Expert Review of Anticancer Therapy

ISSN: 1473-7140 (Print) 1744-8328 (Online) Journal homepage: informahealthcare.com/journals/iery20

5th International Congress of Nuclear Oncology and 15th National Congress of Turkish Society of Nuclear Medicine

Hatice Durak & Alberto Cuocolo

To cite this article: Hatice Durak & Alberto Cuocolo (2002) 5th International Congress of Nuclear Oncology and 15th National Congress of Turkish Society of Nuclear Medicine, Expert Review of Anticancer Therapy, 2:4, 361-363, DOI: 10.1586/14737140.2.4.361

To link to this article: https://doi.org/10.1586/14737140.2.4.361

Published online: 10 Jan 2014.

5th International Congress of Nuclear Oncology and 15th National Congress of Turkish Society of Nuclear Medicine

Kusadasi, Turkey, 1–5 May, 2002

Hatice Durak and Alberto Cuocolo[†]

[†]*Author for correspondence*
Dipartimento di Scienze Biomorfologiche e Funzionali, Università Federico II,
Via Pansini, 5 - 80131 Napoli, Italy
Tel.: +39 081 746 2356; Fax: +39 081 545 7081
cuocolo@unina.it

Expert Rev. Anticancer Ther. 2(4), 361–363 (2002)

A meeting on recent advances in nuclear oncology was held on 1–5 May, 2002 at Kusadasi Pine Bay Hotel in Turkey, organized by the Turkish Society of Nuclear Medicine. This report is a summary of the major topics presented in the congress. The purpose of this meeting was to bring together scientists in the area of nuclear medicine, medical oncology, radiation oncology, medical physics, radiopharmacy, internal medicine and surgical oncology in a relaxed environment. The opening lecture took place in the antique theater of Ephesus and was given by Corstens FHM, President of the European Association of Nuclear Medicine (EANM) on the organization and functions of the association.

Current role & future trends in nuclear oncology

In general, the meeting emphasized the role of positron emission tomography (PET), peptides and targeted tumor therapy in oncology. Bombardieri E (Milan, Italy) introduced the future trends in nuclear oncology as image fusion, changes in collimator, detectors and computer capabilities, peptide receptor ligands, monoclonal antibodies, molecular imaging probes, imaging of apoptosis, angiogenesis, hypoxia and drug resistance, developments in nuclear medicine therapy. In his final remark, he underlined that the future of nuclear oncology is PET imaging. Baum RP (Bad Berka, Germany) reviewed the current trends and future perspectives of metabolic imaging with PET and peptides in oncology. Civelek (Baltimore, MD, USA) presented their experience with the recently introduced PET/computed tomography (CT) devices. Ell PJ (London, UK) reviewed the role of PET in colorectal cancer. Miller TR (St Louis, MI, USA) demonstrated that visual scoring of fluorine-18 (F-18) fluorodeoxyglucose (FDG) PET images in cervical cancer is closely related to prognosis, lymph node status and tumor volume. He said that prostate cancer, the most commonly diagnosed cancer in men, is a slow growing cancer with relatively low glucose metabolism limiting the effective use of FDG PET for imaging. Carbon-11 acetate is more promising than FDG, presumed mechanism of uptake being increased lipid metabolism. F-18 fluoroacetate and F-18 fluorocholine may represent the future of PET imaging in patients with prostate cancer. Kostakoglu L (New York, NY, USA) presented the clinical indications for FDG PET in lymphoma. She said that FDG PET is indicated at initial staging of Hodgkin's disease and non-Hodgkin's lymphoma (NHL), in evaluating the extent of the disease especially in lymph nodes less than 1 cm, in evaluating the abdomen and in differentiating other processes which cause enlargement of lymph nodes. FDG PET altered the staging in 50% of patients. It is also useful in evaluation of early and late response to radiotherapy and predicting the outcome, as well as during follow-up. Persistent FDG uptake after first-line chemotherapy - radiotherapy in NHL is predictive of residual or recurrent disease.

Erdi YE (New York, NY, USA) proposed the use of FDG PET in external beam treatment planning in lung cancer. Incorporation of PET data for defining the treatment volume determined changes in outlines of tumor portals in all patients and in some patients the area is increased to include the nodal disease. Respiration gating with PET will provide more accurate radiation portals in the near future. Abdel-Dayem HM (New York, NY, USA) presented an overview of problems in evaluating treatment response in nuclear medicine and emphasized the need for standardized protocols.

Kurtaran A (Vienna, Austria) reviewed the advantages of receptor ligands for receptor imaging, which have a small size, faster kinetics and high contrast between target/nontarget. Many tumors express receptors for different peptides, such as SST, VIP, GRP, neurotensin, gastrin, substance P and cholecystokinin. In^{111} octreotide is the most widely used agent, effective in the diagnosis and staging of tumors expressing SST-R. Extensive trials for labeling this molecule with technetium-99m (Tc-99m) resulted in numerous derivatives and modified octreotide.

Nuclear cardiology & other issues

Carrio I (Barcelona, Spain) gave a speech in the area of nuclear cardiology, emphasizing the role of myocardial perfusion tomography after therapeutic interventions and other novel imaging methods to visualize coronary plaques, finally asking a very critical question 'should nuclear medicine become invasive?'

 ISSN 1473-7140

Zwas T (Tel-Aviv, Israel) reviewed the current trends in scintigraphic and intraoperative γ-probe parathyroid localization. Parathyroid localization with γ-probe prior to operation in single parathyroid adenoma provided a minimally invasive surgery with 97% success rate. Carril JM (Santander, Spain) reviewed the role of breast scintigraphy in nonpalpable breast lesions. He summarized the indications of Tc-99m sestamibi breast scintigraphy as indeterminate mammography, high-risk patients and high probability mammography to search for bilateral or multifocal carcinoma. Unak P (Izmir, Turkey) made a comprehensive review of targeting mechanisms and radionuclide for targeted tumor therapy. Ozguven MA, from the Military Medical Academy (Ankara, Turkey) gave a speech on the use of depleted uranium (DU) in military equipment and the chemical and radiation risks and health effects. He said that although ionizing radiation from DU is in the form of α-particles, the decay products emit γ- and β-radiation that could effect those in the proximity to DU weapons. According to the literature, the most probable cancer type to develop is lung cancer. The use of DU munitions and armor is likely to expand greatly over the coming years. It is therefore important to continue research to further our knowledge of any potential health risks that might result from different levels and pathways of exposure.

Kuyvenhoven JD (Utrecht, Netherlands) spoke about the impact of European Legislation in nuclear medicine. He summarized the main topics as basic safety standards directive, medical exposure directive, community code relating to medicinal products for human use, medical device directive, *in vitro* diagnostic medical device directive and mutual recognition of diplomas and certificates in medicine.

Treatment options & outcome in patients with neuroblastoma

Four panel discussions were held during the congress. The first panel discussion was on the treatment options and outcome in patients with neuroblastoma. Olgun N (Izmir, Turkey), Cetingoz R (Izmir, Turkey) and Hoefnagel C (Netherlands) summarized the USA, European, Japanese and Turkish experiences on chemotherapy protocols, the role of radiotherapy, alternative treatment strategies and iodine-131 (I^{131}) metaiodobenzylguanidine treatment.

Neuroendocrine tumors: diagnosis & treatment

The second panel discussion focused on the recent advances in neuroendocrine tumor diagnosis and treatment. Rindi G (Italy), Karayalcin S (Ankara, Turkey) and Aykan F (Istanbul, Turkey) reviewed the neuroendocrine tumors pathology, clinical presentations and treatment with somatostatin analogs, interferon, chemotherapy, chemoembolization, radiotherapy and radionuclide treatment. Karayalcin stressed that clinicians must learn and suspect neuroendocrine pancreatic tumors and learn how to diagnose and treat these diseases by integrating with nuclear medicine.

Thyroid cancer: diagnosis & treatment

The third panel discussion was about the recent advances in thyroid cancer diagnosis and treatment. Diagnosis, surgical treatment and radioiodine treatment were reviewed by Kir M (Ankara, Turkey), Duren M (Istanbul, Turkey) and Karayalcin B (Antalya, Turkey). Lind P (Austria) commented that FDG PET gives positive results in thyroid cancer as well as microfollicolar and oxyphillic adenoma. For the follow-up of thyroid cancer, FDG PET detects most of the I^{131}-negative metastatic foci and FDG uptake represents rapid tumor growth, poor differentiation and poor prognosis. The use of recombinant TSH in the follow-up and treatment in thyroid cancer omits the disadvantages of withdrawal of thyroid hormone.

Lymphoma treatment

The last panel discussion was on lymphoma treatment with special emphasis on monoclonal antibodies. Goker E (Izmir, Turkey) and Anacak Y (Izmir, Turkey) spoke about the recent advances in lymphoma diagnosis and therapy. Kostakoglu L (New York, NY, USA) presented the principles of radioimmunotherapy in low-grade non-Hodgkin's lymphoma. Bischof-Delaloye A (Lausanne, Switzerland) spoke about the European experience and future prospective. Radioimmunotherapy provides targeted and specific delivery of radiation to tumor cells, while crossfire of particle emissions enhances the efficacy. High sensitivity of lymphomas to radiation, abundant and well-characterized surface antigens, ineffective conventional therapy in progressive forms, better targeting of tumors with radioimmunotherapy than conventional radiotherapy were presented as the rationale for treatment of lymphoma. CD20 is a 35 kDa transmembrane phosphoprotein that is expressed on more than 95% of B-cell lymphomas with restricted expression on normal B-cells. I^{131} tositumomab is a B-cell-specific murine IgG2a antiCD20 that triggers apoptosis and provided a response rate of 65% (17% complete response) in chemotherapy-resistant patients in pivotal trials. The agent is well-tolerated with only mild-to-moderate nonhematological reactions, acceptable hematological toxicity and 7% HAMA positivity. Yttrium-90 ibritumomab (Zevalin™; IDEC Pharmaceuticals) is a murine IgG1 antiCD20 with an overall response rate of 67% (27% complete response in low-grade lymphomas).

Sentinel lymph node

A whole day course on lymphatic mapping and sentinel lymph node biopsy was held during the congress. Program chairman was Gulec S (New Orleans, LA, USA). The course objectives were to teach the basic intellectual and practical aspects of lymphatic mapping techniques, sentinel node biopsy and the use of γ-detection probes. The faculty was Abdel-Dayem H, Ell PJ, Gulec S, Mudun A (Istanbul, Turkey) and Paganelli G (Milan, Italy). The main topics were: surgery of malignant disease, the melanoma experience, microanatomy and physiology of lymphatic mapping, current status of sentinel node biopsy in breast cancer, sentinel node biopsy techniques in breast cancer, controversies in

sentinel node localization in breast cancer, pathology of sentinel nodes, evolving applications of sentinel node biopsy and γ-probe primer. Practice sessions were performed on probe guided sentinel node localization on a breast model and probe performance testing.

PET cyclotron

Another whole day course on PET cyclotron operation course was held. The objectives of this course were to discuss current PET imaging technology, to review PET physics, to have hands-on experience for quality assurance–quality control issues in PET, to review how negative and positive cyclotrons work along with information on service aspects of the major components of the cyclotron and to discuss what usually fails, how often failures occur, as well as when and how to avoid problems that interrupt routine operation, to discuss daily quality control, quality assurance testing, good manufacturing practices, assurance of purity, sterility and pyrogen testing, pure water systems, room radiation monitoring and environmental monitoring of exhausted radioactivity in hot lab management and to review FDG production and pitfalls. The faculty was Hichwa RD (Iowa City, IA, USA) and Erdi YE.

Conclusion

The meeting ended with three excellent 'read with the experts' sessions, nuclear cardiology, given by Carrio I and Unlu M (Ankara, Turkey), brain imaging given by Kapucu O (Ankara, Turkey) and imaging apoptosis by Abdel-Dayem HM.

Affiliations

- *Hatice Durak, MD*
  Department of Nuclear Medicine,
  Dokuz Eylul University School of Medicinea,
  Izmir, Turkey
- *Alberto Cuocolo, MD*
  Dipartimento di Scienze Biomorfologiche e Funzionali, Università Federico II,
  Via Pansini, 5 - 80131 Napoli, Italy
  Tel.: +39 081 746 2356
  Fax: +39 081 545 7081
  cuocolo@unina.it