ioana Scarlatescu2

1Institutul Oncologic “Prof. I. Chiricuta” Cluj-Napoca, 2Asociatia OncoHelp Timisoara

Aim: Compared to the classic irradiation treatment plans, the usage of 3D imaging (CT – simulation) and modern radiotherapy planning systems, offers the possibility of a much better control of the dose distribution. Having a higher control over the treatment plan, modern accelerators allow the administration of the correct dose in the target volume vs the organs at risk. However, reproducing the patient’s exact positioning every session of treatment as during scanning, remains another problem. This paper analyses the possible positioning errors and their influence on the dose distribution.

Material and method: The simulated treatment plans for VMAT technique were used for measurements, using different tumor sites. The experimental setup for dosimetric measurements consist of: CT-simulator “SIEMENS”,
treatment plan system “ECLIPSE 13”, Sun Nuclear ArcCheck using the software “SNC pacient 6.6”.

In order to obtain dosimetric verification plans, the method was to convert real treatment plans. The check-up device (ArcCheck) was aligned with intentional positioning errors on each of the three axes up to 1 cm, independent from each other, and then rotated from the correct position up to 5°.

After the positioning errors were made, we determined the dose distribution according to gamma errors criteria.

**Results:** For positioning errors up to 1 cm or 5 degrees, which may be frequent if the immobilization or imaging methods for checking each treatment session are not used, under 50% of the measured points passed the gamma criteria (3% or 3mm).

**Conclusions:** In order to obtain a real correspondence between the theoretical dose distribution achieved in the treatment plan and the real dose distribution during treatment, quality assurance systems are needed: the correct use of the immobilization devices, portal imaging and dosimetry check-up systems.

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**TREATMENT PLANNING USING VOLUMETRIC MODULATED ARC THERAPY FOR LUNG TUMOURS**

M. Suditu

1Amethyste Otopeni, Bucuresti

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**INNOVATIVE TECHNOLOGIES: INDICATIONS & CLINICAL BENEFITS**

M. Ozsahin

1Radiation Oncologist, CHUV, Lausanne, Switzerland

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**CLINICAL OUTCOMES AND CHALLENGES OF LUNG SBRT**

Xavier Mirabel

1Radiation Oncologist, Centre Oscar Lambret in Lille, France

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**16/10/2015**

**EPIDEMIOLOGY, SCREENING & DIAGNOSIS**

**TIME TRENDS OF INCIDENCE AND MORTALITY BY LUNG CANCER**

Ofelia Šuteu1,2, Daniela Coza2, Luminița Blaga2, Florian Nicula2

1„Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca, 2„Prof. Dr. Ion Chiricuță” Oncology Institute, Cluj-Napoca

**Introduction:** Lung cancer (LC) remains the most frequent cancer in men and the third most common in women worldwide. In developed countries, incidence and mortality rates are generally declining among males and are starting to plateau for females. In contrast, in less developed countries, increasing lung cancer rates are predicted to continue, due to endemic use of tobacco.

**Objectives:** To investigate time trends of incidence and mortality by LC in Romania (1982-2012) and Cluj County (1998-2010).

**Material and method:** Data on new cases were obtained from the Medical Evidence Centre of the Ministry of Health for the period 1982-2007 and from the GLOBOCAN Projects with estimated data for 2008 and 2012. Deaths were obtained from the WHO Database. Data on new cases and deaths by LC for Cluj County were obtained from the North-Western Cancer Registry. Crude (CRI) and age standardized incidence (ASIR) and mortality (ASMR) rates were computed, using the world standard population, by the direct method. For Cluj County, time-trends were analyzed using Joinpoint regression with annual percent change (APC) calculation with a 0.05 level of significance.

**Results:** In Romania, LC ranks first as incidence and mortality in men and fourth as incidence and mortality in women. The estimated number of new cases in 2012 was 11644, representing 14.8% of cancer cases, of which 80% were in men. CRI increased in men from 32.14%000 in 1982 to 89.8%000 in 2012 and from 5.93 to 21%000 in women. ASMR increased by 44.17% in men, from 32.7 to 47%000 and 67.8% in women, from 5.7 to 9.6%000. International comparisons show that incidence and mortality rates for Romanian men are among the highest in Europe. In Cluj County, LC ranks first as incidence and mortality in men and fifth as incidence and second as mortality in women. During 1998-2010, there were 4297 cases, 82.8% in men. Mean age was 63.6 in men and 65 in women (p=0.001). ASIR remained constant in men (51.73%000 in 2010) but increased in women with 4.6% in the period 2000-2010, from 10.68 to 11.26%000 (p=0.001). ASIR of small cell carcinoma increased in both sexes, with 6.8% in women, from 1.09 to 1.36%000 (p=0.08) and 5.7% in men, from 3.17 to 5.86%000 (p=0.006). ASIR of squamous cell carcinoma decreased in men, from 35.91 to 17.72%000, with -5.2% (p<0.001) and in
women from 4.88 to 1.31%000, with -0.20% (p=0.19). ASIR of adenocarcinoma increased in men with 15.8%, from 1.46 to 9.82%000 (p<0.001), and in women with 0.18%, from 1.58 to 3.37%000 (p=0.05). ASMR remained stable in men between 2001-2010 (51.28%000 in 2010), but increased in women from 7.22 to 10.15%000 (p<0.001).

Conclusions: Given the increasing incidence and mortality of LC in our country, reflecting the changing smoking prevalence and the current lack of effective treatment for advanced lung cancers, these results highlight the need for tobacco reform to reduce tobacco use, especially in women to subsequently decrease the global burden of LC.

INITIATIVES FOR IMPROVING DIAGNOSIS OF LUNG CANCER – WHAT IS DIFFERENT FOR ROMANIA?

Ruxandra Rajnoveanu1, Florin Mihaltan1, Ruxandra Ulmeanu1

1Societatea Romana de Pneumologie

Lung cancer remains the largest cause of cancer deaths. It is the 7th most common cause of cancer death in never smokers. Unfortunately, the majority of lung cancers are still diagnosed at late stages. The most important underlying risk factor for lung cancer is COPD greater than smoking. COPD patients have a 6 fold higher risk for COPD. 3/4 of the patients are in advanced stages at admittance. Diagnostic performance of lung cancer in experienced romanian bronchology centers is very good and is growing. In 2006, 85% of lung cancer were diagnosed by bronchoscopy in “Marius Nasta” Pneumology Institute. 25% of lung cancer had surgical eligibility after bronchoscopy and CT scan. 77% of NSCC that underwent bronchoscopy were stages III and IV. Significantly more non-smokers were diagnosed with adenocarcinoma vs smokers (p <0.001). “Marius Nasta“Institute of Pneumology has the largest bronchology center in Romania. Here are examined 60% of patients requiring bronchoscopy in Romania. Over 10 000 patients/year are investigated by bronchoscopy and, yearly, more than 4,000 patients are going for bronchoscopy for lung cancer. Recent data recommend therapeutic bronchoscopy as an instrument before curative lung surgery, converting inoperable tumors to operable. Rigid bronchoscopy is mandatory for the majority of circumstances. In patients with advanced stages of lung cancer the management is focused on palliation of symptoms and improving quality of life. In those cases, therapeutic interventional bronchoscopy is salutary. The initiatives for improving diagnosis of lung cancer in Romania are very complex and dynamic. The wide range of national conferences, workshops, lung cancer campaigns and specific task forces like the Working Group for Lung Cancer of the Lung Cancer Section of the Romanian Society of Pneumology together with the Practical Romanian Guidelines for Lung Cancer, The Bronchology Section of Romanian Society of Pneumology, all of these are examples of multidisciplinary efforts in the field of early diagnosis and treatment of lung cancer. Still, the need of support bronchoscopy to become an accessible investigation for each patient suspected of lung cancer in all country represent a goal to reach.

TIME-SCALE ENHANCEMENT OF CHEST RADIOPHGRAPHS IMPROVING CANCER DIAGNOSIS AND TREATMENT

Iolanda Dumitrescu1

1Institute of Oncology “Prof. Dr. Alexandru Trestioreanu” Bucharest, Romania

Introduction: One of the diseases with the highest mortality rate is lung cancer, which causes 3000 deaths each day in the world. It is the leading cause of cancer death among both men and women. These considerations highlight the relevance of performing massive accurate and early diagnosis.

Materials and method: Because in a radiograph some features can be hardly detectable by eye, it is desirable to transform images before display. Software-aided time-scale analysis may enhance the faintest edges and keep untouched the strongest. A biorthogonal overcomplete multiresolution decomposition of the original image will issue coefficients proportional to image-intensity variations and to local contrast. Aiming at image quality improvement, four independent enhancement techniques transform the coefficients:

1. Linear enhancement linearly stretches them at multiscale level.
2. Nonlinear enhancement employs a piecewise linear function that emphasizes the low-contrast features and avoids over-enhancement of high-contrast features.
3. Sigmoid enhancement uses a mapping function that pushes down small coefficients related to noise, keeps unchanged the large ones and amplifies the others.
4. Multiscale enhancement is based on a nonlinear adaptive function that modifies linearly, nonlinearly or keeps unchanged coefficients, according to noise level.

The enhanced image has been reconstructed from the enhanced coefficients. Planar and cross-section radiographs were considered.

Results: Linear enhancement leads to inefficient usage of the dynamic range, because it emphasizes high-contrast and low-contrast edges with the same gain. The drawback of nonlinear enhancement is that the parameters at each scale are global. Sigmoid enhancement amplifies weak edges and suppresses noise. Multiscale enhancement prevents unnecessary over-enhancement of noise.

Conclusions: Time-scale enhancement allows the user to see details which are hardly distinguishable in the original radiograph, by reducing the ratio of strong features to faint features. Speed is a good advantage.
WHY WE NEED TNM STAGING IN LUNG CANCER?

Vancea Dorin¹

¹Spitalul Clinic “Dr. Victor Babes Timisoara”, Clinica de pneumologie

SOFTWARE-ASSISTED QUALITY IMPROVEMENT IN THORACIC X-RAY IMAGING AIDING CANCER FOLLOW-UP

Iolanda Dumitrescu¹

¹Institute of Oncology “Prof. Dr. Alexandru Trestioreanu” Bucharest Romania

Introduction: Lung cancer is the leading cause of cancer-specific mortality. The major medical societies include surveillance chest radiograph as part of the follow-up recommendations. The estimated annual cost for the treatment of lung cancer per patient is huge, but doubles for those who do not survive one year. It is requested to improve the investigations and lower costs.

In X-ray imaging of the chest, the image quality depends on the X-ray energy, body thickness and body composition. The final image is a complex sum of the interaction of the X-rays with all of the tissues in the path of the beam, but often lacks in quality.

Materials and method: Our software technique is based on a non-linear transform that combines the effects of convolving the image with surround functions with different scales. Narrow surrounds highlight the fine features, but tonal rendition is lost. Wide surrounds retain the tonal information, but do not enhance the small fine features. Scales in between the two extremes – medium scales – tend to enhance some small features and retain considerable tonal information, but typically lack overall tonal rendition.

We tested the software on chest X-ray images from radiograph databases.

Results: Multiple surrounds are needed to achieve a graceful balance between dynamic range compression and tonal rendition in radiographs. The number of scales used is application dependent. We tested a combination of three scales representing narrow, medium and wide surrounds, sufficient to provide both dynamic range compression and tonal rendition.

Conclusions: Chest radiographs are necessary in the evaluation of thoracic tumors, but they lack in contrast and sharpness. Our software technique improves their dynamic range and sharpness. The image quality obtained out-performs that one given by other multiscale techniques or the classical methods.

EARLY DETECTION OF LUNG CANCER AND DIAGNOSIS OF GENETIC PREDISPOSITION

Zsolt Fekete¹,²

¹UMF Iuliu Hațieganu Cluj-Napoca, ²Institute of Oncology Prof. Dr. I. Chiricuță

Over 50% of NSCLC and over 60% of SCLC are diagnosed in stage IV even in the setting of the most advanced health care systems and over 20% are found in stage III, where survival at 5 years is less than 40%. The percentages are similar in Romania, where in a recent study 45% of patients had stage IV disease, 32.5% in stage III, 16.3% were unstaged and only 3.3% had stage II and 3% stage I.

CT based screening of lung cancer in heavy smokers or moderate smokers with an additional risk factor is considered now a standard approach. According to the first screening trial published in 2006 in Lancet screening with CT finds 85% of tumors in stage I, where 5 year survival was 88%.

Never-smokers with emphysema have a similarly high risk for developing lung cancer, so experts advocate for extension of CT-screening to this category too.

Screening with CT is not optimal: it does not target moderate-risk individuals, the sensitivity is not 100%, around 20-40% of subsequent biopsies yield benign lesions and anxiety is a frequent problem in patients with a nodule of ≤8 mm. Thus, other, more advanced methods are needed to compensate for these imperfections. Proposed tests consist of blood tests (cytokines, miRNA), breath-tests and automated cytology of bronchial cells. A non-irradiating approach is a fast-MRI.

Genetic predisposition to lung cancer is complex, but some mutations are more prevalent than others are, which might offer the possibility to detect genetic predisposition in both smokers and non-smokers. Examples are SNP-Rs2352028 of 13q31.3 in never-smokers and SNP-Rs663048 of the Seizure 6-like (SEZ6L) gene.

Lung cancer has currently the highest mortality among malignant tumors, but with the implementation of these modern screening methods, the lethality and thus the mortality of this aggressive cancer could be markedly reduced.
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RADIOTHERAPY (I)

THE ROLE OF RADIOTHERAPY (RT) IN IMPROVING TREATMENT OUTCOME IN SMALL CELL LUNG CANCER (SCLC)

Petronela Rusu

1Institute of Oncology “Ion Chiricuta”, Cluj – Napoca, Romania

**Background:** Major improvements of treatment outcome with RT in SCLC were the addition of RT to Chemotherapy (ChT) and prophylactic cranial irradiation (PCI) in limited disease (LD) as well as in extended disease (ED).

**Purpose and Methods:** For a further improvement in treatment outcome a review of literature and publications has been proceeded in order to answer questions concerning timing, fractionation, dose, volume and techniques of RT, and treatment decision for elderly patients.

**Results:** Although conflicting data and debatable evidence, further improvement in thoracic RT for LD can be summarized as use of RT as early as possible, preferably from the 2nd cycle of ChT in selected patients (pts), high but adapted intensity of RT concerning fractionation. For the appropriate volume the general approach is of inclusion in RT volume the initially involved lymph nodes but reduction of volume within pulmonary parenchyma according to ChT response and omission of elective nodal irradiation. Concerning technique a translation from NSCLC, with superior efficacy of 3D-CRT than 2D technique, is expected in SCLC as well.

The use of PCI raised also questions for further improvements concerning brain imaging, timing in relation to ChT-RT, neurocognitive functions and QoL, use in early stages and elderly patients. The change of diagnostic policy from CT to MRI in brain imaging led to increase of detected brain metastases (BM) from 10% to 24%, meaning stage migration and fewer pts eligible for PCI. The short doubling time of 4-16 days, for BM from SCLC suggest an early start of PCI but concomitant use with ChT should be avoided because of increased toxicity. Neurotoxicity (NT) increased also with higher total dose (p=0.03) and age. Neurocognitive functions as memory, communication and intellectual deficit worsened with time, therefore a hippocampal sparing technique has been proposed. Indication of PCI in early stages, especially in stage I should be weighted considering lower risk of BM versus higher risk of NT. Treatment in elderly needs a proper selection and evaluation of co-morbidity status, less intense ChT with earlier introduction of RT and carefully limited RT volume. Postoperative RT proved to be beneficial for N2 disease, but no benefit for early stages.

**In Conclusion,** an individualized, appropriate decision, should be used concerning volume, dose, fractionation and technique, in order to customize treatment according to patient needs.

THE ROLE OF RADIOTHERAPY IN TREATMENT OUTCOME IN LUNG CANCER – THE EXPERIENCE OF THE RADIOTHERAPY DEPARTMENT OF SIBIU

Adrian Moga, Maria Radu, Tudor Bucur, Mihaela Papiu

1Polisano Clinic Sibiu, 2Polisano Clinic Sibiu, 3Polisano Clinic Sibiu, 4Polisano Clinic Sibiu

**Background:** Radiotherapy represents one of the primary treatment modalities for patient with carcinoma of the lung. Second to surgery, it remains the modality with the highest response rates and potential for cure. With radiotherapy, local control is directly related to dose, as well as the technical accuracy with which the dose is delivered to the target volume.

**Purpose and Methods:** The aim of this presentation is to present our experience of treatment outcome with radiotherapy in carcinoma of the lung.

**Results:** With the 2D- technology radiotherapy used there were serious limitations, it was nearly impossible to accurately delineate the target volumes and to estimate the normal tissue volumes that needed to be spared. The TomoHD treatment machine is a combination of a helical CT scanner and a linear accelerator. The unit is capable of continuous rotation around the patient while the couch is moving into the gantry, thus providing smooth helical delivery. The daily CT is used to precisely place the radiation beam and allows the operator to modify the treatment if the patient anatomy changes due to weight loss or tumor shrinkage.

**Conclusions:** The dose distribution is improved significantly. With the better ability to focus the radiation beams, higher doses can be delivered to the tumor. Lower doses are delivered to normal tissues resulting in lower complication rates. The net results should be an overall improvement of survival and in the quality of life.

THE FUTURE LOOKS BRIGHT – MULTIDISCIPLINARY APPROACH FOR LUNG RESECTIONS IN T4 DISEASE WITH GREAT VESSEL INVOLVEMENT.

Victor S. Costache, Mihai B. Chioffischi, Radu Hulpus, Adrian Moga, Adrian Santa, Mugurel Bosanceanu

**Background:** Radiotherapy represents one of the primary treatment modalities for patient with carcinoma of the lung. Second to surgery, it remains the modality with the highest response rates and potential for cure. With radiotherapy, local control is directly related to dose, as well as the technical accuracy with which the dose is delivered to the target volume.

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**Conclusions:** The dose distribution is improved significantly. With the better ability to focus the radiation beams, higher doses can be delivered to the tumor. Lower doses are delivered to normal tissues resulting in lower complication rates. The net results should be an overall improvement of survival and in the quality of life.
Introduction: Complete removal of all locoregional pathological tissues should be the goal of all surgical procedures to lung cancer. However most centers avoid operating patients with lung cancer or other intrathoracic tumors when mediastinal great vessels are involved.

Methods: We selected four cases of mediastinal great vessels involvement (3 had NSCLC and one with immature teratoma) who were referred for resection between May 2014 and August 2015 to the University Clinic of Thoracic and Cardiovascular Surgery from the Polisano European Hospital in Sibiu. All cases were initially refused by other national centers of thoracic surgery, one was previously opened six month prior to our procedure and declared inoperable due to T4 cardiac involvement. All patient files were analyzed in a multidisciplinary oncological thoracic meeting (MDOTM). Indication for surgical resection is validated by all members of the MDOTM. All cases with intrathoracic tumours with great vessels involvement are completely screened for extrathoracic metastatic disease. For all thoracic resections, when great vessels involvement is validated by 128 multislice CT-scan, all patients benefit from a multidisciplinary surgical approach – the team is always formed by a thoracic and a cardiovascular surgeon with an extracorporeal pump, a cell saver and a perfusionist in stand-by on sight.

Results: All cases are hospitalized in the cardiovascular intensive care unit, in the immediate postoperative period. During the same period, due to careful preoperative planning and multidisciplinary diagnostic approach the rate of blank exploratory thoracotomy and of patients declared inoperable due to cardiac and great vessels involvement is zero. All patients had an uneventful postoperative course and were discharged at day 7. The patients are routinely followed up at 1, 6 and 12 months after surgery and have a multislice CT at 6 and 12 months after the surgical procedures. When indicated by the MDOTM, adjuvant chimio and radiotherapy were performed. No local or extrathoracic recurrences were yet diagnosed.

Conclusion: Multidisciplinary diagnostic and surgical approach is the key for successful treatment of intrathoracic tumors with cardiac and great vessels involvement with no metastatic disease. In 2015 there should be no more exploratory thoracotomies for lung or other intrathoracic tumors.
IS CONCOMITANT CHEMORADIATION AN UNDISPUTABLE GOLD STANDARD FOR LOCOREGIONALLY ADVANCED DISEASE?

Renata Zahu1, Carmen Bodale1, Andrei Ungureanu1, Vlad Manolescu1,2, Catalin Iacob1, Gabriel Kacsó1,2

1Amethyst Radiotherapy Center Cluj, 2University of Medicine and Pharmacy Cluj Napoca

Introduction: Locoregionally advanced NSCLC is a heterogeneous group of disease including large primaries T3-T4 with great vessel or thoracic wall extension or smaller T1-T2 tumours but with significant mediastinal lymph node involvement N2-N3. Several retrospective and prospective studies were conducted to define the optimal multimodal approach combining chemo-, radiotherapy and surgery in different order, but there is still a lot of controversy in choosing the optimal treatment combination. Methods: This study focuses on analyzing different decisional situations as well how new innovations in the field of radiotherapy, imaging and surgery can influence our decision. We have tried systematically to review results of recent studies, offering also a brief description of possible treatment failures and what is the role of different treatment modalities in local, regional and distant control.

Results: Combination of radiotherapy with chemotherapy is still the main treatment modality for majority of IIIB disease, but the role of induction followed by surgery is increasing in stage IIIA disease. Marginally operable IIIA disease is mainly composed of tumors with limited mediastinal lymph node involvement, but also N2 staging can significantly differ from patient to patient depending on which LN levels are interested and how bulky the disease is. Patients with micrometastatic disease and single station nodal involvement have the greatest chance for cure and surgery has a significant role in their treatment. Adding chemotherapy to radiotherapy has not only the role of radiosensitizing but also to eradicate possible microscopic distant disease. We have also reviewed the role of adding more chemotherapy or even targeted agents to concomitant chemoradiotherapy. New radiotherapy techniques as IMRT, IGRT and proton therapy can modify the toxicity profile and reduce treatment induced side effects such as esophagitis, pneumonitis and we may consider to offer more aggressive treatment and increased doses to further improve outcome.

Conclusion: Survival data show that there is still 20-30% of patients which can obtain a long term survival and more aggressive treatment options can be chosen in a selected group of patients and multidisciplinary approach being the key to success.

PRINCIPLES OF MEDICAL TREATMENT FOR NEUROENDOCRINE TUMORS

Rodica Anghel1, Laurentia Gales1, Xenia Bacinschi1

1Institute of Oncology “Prof Dr Al trestoioreanu” Bucharest

Appropriate diagnosis and treatment of neuroendocrine tumors involves collaboration between specialists in multiple disciplines: pathologists, endocrinologists, radiologists, surgeons, oncologists.

Octreotide has indications for the relief of symptoms. NCCN Guidelines states that octreotide LAR is a treatment option in patients with metastatic GEP-NETs which are symptomatic, or unresectable tumours with significant tumourburden, which are progressive or produce local effects. However, debate continued regarding the effect of octreotide LAR in controlling tumour growth. No clear consensus exists on the timing of octreotide initiation.

Interferon alpha has been shown in several large, non-randomized series an antitumor effect in patients with advanced carcinoid. Because of its potential side effects, is usually reserved as therapy after failure of octreotide.

Everolimus and sunitinib have recently been confirmed to have antitumor activity and to improve PFS in patients with advanced pancreatic neuroendocrine tumors.

Treatment with radiolabeled somatostatin analogues has been reported to result in tumor responses in patients with advanced carcinoid tumors. This approach remains investigational.

Cytotoxic chemotherapy is another option. Streptozocin is FDA approved for use in patients with advanced pancreatic neuroendocrine tumors. The combination of capecitabine and oxaliplatin was assessed, with response rates of 23% in patients with poorly differentiated neuroendocrine tumors and 30% in well-differentiated disease. More recently, oral temozolomide-based therapy has been used in patients with advanced pancreatic neuroendocrine tumors, alone or in combination with capecitabine. In addition, a recent phase II study assessed the safety and efficacy of temozolomide administered with bevacizumab.

Regarding NET situation in Romania we may note some aspects:

- Due to late diagnosis, many NET patients remain in treatment for short period of time
- Octreotide LAR is available in Romania since 2008
- The current NET Romanian protocol do not mention the antitumor effect of Octreotide
- Streptozocin is not available in Romania; Everolimus, Sunitinib, Temozolomide, Bevacizumab are not reimbursed

BRACHYTHERAPY FOR LUNG CANCER: UTOPIA OR REALITY IN ROMANIA?

Gabriel Kacsó1,2, Maria Simon1, Renata Zahu1, Dan Dordai2, Calin Pop1,2, Catalin Iacob2

1UMF “Iuliu Hatieganu” Cluj, 2RTC Amethyst Cluj, 3Clinica Pneumoftiziologie “Leon Danie]lo” Cluj
Brachytherapy can play a significant role in lung cancer treatment, particular in palliative setting but also as curative in intent, exclusive or adjuvant after radical surgery for early stages with positive stump or as a boost after RCT.

For T1-2NoMo inoperable lung cancers, exclusive HDR BT (6-7fr of 6-7 Gy) achieves 80% local control with 60% five year survival (SV5) and as high as 90% cancer specific SV5 but with 10% severe haemoptysis and 5% eso-tracheal fistulas, frequently fatal.

Adjuvant after positive bronchial stump surgery or as boost after RCT it improves the local control without proven benefit in survival.

In palliative setting, associated with endoscopic laser resections, BT significantly improves the quality of life, as it can control for several months 90% of the haemoptysis, 80% of major dyspnoea and 70% of severe cough.

In a multidisciplinary team we implemented this technique as an operative and effective procedure in Cluj on just a few patients, without any severe complication.

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RADIOTHERAPY (II)

DIFFERENT MODALITIES OF IRRADIATION IN SUPERIOR VENA CAVA COMPRESSION SYNDROME – HISTORICAL PERSPECTIVE

Mircea Savu1, Amalia Constantinescu1, Lucia Enciu1, Alex Oprea1, Valentin Gusu1

1Institutul Oncologic “Prof Dr. Alexandru Trestioreanu” Bucuresti

Despite the huge progress in diagnostic and therapeutic approaches over the years, the superior vena cava compression syndrome still represents a challenge for radiotherapy. We present a historical perspective of radiotherapy techniques, starting with conventional radiotherapy to modern techniques, such as 3D conformal and IMRT. Unfortunately, 85% of patients die within 1 year from diagnosis, but modern techniques decrease significantly the rate of acute and late complications and improve the quality of life.

SBRT LUNG WITH TOMO IN HEIDELBERG

Tarcea Valentin1

1University of Heidelberg, Division of Radiotherapy

PULMONARY ADVERSE EVENTS IN COMBINED TREATMENT OF LOCALLY-ADVANCED NON-SMALL CELL LUNG CANCER (LA NSCLC)

Petronela Rusu1

1Institute of Oncology “Ion Chiricuta”, Cluj – Napoca, Romania

Background: Several endpoints and scoring scales have been used to define radiotherapy (RT)-induced lung injury. As terminology, it is a continuing process triggered after RT comprising two distinct but tightly connected abnormalities. Radiation pneumonitis (RP) is an early inflammatory reaction, followed by pulmonary fibrosis in the late phase. Currently combined chemoradiotherapy (ChRT) became standard of care in patients (pts) with LA NSCLC and different radiation schedules and chemotherapy combinations are in clinical use, in order to improve outcome.

Objectives: Symptomatic RP is a clinically important toxicity occurring in 15-40% of pts receiving concurrent ChRT for NSCLC. The risk of RP limits the radiation dose that can be safely delivered and the size of the volumes treated and may thus hamper tumor control. On the other hand, RP can limit quality of life and can result in oxygen dependence or death, leading to the need of predictive factors of RT induced lung injury.

Methods and Materials: A review of literature, the Quantitative analysis of normal tissue effects in the clinic (QUANTEC) project and an individual patient data meta-analysis are analyzed to find predictive factors of RT induced lung injury.

Results: Several studies have identified relationships between rates of RP and baseline patient related factors (age, gender, smoking, tumour location, PS, pulmonary
dysfunctions, elevation of TGF beta 1 levels post RT), or treatment related factors such as treatment volume, total dose, dose/fraction, chemotherapy agents. Predictive models have not been widely implemented for several reasons: different endpoints, criteria and scales, heterogeneous groups of pts. On the other hand, to choose Dose/Volume parameters is challenging as there are no clear “thresholds” and the acceptable risk varies with the clinic scenario. Despite these limits, in pts undergoing concurrent ChRT for NSCLC, RP risk is associated with age over 65 years, type of chemotherapy regimen and dosimetric parameters. It is prudent to limit V20 to <35%, MLD to<20-23Gy to maintain the risk of RP under20%. From the experience of dose escalation studies and SBRT, limiting the dose to the central airways to ≤80 Gy, might reduce the risk of bronchial stricture and hemoptysis. The benefit of decreasing a dosimetric parameter (e.g. V20) at the expense of another(e.g. raising the V5) in 3DCRT and IMRT is not entirely known. Targeted agents combination treatment, do not seem to add benefit but toxicity and thus are reserved to be used only in clinical trials.

Conclusion and perspectives: Progress regarding the predictors of RT induced lung injury requires a better definition of endpoints, a multi-institutional database to further understand the impact of clinical factors, systemic agents, organ interactions, radiation response modifiers. Patient Reported Outcome (PRO) should also be be integrated in clinical trials to assess toxicity.

INCIDENCE, SEVERITY AND MANAGEMENT OF SKIN TOXICITY ASSOCIATED WITH EGFR INHIBITORS THERAPY IN HEAD AND NECK AND LUNG CANCER PATIENTS

Rodica Anghel1,2, Laurentia Gales1,2, Luiza Serbanescu2, Oana Trifanescu1,2

1Al. Trestioreanu Bucharest Institute of Oncology, 2”Carol Davila” University of Medicine and Pharmacy

Introduction: Epidermal growth factor receptor (EGFR) inhibitors are widely used in treatment of squamous cell carcinoma of the head and neck (SCCHN) and lung cancer (LC). Their use can be associated with the development of skin reactions, including a macular, papular, pustular rash, commonly referred to as acne-like rash (or folliculitis); xerosis; telangiectasia; hyperpigmentation and hair and nail changes.

Patients and methods: Forty seven patients were treated in our centre between 2011-2015 with monoclonal antibody against EGFR (cetuximab) (n=27, 57.4%) or EGFR tyrosine kinase inhibitors (erlotinib) (n=20, 42.6%) in SCCHN and LC. Dermatological changes were assessed by a multidisciplinary team consisting of an oncologist, radiotherapist and dermatologist.

Results: Incidence of all grades acneiform eruptions with cetuximab treatment was 74% (n=20), with grade 2 toxicity (define as 10% to 30% the body surface area covered in papules or pustules) in 11 patients (44.4%) and grade 3 define as papules and/or pustules covering >30% BSA, in 2 patients (10%). In patients treated with erlotinib the incidence of all grade acneiform rash was 55% (n=11) with 1 patient with grade 3 toxicity. The median time to onset of symptoms was 3.4 months after starting the treatment. Nail changes were a late toxicity and was present in 8.5% of patients. Hair changes consisted in mild hair loss and in one female patient hypertrichosis on the face. Hyperpigmentation was seen following acneiform eruption in 53.2% of patients. Treatment consisted in general measures (hydration of skin, sun screening, and emollient cream) in all patients and administration of hydrocortisone 1% cream. In addition for grade 2 and 3 acneiform rash oral doxycycline 100 mg/day was administered.

Conclusion: Cutaneous effects of EGFR inhibitors represent is a unique side-effect and has to be rapidly treated in order to increase the quality of life of the patients and compliance to treatment.

STATE OF ART IN THE INTENSITY MODULATED RADIOTHERAPY OF THE ESOPHAGEAL CANCER

Chiricuta IC

1AMETHYST RADIOTHERAPY CENTER, Otopeni, Romania

Introduction: The progress achieved in radiotherapy make possible the delivery of an individualized treatment planning. The therapeutic indication is based on the tumor board decission. The tumor board includes all factors involved in the diagnosis and treatment delivery for esophageal cancer patients. The TNM classification and the guidelines proposed by the radiation oncology societies (ASTRO, ESTRO, DEGRO) are considered for the indication of radiotherapy in the treatment of the esophageal cancer patients. The consequences of the location of the esophageal cancer in the extrathoracal or upper, middle or lower intrathoracal part on the target volume delineation will be presented. The nutrition status monitoring is one of the most important activities to make possible the optimal treatment delivery and improvement of the patients compliance.

Materials and methods: The esophageal cancer patients treated with preoperative neoadjuvant treatment, definitive radiochemotherapy or adjuvant radiochemotherapy were analysed. The radiotherapy planning procedure is based on the CT performed in the treatment position using an individualized applied head/neck/ shoulder mask. CT
slices at every 2 mm through the whole head and neck, thorax and upper abdomen make possible the precise target volume and organs at risk (the lung, the spinal cord, the myocard or liver) delination.

Results: The delineation of the target volumes is bazed on all the data obtained through the biopsy, surgery and the imaging procedures on each patient. The CTV (clinical target volume – microscopic disease) and GTV (macroscopic disease) as well as the PTV (planning target volume) are considered based on the available guidelines. Organs at risk protection based on the guidelines recommendations is mandatory. The final planning is analyzing all recommendations concerning the high dose delivery to the GTV, CTV as well as the maximum tolerance dose accepted at the different organs at risk are considered. We are using the VMAT (volume modulated arc therapy) the most modern intensity modulated radiotherapy technique. The daily treatment delivery is controled by using the portal imaging and the cone beam procedure. Large total dose 70 Gy/2 Gy or 66 Gy/2,3 Gy as concomitant boost with 1,8 Gy in 29 fractions should be applied on the primary tumor. The neoadjuvant radiochemotherapy was delivered till a total dose of 50 Gy in 2 Gy fractions.

Conclusions: The use of the IMRT radiotherapy and specially of the VMAT method make possible the delivery of a high quality of individualized treatment. High tumor control rates and less side effects through the protection of the organs at risk as the is thus possible. For definitive radiochemotherapy treatment the delivery of a high total dose on the tumor site as high as 70 Gy in daily fractions of 1,8 or 2,0 Gy is possible. The introduction of the supportive care to monitor the nutrition status of the patient before, during and after the combined treatment is mandatory.

ESOPHAGEAL CANCER. A RETROSPECTIVE STUDY FROM THE INSTITUTE OF ONCOLOGY PROF. DR. I. CHIRICUȚĂ. 
Zsolt Fekete1,2, Zeliko Dervišević1, Zsuzsanna Pálfi2, Alina Muntean2, Gabriel Lazăr2, Ştefan Hica2
1UMF Iuliu Hatieganu Cluj-Napoca; 2Institute of Oncology Prof. Dr. I. Chiricuță

Esophageal cancer is the 6th most common malignancy in the world. The optimal diagnostic and therapeutic approach of this common cancer is still debated. PET-CT along with esophageal ultrasound are the best diagnostic tests, although the role of MRI needs to be clarified. In locally or regionally advanced esophageal cancer the combined modality approach (chemoradition followed by surgery) yields the best results, although for complete responders who refuse surgery one might adopt follow-up. The dose of radiotherapy which yields a high rate of complete responses, while keeping the complication rate low is a matter of discussion too. With this retrospective study from the Institute of Oncology Prof. Dr. I. Chiricuță we aimed to audit the current results with the standard treatment in esophageal cancer.

STRATEGIES OF NUTRITIONAL SUPPORT FOR THE ESOPHAGEAL CANCER PATIENT
Dr Ioana Irina Mateiesö1
1Amethyst Radiotherapy Center Cluj

Background: The rate of malnutrition in esophageal cancer patient is 78,9%. Weight loss starts before diagnostic and often continues during treatment.

Methods: This paper discusses the causes of malnutrition in esophageal cancer patients and what strategies can be employed in order to help the patient meet his nutritional needs.

Results: Patients with esophageal cancer fail to maintain their weight due to several symptoms associated with the localized and systemic effects of the tumor and also due to the adverse effects following the treatment. Nutritional support, as part of the multimodal treatment of the oncological patient, should begin at the time of diagnostic and continue throughout the treatment period. The strategies for nutritional support include diet modification, oral nutritional supplements, enteral and parenteral nutrition.

Conclusions: Early intervention and consistent follow-up all during the course of the treatment can help the patient maintain or improve his nutritional status, quality of life and possibly, the clinical outcome.

TESTING NEW BIOHIBRID STRUCTURES FOR THERAPEUTIC POTENTIAL IN ONCOLOGY AND REGENERATIVE MEDICINE
Ioana-Carmen Brie1, Olga Soritau1, Catalin Popa2, Noemi Dirzu2, George Dindelegan1
1Institute of Oncology Prof. Dr. I. Chiricuta Cluj-Napoca; 2Technical University Cluj-Napoca; 3University of Medicine and Pharmacy Iuliu Hatieganu Cluj-Napoca

Background: The increased interest in tissue and organ repair is justified by the serious problems that occur in oncological surgery and in reconstructive surgery performed in areas affected by radiotherapy. The highly multidisciplinary field of Tissue engineering and regenerative medicine (TERM) is focused on the development of alternative therapies for tissue/organ repair. Based on integrative approaches using scaffolds, different cell populations, growth factors and other techniques, its overall objective is to induce the formation of new functional tissues.
Biocompatibility improvement of the implantable products (scaffolds) is a cutting edge research subject. Stem cells have emerged as important players in the generation and maintenance of many tissues.

**Aims:** The aims of the present study were: 1. Ensuring reproducible techniques for isolation, cultivation and characterisation of murine and human mesenchimal stem cells (MSCs); 2. Establishment and implementation of techniques for differentiation of MSCs toward various cell lineages; 3. In vitro testing of the biocompatibility of new bio-hybrid structures consisting in locally produced titanium scaffolds and stem cells.

**Materials and methods:** Adult stem cells were isolated from CD1 mouse bone marrow and dental follicle fragments. They were cultivated in specific media and characterised by immunocitochemistry (ICC) using stem specific markers. Differentiation of stem cells was induced toward multiple lineages: osteoblastic (osteoinductive medium), endothelial (fibrin substrate and medium without serum for endothelial cells) and neuronal (collagen and laminin substrate, neuronal specific medium). Titanium scaffolds were obtained by an original method in the Technical University Cluj-Napoca. Their biocompatibility was addressed using cell adhesion assay and proliferation assay (with the plate reader BioTek Synergy 2) as well as ICC (microscopic examination of cells marked with phalloidin-TRITC and DAPI). Statistic analysis was done with GraphPad Prism5, using Dunnett’s MUltiple Comparison Test. Cell counting was performed using the morphometry analysis program Axiovision Rel 4.6.

**Results:** The cells derived from mouse bone marrow and dental follicle adopted typical morphological changes and were positive for markers of stemness and (Oct3/4, Nanog, CD29, CD49) and pluripotency (SSEA-1 and Sox-2). By using specific media, the murine stem cells differentiated toward osteoblasts, endothelial and neuronal cells. The human dental follicle cells differentiated toward bone lineage and became positive for osteocalcin, osteonestin and osteopontin (osteoblast specific markers). Alkaline Phosphatase was intense positive and calcium crystals formed in the culture. the morphological changes, cellular adhesion and proliferation After seeding the stem cells on titanium scaffolds they showed an excellent biocompatibility.

**Conclusions:** The cells isolated from the mouse bone marrow and human dental follicle exhibit a stem cell phenotype. The protocols used for their isolation, cultivation and characterisation are effective, as well as the protocols for differentiation toward various cell lineages. Their biocompatibility on new titanium scaffolds is excellent, even better than that of the previously tested osteoblasts.

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16/10/2015

**MEDICAL ONCOLOGY (I)**

**CHANGING LANDSCAPE IN THE METHODOLOGY OF THE CLINICAL TRIALS IN THE ERA OF TARGETED AND IMMUNE THERAPY OF CANCER**

Jean Pierre Armand

1Institute Gustave Roussy, Paris

**NSCLC MANAGEMENT 2015: AN UPDATE**

Doru Paul

1Hofstra North Shore-LIJ School of Medicine; 2Hematology-Oncology Attending; 3Monter Cancer Center, New York, USA

Lung cancer causes more deaths than colorectal, breast and prostate cancers combined and is the most common cancer worldwide, accounting for 1.8 million new cases and 1.6 million deaths in 2012. An estimated 158,040 Americans are expected to die from lung cancer in 2015, accounting for approximately 27% of all cancer deaths. The most significant results in 2015 regarding the treatment of lung cancer have been the validation of the use of second/third generation of tyrosine kinase inhibitors (TKIs) in advanced lung tumors harboring epidermal growth factor (EGFR) mutations or anaplastic lymphoma kinase (ALK) translocations and the validation of new immunotherapy agents. One of the most significant progresses in the treatment of lung cancer over the last decade has been the description of a distinct population of patients with advanced cancer of the lung with specific EGFR mutations that responds favorably to targeted agents directed against these mutations. Several phase 3 studies (IPASS, EURTAC, NEJ002, WJTOG, First Signal, Optimal) demonstrated an improvement in the progression free survival (PFS) of approximately 4 months in patients with EGFR-mutated advanced adenocarcinoma of the lung that received TKIs like gefitinib, erlotinib or afatinib. The benefit in terms of overall survival (OS) of using these agents has not been as clear. Unfortunately, the majority of patients with EGFR-mutated advanced adenocarcinoma of the lung progress after a variable period of responding to TKIs. The most common mechanism of resistance
is the development of a clone that expresses a T790M mutation that is no longer sensitive to the classical TKIs. AZD9291 and CO1656 (rociletinib) are two new agents active against the T790M mutation and if a biopsy proven mutation is found they should be used. In the presence of oligometastatic disease progression only, the classical TKIs can be continued. There is no role in continuing TKIs in combination with chemotherapy after frank progression when chemotherapy is started. Same principle of rebiopsy applies also after the progression on ALK inhibitors before using second generation ALK inhibitors. It has been recently found that lung tumours can evade immune surveillance by expressing molecules that maintain tolerance, including the interaction of the tumor-associated programmed cell death 1 ligand 1 (PD-L1) with the immune receptor programmed cell death 1 (PD-1). The PD-1–PD-L1 interaction inhibits CD8+ cytotoxic T lymphocyte proliferation, survival and effector function, and can induce apoptosis of tumor-infiltrating T cells. The use of antibodies targeting the PD-1–PD-L1 checkpoint has resulted in some marked responses in early-stage clinical trials for a large panel of therapy-refractory cancer subtypes, including advanced non-small cell lung cancer (NSCLC). Recently there have been two positive randomized phase III trials reported for nivolumab (a PD-1 inhibitor) in patients with stage IIIB/IV in both squamous and non-squamous NSCLC. Currently, in USA, nivolumab is replacing docetaxel for the second line treatment of advanced squamous cell cancer of the lung. Nivolumab is not yet approved for the same indication in advanced non-squamous NSCLC. At ASCO 2015 there was also a preliminary safety and efficacy results on the use of pembrolizumab (a PD-L1 inhibitor) in advanced small cell lung cancer. 35% (7/20) of the patients receiving pembrolizumab had a partial response.

CURRENT AND FUTURE THERAPY FOR MESOTHELIOMA

Dana Clement

1Regional Institute of Oncology, Iasi

Malignant mesothelioma is an incurable disease associated with asbestos exposure arising in the pleural cavity and less frequently in the peritoneal cavity. Platinum-based combination chemotherapy with pemetrexed is the established standard of care. Multimodality approaches including surgery and radiotherapy are being investigated. There is currently no defined standard for second-line therapy. Increasing knowledge about the molecular characteristics of mesothelioma had led to the identification of novel potential targets for systemic therapy. Current evidence suggests pathways activated in response to merlin deficiency, including Pi3K/mTOR and the focal adhesion kinase, as well as immunotherapeutic approaches to be most promising. A two-armed phase II/III trial compared the standard of care cisplatin and pemetrexed regimen with or without bevacizumab as first-line treatment and maintenance in inoperable mesothelioma patients. While tolerance was good, the preliminary analysis of the study revealed that disease control at 6 months favored the bevacizumab arm (73.5% and 43.2%, P = 0·010). Based on early results in nonsmall-cell lung cancer and other solid tumors, it appears likely that immune checkpoint inhibitors will find a place in the therapy of mesothelioma.
MEDICAL ONCOLOGY (II)

SMALLCELL LUNG CANCER-PROMISES AND PITFALLS IN 2015

Lucian Miron¹²

¹Disciplina de Oncologie, UMF „Gr.T. Popa” Iasi, ²Institutul Regional de Oncologie Iasi

Small cell lung cancer (SCLC) is an aggressive neuroendocrine malignancy characterized by a short doubling time, high growth fraction, and early development of wide spread metastases.

Although a chemotherapy-and radiation-sensitized disease (>80% response rate), SCLC typically recurs rapidly after primary treatment, with only 6% of patients surviving 5 years from diagnosis. This disease has been notable for the absence of major improvements in its treatment. Newly diagnosed patients with disease limited to one region of the chest typically receiver radiation therapy with cisplatin/carboplatin and etoposide, while those with more extensive disease receive chemotherapy alone. In most patients, the tumors initially shrink markedly but start growing again in 4–6 months. The only approved agent in relapse disease remains topotecan. The strongest predictor of outcome for patients with relapsed SCLC is the duration of remission. Genomic characterisation of SCLC is mostly complete and has been characterized by frequent inactivating mutations in the critical tumor suppressor genes TP53 (75%) but no obvious oncogene activated! New genes being explored in p53/Rb double knockout mouse model. Comprehensive genomic analysis identifies SOX2 as frequently amplified gene in SCLC. The researchers found that PARP1, an enzyme involved in DNA repair, was expressed at high levels in small cell lung cancer cells, these high levels may be related to the loss of RB1 and TP53. PD-1 expression is associated with increase survival and the new anti PD-1 drugs (pembrolizumab, nivolumab) shows very promising results.

We are finally approaching SCLC in a translational manner than empirically. Subgroups of SCLC possibly exists that may be targeted by specific therapies. Larger prospective randomised studies are needed to determine the optimal treatment regimen for metastatic SCLC.

MALIGNANT PLEURAL MESOTHELIOMA-OVERVIEW OF THE LITERATURE AND 15 YEARS EXPERIENCE OF “PROF DR ION CHIRICUTA” INSTITUTE OF ONCOLOGY CLUJ-NAPOCA

Alexandra Gherman¹², Radu Vidra¹

¹“Prof Dr Ion Chiricuta” Institute of Oncology Cluj-Napoca, ²“Iuliu Hatieganu” University of Medicine and Pharmacy Cluj-Napoca

Malignant pleural mesothelioma (MPM) is a relatively rare disease, with a slight tendency of increasing incidence especially in males. Occupational exposure to asbestos accounts for almost 80% of cases, occurring decades after (30-50 years after), but there are no recommended screening programs of persons exposed. Patients often present with symptoms like dyspnea due to pleural effusion and chest pain. For initial evaluation and definitive diagnosis, recommendations are to perform a CT scan of the thorax with contrast, thoracocentesis with cytology of pleural effusion and thoracoscopy. Possible treatment options include surgery (for diagnostic, palliation or curative purposes), radiotherapy (palliative or after surgery) and chemotherapy with first line Pemetrexed plus a platinum salt (Cisplatin or Carboplatin). There is no standard second line chemotherapy and targeted molecular treatment (bevacizumab, sunitinib) did not show significant improvements over standard treatment. Median overall survival is approximately 1 year and cure is rare. The purpose of this paper is to present an overview of the current literature and to analyze the experience of “Prof Dr Ion Chiricuta” Institute of Oncology regarding the patients treated for MPM. Patients addressed to and treated for MPM in the last 15 years in our institute will be analyzed, in order to compare the diagnostic and treatment strategies to existing standards and their outcomes to those described in the literature.

NEUROENDOCRIN TUMORS OF THE THORAX

Cainap Calin¹²

¹University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj Napoca, ²Oncology Institute “Ion Chiricuta” Cluj Napoca

Neuroendocrine tumors represent a various category of malignancies. Despite the fact that they are known to have a low incidence, the latest decades showed an increased number of new cases. Natural history of these tumors depend on degree of differentiation. The latest histological classification try to identify subtypes with a particular feature, have as main criteria based on mitotic rate. Increasing number of cases with TNE could be explained by increasing and performance of new methods of diagnostics (hystologic and imagistic).

Treatment of TNE should be multidisciplinary. Surgery represent a chance of cure for stage limited disease, but
frequently a relapse will occur during follow up period. As a particularity these relapses could be at a distance from primary treatment, that is why a prolongue periode for surveillance up to 15 years is now recommended. For more advanced disease classic chemotherapy remains modest as efficacy. Target therapy are reported to have superior rate of response but the patients series are small and non conclusive.

For the TNE treatment progress are small and more efforts need to be done in the future.

**DRUG INTERACTIONS IN THE THERAPY OF LUNG CANCER**

Pharm. Budău Laura Veronica¹

¹Amethyst Radiotherapy Clinic Cluj

**Background:**

The drugs used in the treatment of lung cancer can be metabolized by cytochrome P450, transported by glycoprotein P or interacting with multiple classes of drugs by pharmacokinetic or pharmacodynamic mechanisms. These interactions can influence the treatment and they must be identified and resolved at the beginning of the therapy.

**Methods:** The product information chart of every cytostatic drug involved in chemotherapy protocols was analysed and all types of interactions were documented. There were enzymatic induction and/or inhibition processes, pharmacokinetic or pharmacodynamic interactions. Cytostatic drugs, supportive drugs and also chronic treatment of the patient were included in the interaction chart.

**Results:** Most of the interactions regard enzymatic induction/inhibition which affect the drug concentration. Their effect can decrease the compliance of the patient, can influence the outcome of the treatment and even cause serious life threatening adverse reactions. The patient’s chronic treatment is often forgotten and lots of drug classes can cause interactions: antidepressant, antiarrhythmic, antibiotic, antiulcer, supplements which can determine the inefficacy of the treatment.

**Conclusions:** Every patient must be asked about his/hers chronic medication and every possible drug interaction must be evaluated at the beginning of chemotherapy. The treatment should be adjusted or modified in order to obtain the desired therapeutic response.

**NONHODGKIN LYMPHOMA DIFFUSE LARGE B CELL CD20 + . DIFFICULTIES IN THERAPEUTIC MANAGEMENT**

Catana Alina¹, Benedek Erzebeth¹, Beca Corina¹, Birlutiu Victoria¹, Mihaila Romeo¹, Sandu Mariana¹, Olariu Tania¹, Dobra Dina¹, Manitiu Ioan¹, Noor Cristina, Mondoc Lidia-Maria¹

¹Spitalul Judetean Sibiu, Clinica de Hematologie

Primary mediastinal large B-cell lymphoma (PMBCL) was first described in the 1980s and is a diffuse large B-cell non-Hodgkin lymphoma that arises in the thymus. PMBCL affects young adults in their third to fourth decade of life and has a slight female predominance.

It accounts for 5-7% of all aggressive lymphomas and 2-3% of all non-Hodgkin lymphomas and represents a distinct entity with unique clinicopathologic features and a molecular gene-expression signature reminiscent of nodular sclerosis subtype of classical Hodgkin’s lymphoma. Recent studies, including those using a refined molecular signature, suggest that the outcome is more favorable than that of diffuse large B-cell lymphoma. In the medical literature, cure rates for this disease range from 38-88%

PMBL is defined by a rapidly growing dominant mediastinal mass, frequently accompanied by local invasiveness and superior vena cava syndrome; involvement outside of the thorax at initial presentation is infrequent and virtually never includes bone marrow.

We report the case of a 32 years old woman detected with PMBCL during pregnancy with severe mediastinal compression syndrome, important/severe thrombotic complications whose therapeutic management at diagnosis and in evolution was difficult. Survival to 7 years was due to multidisciplinary collaboration.

**Key words:** PMBCL, Pregnancy, Therapeutic management
16/10/2015

POSTER A

METFORMIN ASSOCIATED WITH PHOTODYNAMIC THERAPY – A NOVEL ONCOLOGICAL DIRECTION AGAINST MELANOMA

Nenu Iuliana¹, Tudor Diana², Olteanu Diana³, Popescu Tiberiu¹, Filip Adriana⁴, Baldea Ioana¹

¹“Iuliu Hatieganu” University of Medicine and Pharmacy – Physiology Department, Cluj, Romania

Background: Metastatic melanoma is the most harmful type of skin cancer due to its advanced capacity of extension and metastasis. Despite the existing therapies in treating melanoma and the latest advances of immunotherapy, the therapeutic response is not always complete and uniform among the patients. Recent data revealed that photodynamic therapy (PDT) unveils encouraging results on in vitro and in vivo experimental models, while some clinical reports suggest a possible role in the management of advanced melanoma. Also, recent data propose Metformin, the most prescribed oral antidiabetic drug, as an effective adjuvant against cancer.

Our in vitro study exploits for the first time the antitumor effects of the combined regimen of Gallium phthalocyanine-mediated PDT (Gal-PDT) and Metformin on a melanoma model.

Materials and methods: Our study was performed on a melanoma metastatic line (M1-15) and it was divided in 6 work groups, as following: 1) control, untreated melanoma cells; 2) irradiated melanoma cells; 3) Gal; 4) Gal-PDT; 5) Metf + Gal and 6) Metf + Gal-PDT. Following the different exposure regimens, cells were washed, further incubated for 24hrs with medium and tested afterwards for viability (MTS method); oxidative stress induction (malondialdehyde, MDA-spectrophotometry); angiogenesis (vascular endothelial growth factor, VEGF-ELISA; Hypoxia-inducible factor 1-alpha, HIF1α-Western Blot); inflammation (tumor necrosis factor alpha, TNFα-Western Blot); oxidative stress quantification (malondialdehyde-MDA, superoxide dismutase-SOD), inflammation expression (Tumor necrosis factor Alpha-TNF-α; Nuclear factor kappa B-NFκB ) and apoptosis quantification (flow citometry and TNF-related apoptosis-inducing ligand-TRAIL).

Results: Increased MDA levels were linked to increased tumoricidal ROS activity following irradiation when compared to controls (p<0.005). TNF-α levels were low in the M1-15 melanoma cells subjected to Metf + Gal-PDT regimen, versus control (p<0.005) strengthening the intricate role of this inflammatory molecule. These findings were consistent with a decreased expression of angiogenesis and melanin synthesis when Metformin and PDT were associated, compared to controls (p<0.005).

Conclusion: Our results reveal that Gallium phthalocyanine-mediated PDT, when associated with Metformin as an antineoplastic adjuvant, may be a promising therapeutic strategy in advanced melanoma.
Results: MDA levels were increased where irradiation was performed, compared to the control group (p<0.005). In addition, were found low levels of SOD, versus control, leading to the assumption that the associated regimen inhibits the protumoral effects of SOD. The expression of TNF was increased with concomitant high levels of TRAIL, versus control, p<0.005, revealing that the association of Metformin with Gallium-PDT induces an efficient pro-apoptotic pathway. Also, a high apoptotic index was confirmed with FACS.

Conclusion: Our results show that Gallium phthalocyanine-mediated PDT combined with Metformin as an antineoplastic adjuvant, may be seen as an encouraging therapeutic approach in advanced melanoma.

LIPOSARCOM DE COAPSA – ABORDAREA RADIOTERAPEUTICA POSTCHIRURGICALA PRIN TECNICA IMRT

Pâguţe Ovidiu Nicolae01, Mihăilă George Cristian01, Mireştan Camil01, Firtea Cosmin Miha01, Manea Elena01, Iancu Dragos Teodor01,02

1Institutul Regional de Oncologie Iasi, 2Universitatea de Medicina si Farmancie Gr.T.Popa Iasi

Poster B

STUDIU DE CAZ: INTEGRAREA SCINTIGRAFIEI OSOASE IN DIAGNOSTICUL IMAGISTIC AL LIMFOMULUI LIMFOPLASMCOTAR

Iulia Andreea Chiriac1, Olga Niculescu1, Raluca Mititelu1, Catalin Mazilu1, Mihaela Georgiana Lepus1

1Laboratorul de Medicina Nucleara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti

A RARE TUMOR – PRIMARY LEIOMYOSARCOMA OF PULMONARY ARTERY. CASE PRESENTATION

Laura Rebegea1,2, Dorel Firescu1,2, Mihaela Dumitru1

11 “Sf. Ap. Andrei” Emergency Clinical Hospital, Radioterapeia Department, Galati, 22 Dunarea de Jos University of Galati, Faculty of Medicine, Clinical Department, 13 “Sf. Ap. Andrei” Emergency Clinical Hospital, Surgery Clinic II, Galati

Abstract: Primary leiomyosarcoma of the pulmonary artery is an extremely rare tumor and its diagnosis is very difficult. We present the case of a 63-year-old male patient, previously smoker, with previous pulmonary tuberculosis, diagnosed in 2014 with leiomyosarcoma of pulmonary artery. Surgery (right and left arteriotomy and bilateral extended endarterectomy) was performed in September 2014 and histological examination of the resected mass consistent with leiomyosarcoma. Adjuvant chemotherapy October 2014, 4 courses was also, administrated; chemotherapy was interrupted because of tuberculosis reactivation. Seven months later, the patient developed distant brain metastases for which performed external beam radiotherapy in 2015, in “whole brain” technique. The radiation dose was incomplete because of neurological performance status decreasing.

Leiomyosarcoma of the pulmonary artery is a rare tumor of the lung and its diagnosis is very difficult because the non-specific symptoms which are often misinterpreted as being related to pulmonary thromboembolism.

The literature is reviewed and we discuss the diagnosis option treatment and prognosis.

Key words: primary pulmonary artery, leiomyosarcoma, treatment

16/10/2015

POSTER B

STUDIU DE CAZ: INTEGRAREA SCINTIGRAFIEI OSOASE IN DIAGNOSTICUL IMAGISTIC AL LIMFOMULUI LIMFOPLASMCOTAR

Iulia Andreea Chiriac1, Olga Niculescu1, Raluca Mititelu1, Catalin Mazilu1, Mihaela Georgiana Lepus1

1Laboratorul de Medicina Nucleara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti

Introducere: Limfomul limfoplasmocitatar este un limfom cu celule B mature, relativ rar, ce implica in mod tipic maduva osoasa si care este constituit din celule ce variaza de la limfocite B mici, la celule limfoplasmocitoide si celule plasmatice. In aceasta lucrarea, prezentam un caz de limfom limfoplasmocitatar sacrat, la o paciente in varsta de 71 ani, fara antecedente oncologice si dozei ale existentei unei patologii neoplazice in restul organismului. Studiul de caz de fata vrea sa sublinieze rolul integrarii scintigrafiei
the right buttock was swollen and firm and at palpation there was a large, firm, stationary mass. We performed a three-phase bone scan – dynamic sequential images for 1 minute, 10 minutes and 2 hours after the injection of 740 MBq 99mTc-MDP, using a “dual head” gamma camera.

**Results and discussions:** Three-phase bone scan examination with 99mTc-MDP pointed out perfusion and moderate increased activity of the radiopharmaceutical in the right buttock soft-tissues, with extension to the thigh level, but no suspicious images of osseous metastases. Correlation of the bone scan with morphological data (CT), allowed the identification of increased uptake in soft-tissues as corresponding to the tumor formations. Therefore, the mechanisms of extraosseous uptake of bone-seeking radiopharmaceuticals came to be relatively well explained: hyperemia or blood pool activity, absorption in calcium deposits, attachment on the immature collagen, altered proteins from the necrosis sites etc.

**Conclusions:** we reported a myxofibrosarcoma case, in which complete tumor resection is the treatment of first choice. However, large size lesions in association with older age can endanger the maintenance of limb vitality, vascularity and stability. After surgery, the patient requires long-term follow.

**ASPECTUL IMAGISTIC SCINTIGRAFIC IN FIBROMATOZA AGRESIVA DESMOIDA – PREZENTARE DE CAZ**

Iulia Andreea Chiriac, Olga Niculescu, Raluca Mititelu, Catalin Mazilu, Carmen Tipar, Emilian Stefan, Mihaela Georgiana Lepus

1Laboratorul de Medicina Nucleara, Spitalul Universitar de Urgenta Militar Central “Dr. Carol Davila”, Bucuresti, Romania. 2Sectia Ortopedie-Traumatologie, Spitalul CF2, Bucuresti, Romania

**Introducere:** Tumorele desmoide sunt neoplasme de tip fibroblastic cu agresivitate locala diferita. Acestea nu metastazeaza, dar local pot infiltra structurile adiacente si pot provoca dierete grade de morbitudate sau chiar mortalitate. Prezentam un caz a unei pacienti de 37 de ani, cu un formatiune subcutanata ferma localizata la nivelul treimii medii a coapsei stangi, cu minima mobilitate, care de 6 luni provoca o sensibilitate durerosa la mobilizare.

**Material si metoda:** Am folosit o gamma camera echipata cu un colimator cu gauri paralele, de scop general si pentru energii reduse (AXIXS, PHILIPS Picker / Marconi, Statele Unite ale Americii). S-au achizitionat imagini ale întregului corp din incidenta anterioara si posterioara, la 2 ore dupa administrarea intravenoasa a 20 mCi 99mTc-HDP (740 MBq).

**Rezultate:** In faza de perfuzie si tisulara scintigrafia cu 99mTc-HDP a relevat cresterea fluxului regional de sa ge si
distributie neomogena a radioactivitatii localizata in portiunea posterioara a coapsei stangi. Imagistica prin rezonanta magnetica (IRM) a identificat in treimea mijlocie a coapsei stangi o formatiune infiltrativa, multinodulara, adiacenta la vasi si nervi, dar fara implicare musculara, cu semnal specific tesutului conjunctiv si o anomalie de semnal al segmentului proximal a diafizei femurului drept. Faza tardiva din cadrul scintigrafiei ososae nu a aratat nici o dovada de acumulare patologic a traseurilor la nivelul leziunii ososae suspecte pe scanarea IRM sau in restul scheletului.

Discutii si concluzii: Rolul tehnicilor de medicina nucleara inca nu a fost clar definit in evaluarea si gestionarea tumorilor de tipul fibromatozei desmoide.

In timp ce istoricul si examenul fizic pot incepe procesul de diagnosticare, utilizarea tehnicilor imagistice de rezonanta magnetica si scintigrafia ososae cu 99m Tc-HDP, au fost in acest caz de mult ajutor pentru chirurgi in diagnosticul neinvaziv a implicarii musculare si ososae a tumorii.

ROLE OF POSITRON EMISSION TOMOGRAPHY (PET/CT) IN IDENTIFYING UNKNOWN PRIMARY IN PATIENTS WITH LUNG METASTASIS.

Sukanta Barai1, Arun P2, Gambhir G3

1Additional Professor, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India, 2Senior Resident, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India, 3Professor and Head, Dept of Nuclear Medicine, SGPGIMS, Lucknow, India

Introduction: Positron emission tomography (PET/CT) is currently increasingly being used to identify an unknown primary (UP). The reported results range from 20 to 90%, hence it is till unclear if PET/CT can be used for initial evaluation of UP. Aim of the study was to determine if success varied according to the site of metastasis at presentation.

Material and Methods: Data of patients who presented with single site of metastasis and underwent the PET/CT study for the detection of primary were retrospectively analyzed. A total of 50 patients were studied and classified according to metastatic site peripheral lymph nodes (PLN) n=17, lung n=23, bone n=6, liver n=2, peritoneum n=2). A PET/CT scan was considered positive if it revealed the primary as confirmed by biopsy.

Results: We compared the proportion of positive PET scans according to metastatic site and found a wide variation. It ranged from 86.9% (20/23) for lung, 29.4% (5/17) for PLN (cervical, axillary and inguinal), 67% (4/6) for bone, 50% (1/2) for liver. When comparing results in lung and bone metastasis to the others, the PET scan positive proportion was significantly greater for lung and bone compared to the rest (p<0.01).

Conclusions: The success rate for identification of unknown primary is influenced by the site of metastasis. When pts present with metastatic lung or skeletal metastasis chances of successful localization of the primary tumor is very high.

DERMATOFIBROSARCOMA PROTUBERANS

Mihaela Craescu1, Laura Rebegea1,2, Mihaela Dumitru1, Dorel Firescu1,2, Aurel Nechita2,3

1Emergency Clinical Hospital “Sf. Ap. Andrei” Galati, Romania, 2Faculty of Medicine and Pharmacy “Dunarea de Jos” University of Galati, Romania, 3Emergency Clinical Pediatric Hospital “Sf. Ioan”, Galati, Romania

Background: Dermatofibrosarcoma protuberans is a fibrohistiocytic tumor of intermediate malignancy with aggressive localized growth, high recurrence rate, but low metastatic potential. It predominates in the trunk and is unusual in acral locations. Report cases: We present the case of a young female, who shows in October 2014 in Surgery Department of the Institute of Oncology Iasi with tumor at left deltoid and ipsilateral axillary lymphadenopathy. In November 2014, the practice surgery, which consists of tumor ablation in the deltoid region; left axillary lymphadenopathy is inoperable due to vascular relations. Histopathology and immunohistochemistry tests highlights diagnosis of dermatofibrosarcoma protuberans. It was decided in external radiotherapy in the Radiotherapy department of the Emergency Hospital “Sf. Ap. Andrei” Galati at the level of left axillary region, performing patient irradiation dose 50 Gy total in 20 fractions with 250 cGy dose fraction in March 2015 because of its cycle timing. Initiating therapy with Imatinib, but still we are facing with a continuous growth of tumor at both axillary and supraclavicular left as well as the mammary gland on the same side with arm lymphedema. Paraclinic tests highlights the presence of bilateral pleural effusions, which is practiced minimum pleurostomie with pleuracan. At the oncology committee it was decided continued treatment with Imatinib and left mammary gland biopsy that and perform. During hospitalization patients receive palliative and symptomatic treatment however, the patient at about 1 year after was diagnosed. Conclusion: We present the case because of the rarity and to discuss option treatment, evolution and literature of date.

Key words: dermatofibrosarcoma, rare tumor.

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The purpose of this work is to evaluate the feasibility of using a multiple partial volumetric-modulated arcs therapy technique on the left breast irradiation and to assess the dosimetry and treatment efficiency. Ten patients with left-sided breast cancer who had been treated with 3D-CRT technique were selected for this study. The RapidArc technique involves six partial volumetric modulated arcs, each arc consisting of a 50° gantry rotation. The jaw opening on the side near the chest wall is minimized to reduce the exposure to the left lung and the right breast. The prescription was 2.66 Gy daily dose in 16 fractions. The VMAT technique for the left-sided breast cancer patients achieved adequate target dose coverage while maintaining low doses to organs-at-risk, and therefore reduced the potential for induction of second malignancy and side effects. The highly efficient treatment delivery proves beneficial for improving patient throughput, providing patient comfort, and achieving precise treatment.

**Neutrophil-to-Lymphocyte Ratio is an Independent Prognosis Factor in Stage IV Lung Adenocarcinoma Patients with Brain Metastases**

Teodora Alexa, Ingrith Miron, Marius Păduraru, Adela Calancea, Lucian Miron

**Background:** Brain metastases affect approximately 20%–40% of lung cancer patients during their lifetime. Current research indicates several prognostic factors for lung adenocarcinoma (ADK) patients with brain metastases. However, clinical studies have produced conflicting results. Neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR) and red blood cell distribution width (RDW) have been reported as independent prognosis factors in several types of cancer. In this study, we assessed the association of NLR, PLR and RDW with the prognosis of stage IV lung ADK patients with brain metastases who received standard treatment.

**Material and methods:** We performed a retrospective analysis of all lung cancer patients treated in the Oncology department of the Regional Oncology Institute, Iași, Romania between January 2012 and January 2014. Inclusion criteria: ECOG 1-2, stage IV lung ADK with brain metastasis at the time of diagnosis that underwent surgery and/or radiotherapy for the brain metastasis, followed by systemic treatment with a platinum-based regimen. Data were collected for each patient and analyzed by means of SPSS v.20 software – Cox regression.

**Results:** 84 patients met the inclusion criteria. Mean age was 58.45±1.42 years. Overall survival (OS) was 264.33±28.8 days. Cox regression analysis indicated that number of metastasis (one vs. multiple), high NLR (>4), extra-cerebral metastatic sites and age negatively impact OS (p<0.05). In contrast, sex, localization and size of the brain metastasis, as well as hemoglobin, RDW, PLR and platelets had no impact on OS in this analysis. Patients with a high NLR (>4) had an average OS of 186.3±44.6 days as compared with 292±34.7 days in patients with low NLR at diagnosis.

**Conclusions:** NLR is an accessible, easy-to-use tool that can be used to better assess prognosis in stage IV ADK patients with brain metastasis. A larger prospective study is needed in order to confirm the results of the present study.
the patients’ desire to live and engaging them in the act of healing, by making them aware of the need for collaboration. The study was conducted on a total of 70 young and adult oncology patients, tracking their progress every week for a year. The breakdown of the first five diagnostics / ICD standard localization is the following:

- Lip, oral cavity, pharynx: 29.23%
- Breast: 19.14%
- Respiratory and intrathoracic organs: 15.95%
- Female genitalia: 14.29%
- Eye, brain and other parts of the CNS: 8.87%

**Objectives:** This paper aims at highlighting how the provision of individual and group psychotherapeutic support and seamless integration of psychology in the concept of multidisciplinarity can help neoplastic patients. Psychotherapy plays an important role in awakening the patients’ hope by making them aware of their own resources and (re)connecting them with these resources, as well as strengthening their will to fight the adversities of life.

**Methods:** The mind-body-soul holistic approach, understanding that the human being operates as a single unit and the social context plays a non-negligible role, clinical interview, tests and clinical scales, clinical observation, support groups, breathing exercises, and emotion and pain management exercises, Ericksonian hypnosis and relaxation, forgiveness techniques, neurolinguistics techniques, graphic productions (drawings, diaries, etc.), Frankl’s narrative method (2010), role playing, occupational therapy.

**Results:** Awakening hope, optimism, interest in life, reconciliation with oneself and with others, finding/retrieving love for themselves and for others, gaining patience, developing a positive self-image, reconciliation with the fear of death, spiritual growth, self-knowledge and communication, developing deeper relationships with oneself and with others, discovering and resolving emotional disturbances that predated the illness.

**Conclusions:** Psychological counselling for neoplastic patients is an integral part of the multidisciplinary care team concept. Within this relationship, mutual respect, trust reflected in both poles of the relationship and the psychologist’s empathy are the path towards building a successful collaboration. The patients’ own beliefs about the idea of psychotherapy, their attitude, feelings, lifestyle and diet play an important role in the treatment stage. Through a synergistic effect of medical and psychological activities, neoplastic patients discover a new meaning of life and rebuild their lives through a realistic adaptation.

**TIME TRENDS AND SURVIVAL RATES OF ORAL CAVITY AND PHARYNGEAL CANCERS BY SITES, IN CLUJ COUNTY**

Ofelia Šuteu¹², Patricia Šuteu¹², Daniela Coza³, Florian Nicula³, Patriciu Achimăș-Cădariu¹²

¹,²,”Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca;³,”Prof. Dr. Ion Chiricuță” Oncology Institute, Cluj-Napoca, Romania

**Introduction:** The incidence of oral and pharyngeal cancers (OPC) varies widely across the globe, and is highest in regions where tobacco and alcohol consumption are common. In the past decades, oral cavity decreased and oropharyngeal cancers increased in some developed countries.

**Objectives:** To investigate incidence time trends (1998-2011) and 5-year relative survival rates (2006-2009) of OPC diagnosed in Cluj County.

**Material and methods:** Data was collected from the North Western Regional Cancer Registry. OPC diagnosed during 1998-2011 were selected according to codes C00-C14. Time-trends were analyzed using Joinpoint regression. Age-standardized incidence rates by the direct method, using the world standard population, were computed. Annual percent change (APC) was used to quantify the change in incidence rates over time and was calculated using least-squares regression. Rates were considered to increase or decrease if p<0.05 and otherwise were considered stable. Survival analyses were performed using Kaplan-Meier curves, for cases diagnosed during 2006-2009 and followed until 31/12/2014. Staging was available for the interval 2006-2011.

**Results:** A total of 1535 new cases of OPC were reported: 1238 (80.65%) male and 297 (19.35%) female. The mean age at diagnosis was 58.6 in men and 57.4 in women. The most frequent site in both sexes was the lip (17.8% in men, 22.9% in women). 67% of cases in men and 48% in women were stages III and IV. In men, incidence rates for all OPC declined by 15.82% from 1998 to 2000, to increase during 2000-2011 with 4.48% (p<0.05). Oropharynx recorded an increasing trend with 5.42% (p<0.05), based on the increasing incidence of base of tongue cancers with 13.68% (p<0.05). Likewise, for hypopharynx, the incidence increased with 9.68% (p<0.05), funneled by the increase in pyriform sinus incidence by 12.87% (p<0.05). Lip cancer incidence decreased with 7.29% (p<0.05). In women, there was a trend towards an increase in oropharyngeal cancer incidence (5.28%, n.s.). The 5-year relative survival for all sites was 31% in men and 56% in women (p<0.001). Lip cancer had the best survival in both sexes (60%). In men, the lowest survival was registered for oropharynx (C10) (7.4%). In women, floor of mouth cancers had the lowest survival (30%). Statistically significant differences in survival between men and women were observed in pyriform sinus cancers (28% vs 40%) and nasopharynx (41% vs 77%).

**Conclusions:** With an overall steady increase in rates of OPC, except for lip, which is declining, the most significant rise was for oropharynx (base of tongue) and hypopharynx (pyriform sinus), suggesting, in the case of oropharynx, the potential impact of HPV infection alongside the traditional risk factors like tobacco and alcohol. These data highlight the
importance of preventive measures initiated at community level against these known risk factors, in order to reduce the burden of OPC cancers.

**DOSIMETRIC VERIFICATION OF RAPIDARC TREATMENT PLANS IN PROSTATE CANCER**

Aurel Chis1,2, Veronica Mandea2, Cristina Taflan2

1Institutul Oncologic “Prof. I. Chiricuta” Cluj, 2Centrul de Diagnostic si Tratament Oncologic Brasov

Rapid Arc is a treatment technique, in which dose is delivered over a single gantry rotation with variable MLC positions, dose rate and gantry speed. Our purpose was to perform measurements to verify the correctness of doses delivered with the RapidArc technique.

**Methods and material:** Five treatment plans were generated in the Eclipse version 10 including the RapidArc optimizer prostate cases. The plans were delivered to Arc Check phantom, manufactured by Sun Nuclear. First, the measured dose distributions were compared with the calculated doses. All plans were then delivered several times to verify consistency of the delivery. Gamma analysis was used to verify the correspondence between dose distributions.

**Results:** We observed good agreement between measured and calculated doses in most cases with gamma values above 1 in >95% of measured points. The reproducibility of delivery was also very high. Gamma analysis between two consecutive runs of the same delivery plan generally showed gamma values above 1 in none of the measured points, and dose deviation less than 1%.

**Conclusion:** The delivery of RapidArc beam delivery has been verified to correspond well with calculated dose distributions for a number of different cases. The delivery was very reproducible, and was carried out with high stability of the accelerator performance.

**“EARLY DETECTIONS IN POST-THERAPEUTIC RELAPSES IN METASTATIC COLORECTAL CARCINOMA BY FOLLOWING UP SOME BLOOD IMMUNOLOGIC MARKERS”**

Nicole Miron1, Chereches Gabriela1, Barbos Otilia1, Rares Buiga1, Ovidiu Balacescu1, Dana Iancu1, Nicolae Todor1, Ciuleanu Tudor1,2

1Oncological Institute “I.Chiricuta” Cluj-Napoca, 2UMF Cluj-Napoca, 3Internal Medicine and Surgery Clinic III Cluj-napoca

**Backgrounds:** To evaluate the predictive and prognostic value of serum biomarkers as: transthyretin (TRT), alpha-enolaze (NNE), beta 2-microglobuline and BAFF in comparison with clinical parameters for overall survival (OS) among patients with metastatic colorectal cancers (mCRC) treated combination therapy.

**Material and methods:** 53 patients with metastatic colorectal cancers were included, blood samples were taken at baseline, after 3 weeks and 12 weeks of chemotherapy. The method is an enzyme Immuno Assay Protocol for the determination of this biomarkers is based on a sandwich technique in which antibodies are already adsorbed to the plate capture by commercial kit manufacturer. The procedure begins with serum incubation stage, continue to coupling the antigen – antibody immunoconjugate formed initially represented by antibody detection, which has been linked to the enzyme that degrades the substrate- this reaction generates a color reaction(horseradish peroxidase or alkaline phosphatase). The detection kits will be purchased from specialist manufacturers or may be developed in own laboratory, considering buying the antibody pairs -capture detection + – and purified molecule Standards.

Our results confirm the data from literature. This four markers TRT, alphaenolase, beta2-microglobuline and BAFF were significat in the group of patient with metastatic colorectal carcinoma we studied after one year survival.

**RARE GYNECOLOGICAL TUMORS. CLINICIANS’ VIEW.**

Todor Irina1, Nagy Viorica1,2, Rancea Alin1,2, Coza Daniela2, Todor Nicolae2

1University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, 2Oncology Institute “Ion Chiricuta” Cluj-Napoca

**Objectives:** There are several definitions of substantially equivalent rare cancers. Unfortunately all are based on the incidence or prevalence of populations that cover very large geographical area and that is why many aspects of heterogeneity effect are blurring.

From discussions with many clinicians we believe that if a cancer occurs on average at least once a week, it can no longer be considered rare cancer. Thus we might consider in Oncology Institute “Ion Chiricuta” (OIIC) rare cancer a form of cancer that occurs under 50 times a year.

**Material and method:** From the perspective defined above gynecologic cancers from Electronic Registry of OIIC have been analyzed on 2012-2013.

**Results:** Anatomically we have three common forms: cervixc 2032 patients, endometrium 724 patients, ovary 521 patients and three rare forms: vulva 69 patients, vagina 14 patients, uterus unspecified and related 13 patients and other unspecified gynecological 23 patients.

If we add histology as a second dimension we have 159 forms from which only 8 are common forms. For the
cervix: neoplasm, malignant 105 patients, squamous cell carcinoma in situ 131 patients, keratinized squamous cell carcinoma 335 patients, squamous cell carcinoma, large cell adenocarcinoma 523 patients; ovary: papillary serous cystadenocarcinoma 117 patients, 122 patients serous cystadenocarcinoma. The remaining of 724 is spread in 151 categories. Globally from this perspective we have 68.3% common forms and 31.7% rare forms.

**Conclusions:** In Europe all cancers of the cervix are rare (definition of “Rare cancer net” covered under 6/100 000); But for the IOCN clinicians’ neoplasms, malignant squamous cell carcinoma in situ, keratinized squamous cell carcinoma, squamous cell carcinoma, large cell, necheratinizant, squamous cell carcinoma are common forms.

The uterus comprises a single category for common clinical assessment as assessments at European level.

Ovary in Europe has only rare cancers but in OIIC there are twoo common forms.

The other forms are rare in Europe and in OIIC clinic evaluation.

The percentage of cases of gynecological cancers rare in clinician’s point of view is approximately one in three.

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**HEALTH POLICY**

**HEALTH POLICIES AND CULTURAL ELEMENTS IN ONCOLOGY**

Stelian Pop

1Emergency County Hospital Satu Mare, Oncology

Oncologists around the world are on constant pressure to increase quality, transparency and reduce costs. How much of these depend on individual performances, how much on the Health System? The volume of necessary knowledge is overwhelming. What could we do to offer better value at each level of the System, and safer services for patients? I am trying to identify some of the necessary changes in the culture of medical organizations and the value trails for patients, making everyone more effective and responsible.

**RADIOThERAPY COVERAGE IN ROMANIAN**

Valentin Cernea

1University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj Napoca, 2Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj Napoca

**ESMO – MESC CRITERIA FOR EVALUATING THE NEW DRUGS**

Alexandru Eniu

1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca

**THE STATUS OF PEDIATRIC RADIOTHERAPY IN ROMANIA AND IAEA RECOMMANDATIONS**

Dana Michaela Cernea

1Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca

The cure rate for children with cancer continues to improve and now approaches 80%. This fact is due to advances in multimodal therapy and supportive care. Improvement in local control include use of surgery, new technologies in radiation therapy and chemotherapy at maximum tolerated dose and minimal toxicity.

In Romania radiotherapy is part of multimodal children cancer treatment in more than one third of patients. We will present the general status of radiation treatment in our country for pediatric patients in the more general context of radiotherapy in Romania. Two departments for complex treatment of childhood cancers are functioning in two National Institutes: one in Bucharest and one in Cluj-Napoca. Radiotherapy as part of multimodal treatment is done mostly in these National Institutes. There are no specialized radiation oncologists in radiotherapy for children except one in Oncology Institute “Prof. Dr. Ion Chiricuta” Cluj-Napoca. A questionnaire to every radiotherapy center was sending in order to have a general idea not only about number and pathology of children treated but also about technique’s complexity. The results will be presented.

The recommendations of IAEA (Vienna 2013) for a pediatric radiotherapy program and the minimal requirements of quality will be discus. According to IAEA the most important aspects of such a program are: establish a national referral network that facilitates the referral of children diagnosed with cancers to the most experienced radiotherapy centers; develop
and adhere to local treatment protocols for the most common forms of childhood cancer; specialists in pediatric radiation oncology must have a continuous professional development maintaining their understanding of treatment strategies and results by attending discipline oriented meetings and congresses; interaction and communications with pediatric oncologist, pediatric surgeon, imaging specialists, pathology services and the possibility to obtain a second opinion from a qualified collaborating center; children should be treated in radiotherapy centers with significant experience in this particular area of radiation therapy; training and accreditation of health care providers in their disciplines is required. Special attention must be taken on follow-up, psycho-social support, abandonment and survivorship of patients.

We must improve not only the results of treatments in childhood cancers in our country but also the quality of radiation therapy. In order to attend this goal we must have a national program for pediatric radiotherapy, which must be elaborated with the help of professional organisations.

Key words: pediatric radiotherapy, childhood cancers, quality requirements

17/10/2015

VARIA

CLINICAL EXPERIENCE WITH PRIMARY NEUROECTODERMAL ADULT BRAIN TUMOR. CASE PRESENTATION AND REVIEW OF THE LITERATURE

Morvay Szabo Edina01, Mihutiu Simona01

1Faculty of Medicine and Pharmacy, University of Oradea

Background: adult primary neuroectodermal tumors of the brain are aggressive tumors with unpredictable outcome. The authors present a review of the literature for this type of rare brain tumor. Material and methods. The authors present two cases comparatively of primitive pneumoectodermal brain tumors of adult patients with same histology but with different clinical evolution. Results: Case 1: male, 43 year old, the first symptom headache followed by memory impairment, concentration difficulties. Primitive PNET tumor was localized in the left frontal lobe (5 cm cystic lesion) Treatment: incomplete surgical removal. The pre radiotherapy work-up showed multiple metastases up to 12 mm. No intramedullary involvement was demonstrated on the MRI. Radiation therapy: concomitant cranium-spinal irradiation 36 GY/2Gy 18 fraction with 24Gy/2Gy/12 fraction for the primary left frontal region and 6 cycles of vincristine (1.4 mg/sqm) administration. During radiation therapy multiple subcutaneous metastases appeared with the same histology. The patient survived only 6 month. Case 2: female, aged 39, rapid onset of symptoms headache, speech disorders, memory impairment ataxia and paralysis. A left sided parietal tumor of 5 cm (MRI: cystic, inhomogeneous contrast enhancing lesions) was surgically incompletely excised with recurrence of the clinical symptoms in 3 weeks. Reoperation was not successful and oncological treatment started with concomitant radiochemotherapy. The radiation therapy was 3D conformal therapy 60Gy/2Gy /30 fractions to the brain concomitantly with 6 cycle of weekly vincristine followed by temozolomide for 24 month. The MRI demonstrated successively shrinkage of the tumor. The patient is alive with a follow-up of 40 month with stable disease on MRI presenting a slight motor weakness of the right hand. Conclusion: The identical histological and clinical profile resulted in 2 different behavior, one with favorable and the other with unfavorable outcome. Aggressive treatment, combined therapy and better knowledge of the prognostic factors will improve the further results.

Key words: primary neuroectodermal tumor of the adult, chemotherapy radiation therapy, follow-up.

ADJUVANT CHEMOTHERAPY IN PANCREATIC ADENOCARCINOMA

Adina Croitoru1, Ioana Dinu1, Iulia Gramaticu1, Florina Buica1, Ioana Luca1, Traian Dumitrascu2, Olimpia Dima2,
Cristian Gheorghe¹, Mihai Ciocarlan², Vlad Herlea, Mona Dumbrava, Gabriel Becheanu, Irinel Popescu²
¹Fundeni Clinical Institute, medical oncology department, ²Fundeni Clinical Institute, digestive surgery Clinic and liver transplantation, ³Fundeni Clinical Institute, gastroenterology clinic

The National Comprehensive Cancer Network and the European Society for Medical Oncology guidelines are recommended for all patients who have undergone resection of an exocrine pancreatic cancer (including those with resected T1N0 disease should be offered adjuvant therapy. Adjuvant chemotherapy is considered standard care because it has been shown to improve overall survival, regardless of age, gender and tumor stage. However, not all surgically treated patients receive adjuvant chemotherapy. Methods: All patients who underwent pancreatoduodenectomy for pancreatic cancer between 2010 and 2014 and presented in the oncology department were included. Patients received Gem 1g/m2 d1,8,15 q 22d. Patients deceased within 90 days after surgical treatment (N = 8) were excluded from analysis. Results: In total 57 pancreatic-cancer patients underwent pancreatoduodenectomy only 49 patients received adjuvant therapy. M/F: 27/22 patients, mean age: 59y(37-82), TNM stage I/II/III:11/21/7. Pathological exam showed ductal adenocarcinoma at 46 patients, 1 cystadenocarcinoma, 1 adenosquamous carcinoma and 1 carcinoma with giant cells (osteoblastic-like). Furthermore, patients diagnosed in 2010 had a significant lower chance for receiving adjuvant chemotherapy treatment compared to patients diagnosed in 2014 (29% vs 51%) Conclusion: Of the pancreatic cancer patients treated with pancreatoduodenectomy 85% received adjuvant chemotherapy. 29 patients completed 6 months of therapy. This percentage increased with time. Younger patients with tumor stage II or III had a higher chance for receiving adjuvant chemotherapy treatment. Median TTP was 11.01months(9.11-12.91). Median OS was 29.85months(20.81-38.89), 28 patients are still alive from which 15 patients with progressive disease (locally and metastatic).

EFFICIENCY ASSESSMENT OF GEMCITABINE AND CARBOPLATIN REGIMEN IN PATIENTS WITH UROTHELIAL CARCINOMA.

Tudor Moisoiu¹, Amalia Moldovan¹, Daniel Sur², Dan Luchian², Adrian Costin², Claudia Burzi¹,²
¹University of Medicine and Pharmacy Cluj-Napoca, ²Cancer Institute “I. Chiricuta” Cluj-Napoca

Bladder cancer represents a common human malignancy usually affecting patients with several comorbid diseases. Systemic chemotherapy prolongs survival of patients with recurrent disease after cystectomy or initially metastatic or unresectable disease. The long-considered-standard regimen MVAC has been challenged by combinations with less toxicity profile as gemcitabine-cisplatin. Thus, most of these patients may not benefit from cisplatin-based regimens due to the renal impairment. The combination of gemcitabine plus carboplatin has proved to be effective as a treatment of patients with carcinoma of the urothelium.

Methods: In this study 22 patients with locally advanced or metastatic urothelial cancer were treated using gemcitabine 1000 mg/m² (2) on days 1 and 8 and carboplatin (area under the curve 5) on day 1 every 21 days. Median age of patients was 58. The patients were evaluated for response rate after six cycles using RECIST criteria.

Results: The treatment was generally well tolerated. The most frequent grade 3-4 hematologic toxicity was neutropenia in 32.3% of patients. The most frequent grade 3-4 nonhematologic toxicity was nausea and vomiting (3.5%). The overall response rate was 59%.

Conclusion: GC is active in patients with urothelial cancer and has an acceptable toxicity profile.

PROGNOSTIC FACTORS IN PATIENTS WITH BREAST CANCER AND CEREBRAL METASTASES – EXPERIENCE OF ONCOLOGY INSTITUTE “PROF.DR. I. CHIRICUTA”

Martin Daniela¹, Chiriac Valentina-Fineta¹, Todor Nicolae¹, Godja Georgel¹, Hosu Sorin¹, Tanasescu Radu¹
¹The Oncology Institute “I. Chiricuta”, Cluj-Napoca

Introduction: The development of brain metastases is one of the biggest clinical challenges for patients with breast cancer. Cerebral metastases tend to occur among those who are younger, have larger tumors, and have aggressive histological subtype such as the triple negative (TN) and HER2-positive subtypes. Their incidence is documented in 10%–16% of cases, with a strong negative impact on survival of these patients.

Methods: Patients with breast cancer and cerebral metastases diagnosed and/or treated in our institution between 01.01.2010 and 31.12.2014 were taken into study. Two subgroups were analyzed in detail, the TN and HER2+. The clinical characteristics, pathologic features, treatment and prognostic factors were analyzed. Survival time intervals as initial diagnosis to distant metastases, distant metastases to brain metastases, brain metastases to death, and overall diagnosis to death were calculated.

Results: A total number of 181 patients were identified. Only the TN and the HER2 subpopulations were taken into consideration meaning 98 charts analyzed, with only 78 having sufficient data to be included in the final statistical analysis.

The HER2+ group represented two thirds (2/3) of patients and were 28.8% stage II, 57.7% stage III and 13.5% stage 4.
One third (26 patients) were TN, with 3.85% stage I, 34.6% stage II, 57.7% stage III and 3.85% stage IV.

Thirty one (39.7%) patients had metastatic disease prior to developing brain metastases, most of whom (74.2%) were HER2+. Nine patients lived long enough to develop second brain metastases, a majority (7) of which were HER2+.

Survival curves showed that TN subgroup had the worst survival after brain metastases.

**Conclusions:** The prognosis of brain metastases from breast cancer was poor. Patients with distant metastases prior to cerebral metastases were more likely to be HER2+. TN group developed brain metastases sooner and had the worst outcome in terms of survival.

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**EVALUATING SKIN TOXICITY IN HEAD AND NECK CANCER PATIENTS TREATED WITH IMRT**

Silvia Negrean¹, Oana Sipos¹, Daniel Vatca¹, Dan Dordai¹, Noemi Schultes¹, Renata Zahu¹

¹Amethyst Radiotherapy Center Cluj

**Purpose:** To evaluate radiotherapy related skin toxicity in head and neck cancer patients undergoing treatment with rotational IMRT technique-VMAT. Materials and Methods: We have included in this study 33 patients with various head and neck cancers. The patients were treated on a 6 MV Linac (Elekta Synergy) with VMAT technique. Immobilization was done with 3 or 5 point thermoplastic masks from CIVCO. At the beginning of the treatment the skin type for each patients was scored using the Fitzpatrick skin type system. We have evaluated and scored skin toxicity weekly according to RTOG and if needed patients were advised to use local treatment with silver-based or hydrating creams. Results: The following skin types were noted: 11 patients type II, 13 patients type III, 9 patients type IV. No patient in the study had grade 3 or 4 skin toxicity at the end of the treatment and no interruption was needed because of skin related events. 17 patients (51%) presented grade 1 reaction with erythema and focal dry descuamation. 16 patients had grade 2 reaction with bright erythema and moist descuamation limited to skin folds. Conclusions: Skin toxicity can cause discomfort to patients and can increase the risk of infections in the irradiated skin, however in our patients we haven’t noted any grade 3 or 4 toxicity or skin related infections and we had no interruption. Even with rotational IMRT, where skin toxicity is expected to be higher the reactions were acceptable and healed with no complications.

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**LONG TERM RESULTS IN GIST TREATMENT – FROM THE LITERATURE TO OUR PRACTICE**

Laurentia Gales¹, Rodica Anghel¹, Xenia Bacinschi¹

¹Institute of Oncology “Prof Dr Al trestioaneanu” Bucharest

Gastrointestinal stromal tumors (GIST) are rare tumors from variety of gastrointestinal stoma. They represent 1-3% of all gastrointestinal cancers. Their incidence is 10-20/1 million.

GISTs have previously been documented to be resistant to conventional chemotherapies. KIT-inhibition has emerged as the primary therapeutic modality along with surgery.

Imatinib has produced durable clinical benefit and objective antitumor responses in most patients with GIST. The estimated 9-year OS rate for all pts was 35%.

Sunitinib can induce objective responses and control progressive disease in patients with imatinib-resistant GIST.

Regorafenib demonstrated significant activity in patients with advanced GIST after failure of both imatinib and sunitinib.

In patients with progressive disease no longer receiving benefit from current TKI therapy, re-introduction of previously tolerated and effective TKI therapy can be considered.

According to NCCN guidelines panel, continuation of TKI therapy life-long for palliation of symptoms should be an essential component of best supportive care.

In cooperation with Clinical Institute Fundeni, as a part of a national research programme, in our database we recorded 80 patients with GIST, operated between October 2001 and June 2007. Only 16 of the patients received treatment with imatinib as long as adjuvant treatment was not reimbursed and even in metastatic setting the reimbursement was difficult too.

The analysis of our group of patients, draw the following conclusions:

- A large number of these were presented in advanced stages, which has made only 61.25% to be able to practice R0 resection compared with 80-85% as a result of the literature data.
- Imatinib was administered to 20.5% of patients that had indication
- From the 16 patients treated with Imatinib 7 are still alive, 1 of them under Sunitinib therapy and all the others on different dosage of Imatinib.
- The treatment was very well tolerated; none of the patients have to stop the therapy because of toxicity.

**BIPHENOTYPIC ACUTE LEUKEMIA AND GRANULOCYTIC MEDIASTINAL SARCOMA. AGRESIVE CYTOSTATIC TREATMENT AND PERIPHERAL STEM CELL ALLOTRANSPLANT.**

Catana Alina¹, Benedek Erzethb¹, Ioan Mafitiu¹, Miclea Ion¹, Dobrea Camelia¹, Cocisui Gabriela¹, Mocanu Liliana¹, Zaharia Ioan¹, Mihaila Romeo¹, Olariu Tania; Dr. Sandu Mariana; Dr. Dobra Dina; Dr. Noor Cristina Mondoc Lidia-Maria¹

¹Spitalul Judetean Sibiu, Clinica de Hematologie
Biphenotypic acute leukemia (BAL) is an uncommon clinical entity. It is a type of acute leukemia with features characteristic of both the myeloid and lymphoid lineages and for this reason is designated as mixed-lineage, hybrid or biphenotypic acute leukemia. The precise incidence among acute leukemia is uncertain, although it is likely to account for approximately less than 5% of all acute leukemia. Probably it arises from a multipotent progenitor cell and carries a poor prognosis. Although there are no uniform criteria about whether to treat these patients as ALL or AML, it is likely that an intensive approach with high-dose therapy followed by bone marrow transplantation will be required to eradicate the disease permanently. The features of 100 mixed-phenotype acute leukemias (MPALs), fulfilling WHO 2008 criteria, are documented. It has been included in the WHO classification of haemopoietic malignancies as acute leukaemia of ambiguous lineage.

Myeloid sarcoma is found in 2%-8% of patients with acute myeloid leukemia (AML). Myeloid sarcoma may develop before or concurrently with AML, or may be the initial manifestation of AML relapse in previously treated patients. Myeloid sarcoma is a rare extramedullary solid tumor consisting of immature myeloid cells and most commonly involving the bone, skin, lymph nodes, soft tissue, gastrointestinal tract and testis. Mediastinal myeloid sarcoma is very rare, may precede leukemic stage for months or years, and which is frequently misdiagnosed, mostly as malignant lymphoma.

We report the case of 21 years old patient/ young woman, diagnosed with cardiac tamponade, mediastinal myeloid sarcoma and acute biphenotypic leukemia that required reduction surgery and aggressive chemotherapy for survival.

Key words: Biphenotypic acute leukemia, mediastinal myeloid sarcoma, complex surgical therapy, chemotherapy.

A CASE OF COMPLETE REGRESSION OF A PROSTATE ADENOCARCINOMA TREATED WITH EBRT (EXTERNAL BEAM RADIOTHERAPY) AND ADT (ANDROGEN DEPRIVATION)

Firtea Cosmin Mihai1, Mihaila George1, Mirestean Camil1, Pagute Ovidiu1, Calistru Tudor1, Iancu Dragos1
1IRO Iasi

Introduction: Prostate adenocarcinoma is representing the most frequent malignancy in men (USA). Epidemiologically, Romania is heading in the same direction with the introduction of PSA (prostate specific antigen) screening tests.

Material and method: We are presenting the case of P.M. with prostate adenocarcinoma, 69 y.o. with an old, obstructive and imitative, low urinary symptomatology when presenting in November 2014 to Parhon Hospital Iasi, never treated, with serum PSA values of 19.1 ng/ml.

The prostatic biopsy was showing moderately differentiated (G3) acinar adenocarcinoma (Gleason 6).

In December 2014, PSA values were 28.3 ng/ml, when initiating hormonotherapy with goselerin acetate (LH-RH agonist).

MRI exam (magnetic resonance imaging) in February 2015 was showing an increased prostate volume (38/47/45 mm) with a discreet extra capsular extension and an obturator lymphadenopathy (12/10 mm). Conclusions: T3aN1Mx prostatic cancer.

In February 2015 it started EBRT in TD = 74 Gy/37 fractions/PTV-T and 46 Gy/PTV-N 46 using RapidArc technique.

Control MRI exam in June 2015 was showing a complete regression of the tumour with oedema and median lobe hypertrophy.

Results: According to 2015 NCCN guidelines, T3a and PSA values frame the patient into the high risk category when the recommended therapy is EBRT and ADT (2-3 years) or EBRT with brachytherapy ± ADT(2-3 years). For this case, EBRT and ADT (2-3 years) were chosen.

Conclusions: This is a classic case of prostatic adenocarcinoma by which we wanted to underline 2 major aspects: 1. Complete regression of the tumour under EBRT and ADT and 2. The importance of this malignancy by its incidence and mortality, especially when a specific screening test (PSA) is available and affordable which can diagnose this type of cancer in early stages.

OUR EXPERIENCE REGARDING HYPOFRACTIONATED RADIOTHERAPY IN BREAST CANCER

Amalia Constantinescu1,2, Mircea Savu1,2, Viorica Primjdie1,2, Lucia Enciu1,2, Alex Oprea1,2
1Institutul Oncologic “Prof. Dr. Alexandru Trestioreanu” Bucuresti, 2Clinica NeoLife Bucharest

Adjuvant hypofractionated radiotherapy in breast cancer has become a therapeutic standard. More and more studies confirm the same results in terms of local control and even better cosmesis, compared to conventional fractionation. We started to use hypofractionated radiotherapy in breast cancer years ago for at least two reasons: an attempt to offer our patients treatments conformal to therapeutic standards, under Romanian conditions and to shorten the waiting lists, known to be outrageous in Romania. Due to the lack of resources, waiting time in radiotherapy is within months, with deleterious consequences on treatment outcome.

We started the protocol in adjuvant setting and extended it to palliative treatments, and the results in our series confirm the literature data.