Emerging techniques provide answers in head and neck cancer

By Frances Rylands-Monk

Treatment planning and evaluation in head and neck oncology represents a major challenge for the radiologist. But new techniques and protocols are helping to overcome obstacles and promise much in treatment prediction and early follow-up, delegates discovered at yesterday’s Special Focus Session.

Insensitivity to treatment, induced fibrosis or inflammation and specific metabolic effects of chemotherapy may complicate the choice of treatment and methods to assess its efficacy, but the continued growth in biomarkers and surrogate markers is causing excitement. The use of 18F-Misonidazole for marking tumour hypoxia is gaining ground, as is PET/CT with F-FLT. FLT signal changes precede changes to tumour volume, a potential early marker for treatment response monitoring in oropharyngeal tumours. However, because of FLT take-up in reactive lymph nodes, issues remain over its incacity to distinguish them from those which are metastatic.

“New PET tracers should be handled with care,” said Dr. Vincent Vandecaveye, from the department of radiology, Leuven University Hospitals, Belgium. “CT has very high negative predictive value for excluding residual disease. If you have small lymph nodes after radiotherapy there is only a small chance that this will be nodal recurrence. We shouldn’t forget the basics in this whole story. The question is not what to use, but when to use it.”

We shouldn’t forget the basics in this whole story. The question is not what to use, but when to use it.

Head and neck cancer is the sixth most common cancer, according to session moderator Dr. Alexandra Borges, from the Portugal Institute of Oncology, Lisbon, Portugal. Over 80% of these cases are squamous cell carcinoma (SCC). For unresectable advanced disease, the five-year survival rate is less than 10%.

The importance of knowing expected findings post-radiotherapy and being able to distinguish unexpected findings from recurrence or residual tumour could be facilitated through using a score of 1 to 3, noted Dr. Frank Pameijer, Utrecht Medical Centre, The Netherlands. Expected findings post-treatment, such as oedema, could be scored as least worrisome, or 1. The second score, 2, could be applied to focal masses under 1 cm and asymmetry and necessary follow-up for up to two years, while the third category of findings (masses over 1 cm or less than 50% in tumour reduction post-treatment) require immediate further investigation, either through biopsy or metabolic imaging.

Pameijer urged post-treatment patience when following up for recurrence or residual tumour with PET/CT. Rather than imaging at one month after treatment, when negative predictive value was too low at 14% to 28% to yield valid results, radiologists should wait because negative predictive value increased to almost 100% after three to four months. Positive predictive value at that stage also increased to between 71% and 84%, making it accurate at eight out of ten cases in real terms, allowing 80% of patients to avoid unnecessary therapy.

In comparison, diffusion-weighted imaging MRI can be performed after six weeks with a high negative and positive predictive value, but this relatively new technique means that few institutions have the experience necessary to use it for follow-up. Although instinctively doctors want to know post-treatment outcome, overall improved survival rates due to speedier detection of recurrence are yet to be proved.

“We have to find out if it is beneficial to the patient to detect recurrence or persistent cancer after six weeks rather than after three months. Intuitively DW-MRI will see recurrence earlier but it will take a lot of effort for centres to introduce it into routine practice,” he said.

New imaging paradigms such as structural imaging to specify bioregional extent, functional and molecular imaging as surrogate markers of tumour biology could help tailor treatment, and provide early predictions of tumour response and dynamic treatment tailoring and also prognostic information.

The aim is now to determine the best performing modalities for tumour staging, detection of occult and unknown primaries, predict tumour response to conventional and new biologic therapies and for post-treatment follow-up.

Oncologic imaging is a top priority, ESR President Prof. Maximilian Reiser told attendees at the opening ceremony on Thursday evening. Plans are advanced for the formation of the European Society of Oncologic Imaging, which will be part of the ESR.
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Answers for life.
**Thou shalt remember the three commandments**

By Frances Rylands-Monk

What do an egg, a pair of scissors, a screwdriver and buttons have in common? ECR delegates puzzled over the connection before Prof. José Cáceres provided the answer: they’ve haven’t changed since their creation. They are the perfect design.

The chest x-ray has been similarly enduring. While CT has undergone three generations of design in only 27 years, the general way chest x-rays are performed and appears has not altered in 115 years. In Friday’s Josef Lissner Honorary Lecture, Cáceres explained that if the original radiologists from the turn of the 20th century were transported to the present day, they would have little difficulty performing a modern chest radiograph.

With the exception of Marilyn Monroe’s chest x-ray, sold last year to a private collector for $45,000, plain film is relatively low cost, at 15 times less than the cost of a CT exam and 80 times lower than a low-dose CT, and it is specially obtained. Radiologists also tend to interpret images quickly, he added, meaning that chest x-rays were ubiquitous in today’s clinical setting. Their ratio vastly outnumbering that of CT scans across most of Spain’s hospitals.

This speed, however, could prove to be a double-edged sword for the patient. If x-rays were not conclusive, some doctors would simply repeat a chest image with contrast or opt for a CT, according to Cáceres, chief of diagnostic radiology at HGU Vall d’Hebron, Barcelona. More careful scrutiny of chest radiographs was key to better diagnosis.

“My own personal formula is I = bk + lv + pf x e,” he said. “My own personal formula is I = bk + lv + pf x e,” he said.

Radiologists should bear in mind three commandments. The first, thou shalt not forget basic knowledge, involving knowing conditions such as hypogenetic lung, which will facilitate plain film diagnosis without the need for CT.

The second, thou shalt not forget the lateral view, hinges on the fact that in 1994 Chotas et al estimated that 26.4% of lung volume was obscured by cardiac mediastinal and subdiaphragmatic structures. Lateral views complementing conventional views can pick up metastases earlier.

The third commandment, thou shalt not forget to look at previous studies, can help radiologists pinpoint existing pathologies that could otherwise eat up time and resources. A case in point was a strange shadow on the heart, imaged on a patient in August 2010 at Cáceres’ hospital. The shadow was missed in CT owing to it being the same opacity as the contrast used. Previous plain film images from November 2007 showed the same shadow, the diagnosis proving to be cavitous calcification of the mitral annulus.

**French window opens on inner workings of brain**

By Philip Ward

A window into the world of radiology in France was opened wide on Friday, when three eminent researchers gave presentations on key areas of advanced imaging during the popular and well attended ESR Meets France session.

In more than 20% of suspected cases of stroke, the final diagnosis is not in fact a stroke, and MRI is much more sensitive than CT in diagnosing mimics of stroke. However, CT is more available, is faster, and involves fewer contraindications, according to Prof. Xavier Leclerc, a neuroradiologist at the Hôpital Roger Salengro in Lille.

In stroke patients, the main objectives of CT perfusion and diffusion MRI are to exclude haemorrhage, to eliminate another diagnosis (i.e. mimics of stroke), to detect the infarct core, to evaluate the salvageable tissue (penumbra), and to assess the intracranial circulation.

CTA is more accurate than MRA for evaluating intracranial circulation, he commented. The sensitivity and specificity of CTA is greater than 90% for detecting proximal vessel occlusion, and it is an accurate method to evaluate distal vessels and collateral circulation.

Functional imaging can be a useful tool for the radiologist, maintained Prof. Alexandre Kranik, from the department of neuro-radiology and MRI at University Hospital of Grenoble.

At the same session, Prof. Vincent Doussset, from the Service de Neuro-Imagerie Diagnostique et Thérapeutique at CHU Bordeaux, provided an overview of demyelinating diseases. “In the literature, ample evidence exists to indicate that small vessel disease in the brain is the most prevalent neurological disorder ever described,” he told ECR delegates. “White matter abnormalities are almost 100% for the over 50s. Prevalence increases with age, blood pressure, diabetes, tobacco, and migraine.”

Around 200 junior radiologists from France are attending ECR 2011. This is a very positive development, noted Prof. Jean-Pierre Prvoo, secretary general of the French Society of Radiology (SFR). SFR was founded in 1909, and has invested considerable resources in the radiology portal, www.sfrnet.org. It currently has about 8,200 members, 3,850 of whom are ESR members. A new English-language edition of the peer-reviewed Journal de Radiologie is due to be published next year.

Prvoo introduced yesterday’s session, along co-moderator Prof. Yves Menu, ECR 2011 Congress President.
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**HI-RTE – Supporting Diagnostic Confidence.**
**Quantum leaps in MRI remain on the horizon**

**By Philip Ward**

The clinical benefits of 7T are its very high resolution for detecting small lesions and tissue substructures, as well as its novel contrast mechanisms and heteronuclei, but only a limited range of sequences are available and safety issues still exist because of the specific absorption rate (SAR). Furthermore, no killer application has been developed yet.

This was the central message of Prof. Jürgen Hennig, a medical physicist at the department of diagnostic radiology, Freiburg University Hospital, Germany, who spoke at Fräde’s New Horizons Session about quantum leaps in MRI. He emphasised that “7T is not just about doing the same things at a higher resolution and improved imaging speeds; it offers new opportunities, but also fresh challenges.

Higher field magnets give the possibility of higher signal-to-noise ratio, faster resolution and faster imaging, but the main challenges are the SAR and the radiofrequency (RF) penetration in the BI field, along with performance and noise issues with gradients. RF problems occur at 7T because in the body, the wavelength approaches the size of the organs and interference, or dielectric resonances, will build up and lead to inhomogeneous BI, explained Hennig. Due to the principle of reciprocity, this applies during transmission and reception.

Inhomogeneous electric fields lead to SAR problems, or hot spots, and inhomogeneous BI-fields lead to variations in signal intensity and image contrast. BI-inhomogeneity can be compensated by parallel transmission, but the SAR problems are so far largely unresolved.

MR/PET facilitates the exact matching of PET and MR by simultaneous acquisitions and the use of MR for navigated PET reconstructions, but remaining obstacles include transmission correction, interference with RF coils, etc., and clinical indications for simultaneous acquisition, he added.

Accelerated imaging, on the other hand, allows improved imaging speeds by a factor of 10 to >1000 and real-time monitoring of periodic and non-periodic motion, but users must be in mind that it does not overspecify prior information and it works best for information-poor (sparse) image reconstruction times.

Hennig concluded by asking if new technologies allow a jump in sensitivity. “Yes and no” was his answer. The basic physics of MR sensitivity persists, and technologies to translate the inherent sensitivity into MR images are well advanced, but there is an increasing range of applications, for which a jump in sensitivity can be achieved by appropriate means.

PET and SPECT were the first molecular imaging modalities to be used clinically, said Prof. Silvio Anne, from the Molecular Imaging Center, department of chemistry, University of Turin, Italy. Compared to SPECT, PET has greater advantages with respect to sensitivity and resolution, and it has been gaining clinical popularity, and about 3.2 million PET examinations in 2010 in the brain, heart, and whole body, he told ECR delegates.

In the rush to make further advances in PET and MRI, it is important not to overlook SPECT, said Dr. Philippe Jehenson, principal scientific officer of the European Commission’s Health Directorate-B in Brussels, Belgium, during the panel discussion.

“I don’t think we should discard SPECT for cost reasons, practicality, etc. SPECT has advantages over PET, and the sensitivity of SPECT is not much lower than PET’s,” he noted. “SPECT also allows you to do diagnosis and therapy with exactly the same molecule.”

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**Meet & Greet your RTF Representative**

This year you have the unique opportunity to get to know your national RTF representative during the ECR! Visit the RTF Meeting Point in the Rising Stars Lounge (Foyer R, 2nd Level) where the following resident representatives will be available to provide you with first-hand information:

**Saturday, March 5:**
- 09:00–10:30: Anna Sverko Peternac, Croatia
- 10:30–12:00: Lukas Hrdina, Czech Republic
- 12:00–14:00: Katarzyna Kapuscinska, Poland

**Sunday, March 6:**
- 09:00–12:00: Umut Peren, Turkey
- 10:30–12:00: Ana Silvina Martinez, Argentina

**Monday, March 7:**
- 09:00–13:00: Andrea Levai, Hungary
- 10:30–12:00: Ana Silvina Martinez, Argentina
- 12:00–15:00: Sandra Hüttings, UK
- 15:30–17:00: Anna Alguersuari Cabiscol, Spain

**Saturday, March 5: Opening of the Rising Stars Lounge**
- 10:30–12:00: Andrea Levai, Hungary
- 12:00–15:00: Anna Alguersuari Cabiscol, Spain

**Wednesday, March 9:**
- 09:00–10:30: Dr. Philippe Jehenson, principal scientific officer of the European Commission’s Health Directorate-B in Brussels, Belgium, during the panel discussion.

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**Discussions bring new life to electronic poster hall**

By Miliandra Rouger

Interactivity reached a new level at ECR yesterday, as authors of some of the highest-scoring posters in the electronic presentation online system (EPOS™) were invited to present their posters to a live audience and participate in discussions.

In a move aimed at boosting exchange, authors are now able to personally introduce and highlight their own creations in the EPOS™ lounge. Five posters relating to various ‘hot topics’ have been carefully selected to offer a snapshot of the cream of the electronic exhibition to eager delegates during the congress.

“Some years ago, we used to see authors waiting near their posters on paper and available to speak with the public to explain their creations. We wanted to do something similar to boost interactivity,” said Prof. José I. Bilbao, chairman of the scientific exhibition.

With themes ranging from imaging perfusion for the prediction of treatment outcome and whole body MRI to new MR biomarkers, the aim is to provide everyone with a bit of everything.

“The ECR is a congress for general radiology, during which specialised radiologists can provide their general colleagues with basic knowledge about their field,” said Bilbao.

The introduction of live discussions is one of the many innovations EPOS™ has experienced since its launch in 2003. Since last year, participants have been able to submit their posters all year round, increasing the already sizeable online database even further.

With 17,700 posters currently online, EPOS™ has grown into a popular platform for the dissemination and harmonisation of knowledge in Europe.

“The exhibition is a great way to harmonise information and training around Europe. We need these standards and this is why we are so interested in EPOS™,” he said.

There is always room for improvement and Bilbao hopes that these discussions will be a big step in this direction.

“Everyone has their tricks, and listening to other people’s recommendations helps us to learn more about our own field. It’s the same for the tortilla de patatas: the ingredients may be the same, but every Spaniard makes a different tortilla!”

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**EPOS™ Discussions**

Saturday, March 5: 13:30–14:00
- Liver Intervention
  - Moderator: J. Bilbao, Pamplona/ES
- Dose in CT
  - Moderator: K. Nikolaou; Munich/DE

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Breast CT offers potential benefits over digital mammography and MRI

By Frances Rylands-Monk

The improved diagnostic certainty due to CT’s high sensitivity and specificity for earlier recognition and diagnosis of breast cancer lesions may have a substantial future impact on patient management and improve outcomes.

Limited spatial resolution and specificity are acknowledged to be the main drawbacks of full field digital mammography (FFDM) when it comes to early detection of microcalcifications, an indicator of potential breast cancer. While MRI may seem a more obvious choice to improve on FFDM’s performance, the possibility of 3D imaging with CT at very high resolution and low radiation dose of 1 to 5 mSv could provide an alternative method for early breast cancer detection and characterisation in the clinical setting.

The use of advanced CT technology may mean a breakthrough for breast imaging, according to Prof Will Kalender, chairman of the Institute of Medical Physics at the University of Erlangen, Germany. He will be speaking at the opening session in this morning’s European Federation of Organisations for Medical Physics (EFOMP) Workshop about advances in breast imaging.

“We are working on Cadmium Telluride detector technology, which allows direct conversion of X-rays into an electrical signal without the intermediate step of scintillation light. With respect to clinical imaging, the planned dedicated breast CT scanner will be its first application for high resolution imaging at low dose,” Kalender said. “CT imaging of the breast with 3D detail will obviate obscuring features, as it does for chest radiography, and will allow us to approach 100% sensitivity, compared to the current 60% to 70% sensitivity in mammography screening.”

CT is unlikely to replace mammography screening, but the expectation of improved diagnostic power means that it may be increasingly used as a second-line examination in the clinical setting. Additional research is needed to confirm the expected performance of high resolution CT of about 100 micrometres (µm) and patient dose comparable to that applied in in-plane screening mammography. If the findings are positive, CT might also qualify for screening purposes.

Kalender began efforts to build a dedicated breast CT scanner in 2007, and preliminary proof of imaging performance was obtained in practical tests. A pilot study to prove clinical feasibility will begin this year through a partnership with several European centres and Artemis Imaging GmbH, a spin-off of the University of Erlangen in Germany. More extensive testing is due to start in 2012, and will involve five European and five U.S. institutions.

Doubts remain about CT’s cost-effectiveness and patient exposure to radiation, but the benefits of dedicated breast CT are manifold, and it may help to complement mammography in some cases. He thinks it will be possible to visualise soft tissue lesions below 5 mm in diameter and microcalcifications at 100 µm or better, adding that painful compression of the breast during studies will be avoided and radiation exposure will be limited to a dose not exceeding that acceptable in standard mammography. He also pointed to the possibility of an integrated biopsy facility that would mean a ‘one-stop shop’ option, compared with the current situation where biopsies are scheduled separately after the screening examination if there is suspicion.

“The MR biopsy procedure is relatively difficult and time-consuming, and the delay is a psychological burden for patients,” said Kalender. “Dynamic CT will be able to show morphology, microcalcifications and contrast enhancement, with scans entailing integrated biopsy.”

Delegates at today’s opening session can also hear about the latest developments in colour X-ray obtained using different technologies, a growing area of interest in breast imaging. Besides its application in conventional chest imaging, colour X-ray using dual energy techniques is gaining ground for other potential clinical applications because it allows increased visibility and improved characterisation of tumours, according to co-speaker Christen Ulberg, chief technical officer at Stockholmbased Xeumen, which develops digital detectors. For breast imaging, contrast media is needed for substantially improved visualisation gained from separating energies. This means that although the technique looks set to play a diagnostic role for individual patients, it is not likely to be used in screening programmes, at least for the foreseeable future.

“The radiologist needs to be aware that colour X-ray in breast imaging can help to an extent, but contrast media is needed to highlight tumours in a dense breast. Without it, you don’t gain much by using dual energy in colour X-ray,” Ulberg said.

Ulberg intends to highlight the different methods available for colour X-ray imaging and their strengths and drawbacks, as well as the effect of scattered radiation, which presents a further challenge for radiologists and for system designers. When designing a system, scatter correction needs to be taken into consideration to obtain quality images, and this is especially important for colour X-ray because scatter can change the colour of the X-ray. For implementation of dual energy in mammography, systems must also undergo some technical improvements. Efforts, for example, are being made to reduce the two exposures currently needed in dual energy techniques to a single exposure. In addition, to convince the authorities and radiologists about its clinical application, researchers must prove that dual energy is of real benefit.

EFOMP represents more than 5,000 physicists and engineers in the field of medical physics. Its ECR workshop is always a popular attraction at the congress. The second session lasts from 10:30 to 12:00 today, and will focus on screening and diagnostic breast imaging.
Greater precision of CT drives attempts to visualise and treat lung disease

By John Brooky

Delivering on the promise of next-generation CT systems depends crucially on translating the power of these new tools into applications that add value to clinical routine. This morning’s refresher course on non-small cell lung cancer (NSCLC) aims to provide compelling proof of how the enhanced technology has been harnessed for greater precision in both the detection and treatment of tumours.

Combining CT with position emission tomography (PET) adds an uncounted value for staging NSCLC, for determining a course of treatment, and for monitoring the effectiveness of that treatment, according to Dr. Nigel Howarth, from the Institute of Radiology at the Clinique des Graves in Geneva, Switzerland. Advances in detector technology have increased spatial resolution from 10 mm to 5 mm, while the increased speed shortens examination times.

"PET/CT should be used early in the diagnostic pathway and is the most accurate, reliable, cost-effective modality of choice," he commented. "It has prognostic significance and should help stratify new specific treatments.”

The work has only just begun, however. The clinical influence of prospective PET/CT is currently undergoing extensive evaluation, and it represents a cutting-edge development for the next generation of radiologists as they begin to learn more about molecular processes occurring within cells, he said. Furthermore, combining biological information with images of human anatomy is not altogether straightforward; it requires the focused eye of a radiologist to avoid imaging pitfalls that can result in both false-positive and false-negative interpretation.

In his presentation of PET/CT applications for lung cancer, Howarth intends to highlight opportunities for radiologists to play a leading role in the clinical translation of molecular imaging techniques, in close collaboration with nuclear medicine colleagues. Advances in technology result in new training requirements for radiologists, and he will explain about the principles and the application of PET/CT and describe the normal distribution of FDG, pitfalls and normal variants. He intends to discuss how specific examples will demonstrate how PET/CT improves delineation of disease and guides surgical and radiation planning and biopsy.

The greater sensitivity of multidetector CT that enables the discovery of cancers in the lung with more accuracy also provides interventional radiologists with added capability to treat tumours. “It is the power of the new generation of scanners that makes an intervention for ablation of NSCLC with radiofrequency possible,” said Dr. Frédéric Deschamps, from the radiology department of the Institut Gustave Roussy in Villejuif, just outside of Paris. “It is a promising technique with promising results that currently compares very closely with one-year survival rates for surgery.”

Yet in using a percutaneous approach for radiofrequency ablation (RFA), he is able to bring hope to patients who cannot, or will not, undergo traditional open surgery. This is a large patient population, many of whom have co-morbidities that are contraindicated for a surgical procedure. The procedure is very well-tolerated with significantly fewer complications than surgery and a hospitalisation rate of two days on average, he reported. However, it is limited to patients with tumours with a diameter of less than 3 cm surrounded by mediastinal glands, and the ablation is most effective on smaller, primitive cancers.

Deschamps said that many interventional radiologists will be familiar with the techniques he will discuss at today’s course, but his lecture should be of interest to general radiologists. He added that guidance with the CT scanner is no more complicated than performing a pulmonary biopsy, yet it can provide greater benefit to the patient.

“We tried using flat panel detectors for guidance, but the precision was not as great. The CT scanner is ideal, and we are very precise in guiding the needle in real time to the right point,” he noted. “At the moment, there is not a comparative prospective study on this technique, but retrospective studies show results that are very close with surgery. In patients who are more fragile, it is truly an alternative.”

Fused PET/CT images differentiating a large right upper lobe cancer from surrounding atelecasis. (Provided by N. Howarth)

Compared with RFA, larger and more circular zones of thermal necrosis with faster growth of the ablation zone have been achieved with microwave ablation (MWA) in a swine lung model, Deschamps said. Early trials have yielded promising results for MWA, and give hope for a better rate of complete ablation for larger tumours. Follow-up imaging of the ablation volume on CT is essentially based on morphologic evaluation. This method of evaluation has some drawbacks, namely the late discovery of incomplete treatment. PET-CT appears promising to provide early evaluation of treatment response. The sensitivity and specificity of PET has been reported superior to CT in the early detection of incomplete ablation, he concluded.

Saturday, March 5, 08:30–10:00, Room I/K
RC 704 Non-small cell lung cancer
Moderator: J. Vilar; Valencia/ES
A. Update in TNM classification
S. Dierschek; Dissloft/DE
B. PET/CT in lung cancer
F. Deschamps; Villejuif/FR
C. Radiofrequency ablation of NSCLC: current status
P. Deschamps; Villejuif/FR

GAR President presents new developments for radiology in Georgia

By Professor Fridon Todua, President of the Georgian Association of Radiology

The Georgian Association of Radiology was founded by the Research Institute of Clinical Medicine in 1995, and became a member of the European Association of Radiologists (now the ESR), the first among the CIS countries to do so. Among them, the association, together with the Georgian National Academy of Sciences, has been publishing the journal, a scientific journal, the Georgian Journal of Radiology, a quarterly publication in which scientific works of Georgian and foreign radiologists from around the world are published.

It has to be noted that some leading radiologists from European countries are members of the Editorial Board. The Editor is the President of the Georgian Association of Radiology, Professor Fridon Todua, who has been President of the association since 1997 and was re-elected at the 3rd Congress of the Georgian Association of Radiology that was held on 23–24 October in Tbilisi. Among the participants of the Congress were guests from Austria, Germany, The Netherlands, Belgium, Switzerland, Belarus, Azerbaijan, and Russia. The 1st and the 2nd International Congresses (1997, 2003) of the Georgian Radiologists, as well as several International Symposia, have also been held under the aegis of the Georgian Association of Radiology.

Due to the efforts of the Georgian Association of Radiology, fields of radiology and therapy such as CT, MRI, US diagnostics, nuclear medicine and radiotherapy have been brought together as one discipline - medical radiology. Scientific research takes priority in the activities of the Georgian Association. Many specialists have gained scientific degrees and grants are also allotted to young radiologists. Many young members of the association have participated in the ECR, as well as the RSNA, and have gained diplomas and participated in various training courses and tutorials.

In recent years the specialists’ training system has improved. A physician-radiologist now masters all directions of radiology equally, and afterwards begins to move in the direction of a particular specialisation. The problems of paediatrics are often presented in clinical practice. Of course, there are special-
Emergence of new CT, MR and ultrasound techniques to boost tumour evaluation

By Philip Ward

Conventional tumour response systems based predominantly on assessing lesion size are only of limited value, and radiologists face the challenge to find ways for more effective imaging-based monitoring of therapies, according to Dr. Frank Berger, from the Institute for Clinical Radiology, Grosshadern Clinic, University of Munich, Germany. About 60% of the pipeline drugs in oncology belong to the group of molecular therapies, and many of these innovative new pharmacotherapies demonstrate predominantly cytostatic and less cytotoxic effects.

"I'm convinced the future will bring more multi-parametric evaluation of tumour biology and tumour behaviour under therapy. I'm very much in tune to see how perfusion measurements correlate with metabolism and lesion cellular density, to name just a few parameters in my imaging tool kit," he said. "A lot of work will have to be done further validate predictive biomarkers for therapy selection, early response biomarkers and prognostic biomarkers. Correlating imaging results with histopathology, molecular biology and treatment results will be key in this endeavour. With morphological and functional imaging techniques in our hands, we are up to the challenge!"

Many of the targeted drugs in development involve anti-angiogenic or anti-vascular effects, and both CT and MR perfusion are powerful tools to non-invasively detect, quantify and monitor these treatment effects within the patient. CT perfusion is quick and easy to implement in standard CT protocols, and the physics of CT perfusion is straightforward. Burger explained. The simplicity and wide availability of CT perfusion also makes it ideally suited to tumour response evaluation, but there remains a need for further evidence linking CT perfusion response to outcome, such as survival.

"The additional radiation exposure that comes with CT perfusion is an issue. MRI protocols are more time-consuming and the physics behind MR perfusion is more complex, but even imaging of specific angiogenic pathways by linking contrast agents to specific angiogenic markers has been achieved with the specific differences in PET detector technology and image reconstruction algorithms may be needed to improve image quality with pulse triggering, multi-shot echo-planar sequence, and 3 Tesla scanners. Additionally, it will be difficult to standardise the measurement protocols across different generations of PET and MR scanners and across systems from different manufacturers to minimise the measurement variability.

Looking to the future, new classes of antiangiogenic therapy can have an antiproliferative effect, inducing a delay in tumour shrinkage. Della Pina thinks this is important. Also, DW-MRI and PET/CT show promise in the clinical setting as a biomarker to predict early response to systemic chemotherapy.

Targeted ultrasound also has potential to meet some of the challenges of molecular medicine, and can be done at comparatively low cost. As a predictive technique, contrast-enhanced ultrasound is a promising tool for monitoring changes of haemodynamic parameters and evaluating early response during chemotherapy or antiangiogenic treatment, and it is helpful in the guidance and follow-up of lesions treated by radiofrequency or cryosurgery, stated Prof. Michel Claudon, from the department of pulmonary radiology, Vandoeuvre-les-Nancy, France. In this morning's lecture, he plans to outline recent advances, including 3D/4D real-time imaging with matrix technology and the evaluation of targeted agents.

A premiere at ECR: Medical Students Sessions

At ECR 2011, for the first time ever, medical students will have the chance to present their own abstracts in front of a huge audience. The aim of this new educational event is to promote students who have the willingness and ability to present their work, with free accommodation and travel provided by the European Society of Radiology.

Saturday, March 5, 12:30-13:30, Room N/O Session 4

Moderator: A. Dix; Cambridge/UK

• Changing radiology teaching within the undergraduate curriculum: Reflections of new entrants in the United Kingdom
  E. B. Agius; Oxford/UK

• Innovative ultrasound tutorial for students by students A. Studio; Vincenza/IT

• A medical student's journey in research and radiology
  S. Oberoi; Charleston, SC/US

• Reflections in undergraduate education in Brazil: D.O.D. Dalla Costa/BR

Saturday, March 5, 12:30-13:30, Room L/M Session 1

Moderator: A. Thomas; Newcastle/UK

• Radiology: preclinical and hidden functions
  J. Jost; Sheffield/UK

• Magnetic resonance imaging
  E. Zaygourski; Athens/GR

• Ultrasound: imaging of the myocardium in the 21st century
  A. A. Farkas; Szeged/HU

Saturday, March 5, 12:30-13:30, Room N/O Session 2

Moderator: A. Dix; Cambridge/UK

• To be or not to be a radiologist: radiology through the eyes of a medical student
  D. Ullmacher; V. E. D. Chia/SP/BR

• Improving the clinical supervision of undergraduate students in CT
  M. Petrini; San Donato Milanese/IT

• Papel de la imagen en la correcta orientación del estudiante
  C. Carreño; Argentina/AR

• Radiology as a career: what do students and parents think?
  B. Rancane; Riga/LV

• How radiology is changing: three intercultural perspectives
  A. A. A. C. M. van den Ende; Amsterdam/NL

Saturday, March 5, 12:30-13:30, Room N/O Session 3

Moderator: A. Dix; Cambridge/UK

• Final Student Session representing the four best student abstracts

• Students will talk about their experiences and expectations, and give a short crisis of their abstracts.

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Refresher Course

Saturday, March 5, 08:30–10:00, Room F1

RC 701 Tumour evaluation: beyond morphology

• Chairmen’s introduction
  C. Messina; Milan/IT

 A. US and CEUS
  M. Claudio; Vandoeuvre-les-Nancy/FR

 B. CT and MR perfusion
  F. Berger; Munich/DE

 C. MR diffusion and PET/CT
  C. Della Pina; Pisa/IT

Panel discussion: How can you easily implement some functional imaging into your practice?

Saturday, March 5, 08:30–10:00, Room F1

Panel: B. Burger; Munich/DE

A. Contrast-enhanced ultrasound shows a nodule of hepatocellular carcinoma.

B. If diffusion-weighted sequence and dynamic MRI study demonstrate necrotic nodules after radiofrequency ablation. (Provided by C. Della Pina)

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myESR.org
Follow golden rules to manage risk successfully in pregnant patients

By Philip Ward

Imaging has an important role to play during pregnancy; and in many cases the risks are manageable and negligible compared with the potential dangers of not imaging. Furthermore, examinations of the extremities, head and chest are not restricted, according to Prof. Peter Vock, department of diagnostic radiology, Bern University Hospital, Switzerland.

Research shows that there can be a lack of knowledge among physicians of pregnant women. In addition, pregnant women tend to be more anxious than non-pregnant women about any examination, and delays in their care can occur. This puts an emphasis on the need for accurate and balanced patient information, reliable consent procedures, good documentation, and appropriate education and training methods for staff, noted Vock, who is a speaker at this afternoon’s refresher course on diagnostic radiology and pregnancy.

A critical factor is the justification for a specific examination. He breaks down procedures into four categories: those involving low exposure (x-rays of extremities, head and chest), those examining the trunk of the body, without direct radiation to the uterus; those involving direct radiation to the uterus; and nuclear medicine examinations. Justification depends on the stage of pregnancy, and of particular importance are organogenesis (mainly three to 15 weeks post-conception), and the size and position of the uterus.

Patient consent is necessary whenever fetal dose is above 1 mGy. The simple rule is that pregnancy status must be established when the uterus is in direct contact with the x-ray beam, but no hospital policy can guarantee a 100% detection of pregnancy. Research suggests that around 2-9% of trauma patients are pregnant, and 0.3-1% of women do not know they are pregnant. In those under the age of 18 years, it is essential to seek a balance between the patient’s right to privacy and the parents’ rights, Vock explained.

“In the pre-examination questionnaire for determination of pregnancy, it is important to ask two questions: what was the first day of your last complete menstrual period? To the best of your knowledge, are you pregnant, or do you think you could be?” he said during last year’s ECR refresher course on pregnancy.

In the early stage (< menstrual day 28/35), a urine test is not useful in ruling out pregnancy because of the sensitivity threshold (25mIU/ml HCG). A lab test is more sensitive, but it is time-consuming. This test may be useful, but does not replace a proper direct inquiry, pointed out Vock. For higher exposure examinations that involve imaging the trunk of the body with direct radiation to the uterus and pelvic fluoroscopy (20-100 mGy) and pelvic CT (single phase <50 mGy), the examination should be postponed unless there is a serious need, in which case the radiologist should plan or adapt the examination. Always get consent and document your actions, he advised.

To optimise an examination, he recommends avoiding direct radiation to the uterus, getting as few radiographs as possible, keeping fluoroscopy examinations short and using collimation. In CT, it is important to use a single abdominal pass, low CTDI (computed tomography dose index) and low kVp, and to avoid the uterus. Also, think about protocols in clinical situations like pulmonary embolism, appendicitis and urinary stones, and consider documentation and quality control.

In MRI, fast sequences are used to overcome image quality artefacts caused by fetal motion, and this can lead to the use of high specification magnetic field gradients; the frequency range for the gradients is from 1 to 10 kHz. The main concerns are the clinical effects of low frequency EMF (electromagnetic field) induced currents and acoustic noise, but overall there is no indication that the use of clinical MRI procedures during pregnancy produces adverse effects, according to Dr. Janet De Wilde, executive manager of SINAPSE (Scottish Imaging Network: A Platform for Scientific Excellence), University of Edinburgh, U.K.

“Induced currents from exposure to dB(a) is an issue that may need to be extended to include the pregnant women and the foetus,” she told attendees at last year’s course. “There has been concern raised from previous publications about the increased risk of miscarriage from exposures to low frequency EMF. Critics said neither study, a large cohort of, say, 2000 women could both be interviewed and have measurements made of their exposure.”

Her tips are to avoid scanning above the normal controlled limit, if scanning in the first controlled level, then apply SAR sequences for as short a time as possible: high SAR sequences should be interspersed with low SAR sequences; and if the foetus or maternal abdomen are not the target organs of interest, then the foetus should be kept out of the transmit field of the RF coil, if possible. Particular care must be taken when scanning foetuses with poor placental function, e.g. in foetal growth restriction, and maternal heat stress has been reported to reduce placental perfusion.

“Care should also be taken when scanning pregnant women with conditions leading to impaired thermoregulation,” she said. “Do not scan pregnant women who are obese. The mother’s heat loss pathways should be optimal, with no blankets, good bore air flow and a reasonable room temperature.”

Finally, she reiterated the advice of the Safety Committee of the Society of Magnetic Resonance Imaging. First, MRI is indicated for pregnant women if other non-ionising imaging is inadequate or exposure to ionising radiation is required. Secondly, no adverse effects on foetal growth or development have been reported to date. Third, the biological effects of MRI are still uncertain during pregnancy. Fourth, the use of MRI should be limited in the second and third trimesters of pregnancy at a specific absorption rate of less than 3 W/kg. Fifth, gadolinium-based contrast media are not recommended because they cross the placenta and enter the fetal circulation within seconds after intravenous injection.
Collaboration between diabetologists, vascular surgeons and radiologists can help control diabetes

By Edna Astbury-Ward

Vascular imaging is essential in the diagnosis, monitoring, planning and assessment of treatment for diabetic patients with peripheral arterial disease, and to improve the clinical outcome for patients, every radiologist should be familiar with the acquisition technique and the full range of possible pathological diabetic alterations, according to Dr. Roberto Iezzi, from the bio-imaging and radiological sciences department at the A. Gemelli Hospital in Rome.

PAD in diabetes has a specific pattern, and is a major risk factor for lower extremity amputations, although diabetes may be only one of the factors predisposing the development of atherosclerosis, with smoking, hyperlipidaemia and other hereditary factors perhaps being involved, he noted.

“When imaging the peripheral arterial tree in diabetic patients, it is important that visualisation is from the abdominal aorta down to and including the foot, because of other common findings in diabetes such as Monckeberg’s medial calcification,” he pointed out. “Modern imaging techniques play a major part in the assessment of diabetic patients with foot problems, and the interventional radiologist has a significant role in their management.”

Early diagnosis allows up to 80% of patients with critical limb ischaemia to have an adequate surgical or endovascular revascularisation procedure, thus preventing primary amputation and allowing healing of ischaemic ulcers.

During today’s refresher course, Iezzi will explain why close co-operation between the diabetologist, vascular surgeon and interventional radiologist is essential to maximise the chance of a successful outcome. The treatment of critical limb ischaemia by surgery or endovascular techniques has reduced the primary amputation rate to below 20% in dedicated specialist vascular units, but he cautioned that it is important not to confuse neuropathic pain with ischaemic rest pain. Critical limb ischaemia should be recognised for what it is, and should be treated early and aggressively to preserve the limb. Whilst patients with neuropathic ulceration may be managed conservatively, with a 90% chance of healing, neuroischaemic ulcers rarely heal unless the blood supply is improved.

Using colour duplex ultrasound for this purpose can be inexpensive and safe because it is easy to perform, portable and widely available. It combines cross-sectional imaging of arteries with simultaneous colour flow and spectral Doppler information. This allows accurate recording of velocity changes at specific sites within the vessels, and detection of haemodynamically significant stenosis.

Prof. Erich Minar, a diabetes specialist at the Weiner Privatklinik in Vienna, emphasises that good patient education is essential to the management of diabetes, and should include knowledge about the disease, nutrition, exercise, adherence to medication, lifestyle changes and potential long-term complications and their association with glycaemic control.

“Knowledge of complications such as diabetic retinopathy, nephropathy, neuropathy and vascular complications, including the special problems of the diabetic foot, is essential to encourage compliance with treatment,” he commented.

At this morning’s course, Minar will explain how the use of whole-body MR angiography can be used to obtain comprehensive vascular imaging for risk stratification and treatment planning in patients with metabolic syndrome. Currently, MR spectroscopy (MRS) shows promise, and has become a valuable non-invasive research tool to investigate metabolic changes in the liver. Another promising technique is 18-fluorodeoxyglucose positron emission tomography, which can provide in vivo insights into the metabolic variables of adipose tissue.

“In patients with diabetes, the classic development of peripheral arterial disease from an asymptomatic stage to clasification and critical limb ischaemia is often lacking due to polyneuropathy,” he stated. “Critical limb ischaemia can develop without previous claudication, which is why early diagnosis of severe vascular lesions, especially in the lower leg and foot arteries, is essential in order to reduce the outcome of long-term PAD complications.”

By identifying a patient with subclinical disease and instituting preventative measures, it may be possible to avoid acute, limb-threatening ischaemia, he added.

Minar hypothesises that glycaemic control may play a greater role before macrovascular disease is well developed, and may play a minimal or no role at all when it is advanced. Improving patient understanding of diabetes is not always easy because the development of diabetes is not a static condition and it may begin with discreet metabolic syndrome symptoms and end with manifest diabetes. This puts added emphasis on the importance of starting cardiovascular risk reduction at an early stage.

Furthermore, control of the individual components of the metabolic syndrome, especiallyatherogenic dyslipidaemia, hypertension, hyperglycaemia and proinflammatory state, can be crucial. Appropriate management of metabolic syndrome and improved diagnosis using early screening modalities should prevent progression from impaired glucose tolerance to manifest diabetes and thus vascular disease in general.
Radiographers’ role extends to spinal trauma interpretation in the U.K.

By Edna Astbury-Ward

The ECR’s popular and longstanding series of radiographers’ sessions gets underway this morning with a refresher course about radiography as a profession and a science.

Role extension remains a controversial issue across Europe. This means there is likely to be plenty of interest in the lecture about how radiographers’ image interpretation of a trauma spine can assist clinicians in their diagnosis of injuries. The talk will be given by Ms. Cheryl Patrick, from the x-ray department, Poole Hospital NHS Trust, U.K., and she intends to look at basic image interpretation of the cervical, thoracic and lumbar spine following trauma, covering anatomy, mechanism of injury, common fractures and soft tissue signs. By refreshing knowledge and pattern recognition and recognising normal and abnormal anatomy, she hopes to inform, educate and entertain both general radiographers and junior doctors.

“Diagnosis of a spinal injury following trauma and its subsequent management is extremely important. For the cervical spine, most hospitals request a standard three-view plain film series of radiographs, an AP (anteroposterior) view, a lateral view and a ‘pog’ view. For the thoracic and lumbar spine, AP and lateral views are required.”

To adequately assess a patient’s spine, radiographs must be of a good diagnostic standard and the medical staff treating the patient must be able to evaluate and correctly interpret the radiographs. Traditionally this has been the responsibility of accident and emergency clinicians, but the majority of emergency patients are clinically examined and treated by more junior doctors, who are relatively inexperienced at image interpretation, she commented. Whilst a diagnosis is rarely reached on image interpretation alone, radiographers can greatly assist in this area.

For many years, U.K. radiographers have used a system commonly known as ‘red dot’ in order to identify to the referring clinician that an abnormality has been recognised on a radiographic image, Patrick explained. More recently, this has evolved into a comment system, whereby the goal of the Society of Radiographers (SoR) is to enable radiographers to review a trauma radiograph and make either a verbal or a written comment. This is not a definitive report because the radiographer would have to complete a postgraduate qualification to provide such feedback, but it is a rather written indication that the radiographer has identified an abnormality. This system acknowledges radiographers’ experience in recognising abnormalities, and it provides useful support to clinicians and is of significant benefit to patient care.

To undertake such a system, national guidance is provided by the SoR with the support of the Health Professions Council, although nationally it is difficult to determine exactly how the current scope of practice is implemented, and this remains under review. Accredited local courses are available in basic image interpretation, along with in-house training and audit.

“It can be seen how radiographers’ roles are developing in this area and how valuable a radiographer’s knowledge and image interpretation expertise can contribute to a patient’s care pathway in the accident and emergency department,” she said. “This is particularly important with an injury such as a spinal injury, where a missed, wrongly interpreted or delayed diagnosis may cause consequences detrimental to the remainder of the patient’s life.”

In the other lecture at this morning’s session, Dr. Michael Ward, associate dean for student programmes and professor at the Goldfarb School of Nursing in Barnes-Jewish College in St. Louis, Missouri, U.S., will present findings from a variety of countries about how the operator-clinician relationship in radiography is often influenced by cultural and religious norms. He plans to put this issue in context through a cross-cultural imaging lens.

Optimal images are dependent both on an operator’s skill and client compliance, and he will explain that this can be difficult to achieve within the physical environment of a radiology department and can also be impeded by cultural expectations and cultural conflict. Western societies that stress individual rights tend to focus on health practices that are embedded in this world view, such as the requirement for informed consent and maintenance of confidentiality of patient information. In contrast, more hierarchical cultures often defer to elders for decision-making, whereas communal cultures may involve community leaders in a shared decision-making process.

Gender and religious issues may also affect the provision of imaging services. Same gender care is a requirement within some cultural groups, and growing procedures that maintain cultural values are often necessary. Furthermore, in many developing countries radiation still has mystique and fear associated with it, affecting participation in screening programmes and recruitment to medical radiation technology educational programmes.

Further Reading (Provided by C. Patrick)


Come to the Goldfarb School of Nursing and see the orthopaedics department and can also be impeded by cultural expectations and cultural conflict. Western societies that stress individual rights tend to focus on health practices that are embedded in this world view, such as the requirement for informed consent and maintenance of confidentiality of patient information. In contrast, more hierarchical cultures often defer to elders for decision-making, whereas communal cultures may involve community leaders in a shared decision-making process.

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Further Reading (Provided by C. Patrick)


Image of lateral C-spine shows fracture of the odontoid peg with posterior displacement and fracture of the posterior arch of C1. (Provided by C. Patrick)
Imaging becomes established as number one tool in staging pancreatic diseases

By Milena Souza Roeger

Although small, the pancreas is a complex gland, with frequent pathologies that can be lethal due to rapid spread to neighbouring organs like the liver or the stomach. Radiology plays a key role in the early detection and characterisation of pancreatic pathology, and several issues are open concerning the best imaging strategy, which highly influences treatment.

Experts will focus on these points by offering the latest updates on pancreatic imaging during a dedicated two-day mini course that begins this morning.

Pancreas inflammation or pancreatitis is a very common condition worldwide, mostly caused by biliary lithiasis and alcohol abuse. It impacts the organ’s functions and can lead to diabetes, exocrine function impairment, infection, pseudocyst formation, and extrapancreatic parenchymal and vascular complications.

Diagnosing and characterising inflammation before these complications arise is crucial, and experts distinguish several degrees of severity in both chronic and acute pancreatitis. For the latter, a potentially life threatening condition, being able to stage the degree of severity helps guide therapeutic decisions. The advances made in CT have made this possible, and the CT-based severity index has become the main prognostic method to predict outcomes. A comprehensive classification system recognises not only necrosis but also other morphologic findings that are precious to the treatment of acute pancreatitis.

“It is important that radiologists are aware of this classification and how we can deal with this. Imaging is able to provide the relevant information up to the best standards of care for the patient,” said Filipe Castro-Alves, Professor of Radiology at Coimbra University, who will coordinate the course.

Imaging equally enables the staging of chronic pancreatitis, either for the grading of the disease, to disclose the aetiology or to differentiate a focal mass from ductal adenocarcinoma. Based on differential diagnosis, medical treatment or surgical intervention can be chosen.

CT and especially MR are increasingly used, with the benefit of being minimally invasive. MR, combined with a secretin test and diffusion-weighted imaging (DWI), is able to give a non-invasive assessment of pancreatic exocrine function, a precious piece of information for the clinical assessment of pancreatitis.

Inflammation may trigger other complications, including fluid collections and pseudocysts, vascular complications, and stenosis of the common bile duct and pancreatic duct. Interventional radiology (IR) procedures, side-by-side with endoscopic retrograde cholangiopancreatography (ERCP), have become effective tools to treat these patients. As it is less invasive than surgery, IR also has better morbidity results and helps to avoid superimposing infection, the major risk of fluid collection management.

“IR is very competitive and can have a huge impact on the management of fluid collection or vascular complications, by providing intra-arterial embolisation, dilatation and/or stenting,” said Professor Castro-Alves, whose department carries out a total of 7,000 IR procedures per year.

Multidetector CT (MDCT) is the standard imaging modality used in the diagnosis of adenocarcinoma, the most common cancer encountered in the pancreas. MDCT helps to determine whether the tumour is resectable or not, mainly by checking whether it does not involve arterial vessels, in which case it can be surgically removed. In the opposite scenario, doctors will opt for a neoadjuvant treatment based on chemotherapy/radiotherapy.

For surgery, the current trend is to refer patients to sites with very experienced teams capable of performing venous reconstruction, in patients possessing the so-called borderline resectable tumour.

“Evidence seems to point to the use of very experienced surgical teams, who obtain far better morbidity and mortality rates,” he said.

Today, molecular classification of tumours obtained from pathologic specimens will also assist in the surgical decision making for patients with these types of tumours.

Radiology now enables the assessment of tumour response to treatment. Position emision tomography combined with CT (PET-CT) can provide information about the metabolic status of tumours that may appear identical from a morphological point of view. MR, combined with DWI, can act as a biomarker for tumour aggressiveness, and monitor response to treatment by quantification of the diffusion coefficient value (ADC). Lower ADC values before or after neoadjuvant treatment mean an increased cellularity and/or lack of response, which helps therapy efficacy to be judged. CT however tends to be more widely used than MR.

“In spite of the multifaceted information provided by state-of-the-art MR equipment, it is still used less to assess pancreatic adenocarcinoma when compared with MDCT,” Castro-Alves said.

Experts will show how to critically appraise the papers dealing with pancreatic carcinoma while presenting the evidence provided by literature, and try to extract guidelines.

Last but not least, the course will also focus on cystic tumours, another frequent condition encountered in the pancreas. The role of ultrasound is mandatory in their detection, and contrast-enhanced ultrasound enables the gathering of information about vascularity on solid components. Nevertheless, patients still need to be re-examined, especially by MR, which provides additional diagnostic information using, among others, MR cholangiopancreatography (MRCP).

MR of pancreatic head adenocarcinoma. The T2 as sequence (A) shows a peer signal to noise ratio, making the tumour less conspicuous when compared with the diffusion-weighted imaging (B) where, due to restriction of intramolecular movements of extracellular water, renders the tumor nearly appreciated with high signal intensity (b=600 s/mm²). (Provided by F. Castro-Alves)

Adenocarcinoma at the pancreatic head: the tumour causes tethering of the SMV with a preserved fat plane regarding SMA. Although versus resection is sought this tumour should be considered borderline resectable using surgical versus non-surgical reconstructions. (Provided by F. Castro-Alves)
The increasing reliance on imaging information for decision making has left radiologists wondering whether a standardised report system would help promote a consistent style of writing. It is the permanent record of the imaging examination, and is also used as the basis for decisions about further treatment of the patient. The wording of these reports, and the way in which they convey the information, is crucial—because the patient's future management depends on what is written in the report. The ESR (European Society of Radiology) has long been at the forefront of efforts to standardise radiological report writing.

The rising levels of exposure, and the number of radiological reports, have led to a debate on how to make paediatric and diagnostic imaging better. The issue. Proponents see many advantages in consistency of approach, and think that radiologists and referring doctors become familiar with the format they will see. Up to now, radiologists have been divided on the issue. There are many advantages in consistency of approach, and think that radiologists and referring doctors become familiar with the format they will see. The trend towards standardisation could also help minimise variation in the way radiologists and referring doctors become familiar with the format they will see. Many fear that nuances that are easily expressed in free text will be lost. Others, who are used to writing in a very individualistic style, find that this banality of language is often a nuisance. It is important that the right balance is achieved between clarity and readability (without sacrificing the nuances of language). A written report is one of the major ways a radiologist communicates with the doctor who requested the investigation. It is the permanent record of the imaging examination, and is also used as the basis for decisions about further treatment of the patient. The wording of these reports, and the way in which they convey the information, is crucial—because the patient’s future management depends on what is written in the report.

Radiologists are becoming more and more aware of how reports should be constructed so that they best convey the information clearly and accurately, and in a way that can be understood by all. They are also becoming more aware of the need for standardisation of reports. The structured report, presenting the information in a more standardised format compared with traditional free text, will be debated.

Up to now, radiologists have been divided on this issue. Postgraduate training gives an advantage in consistency of approach, and think that radiologists and referring doctors become familiar with the format they will see. Many fear that nuances that are easily expressed in free text will be lost. Others, who are used to writing in a very individualistic style, find that this banality of language is often a nuisance. It is important that the right balance is achieved between clarity and readability (without sacrificing the nuances of language). The trend towards standardisation could also help minimise variation in the way radiologists and referring doctors become familiar with the format they will see. 

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The growing demand for medical imaging stu- dies has led to an increase in both investigations and the number of radiological reports. Because images are now often captured digitally, they can potentially be read anywhere in the world, regardless of where they were taken, creating a disconnection between the sites of acquisition and interpretation.

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Developers of CT systems put renewed emphasis on patient safety

By John Bonner

If you were to ask any CT product specialists the role of CT in the hospital; it becomes much more useful as a screening tool and in the diagnosis of pediatric conditions, “he said.

The main vendors have come to realise that for 20 years, all developments in CT were focussed on patient safety. “There was a lot of attention on the hardware, improving the efficiency of the x-ray tubes, etc., but nobody was looking at the computer part”

In 2006, GE demonstrated ASIR (adaptive statistical iterative reconstruction), which created an iterative reconstruction algorithm that achieved high quality images without the need for impractically large computing resources. Its Veo technology takes this a step further, and it is a fourth generation system that can reconstruct images using raw data rather than image data. It offers opportunities for imaging at even lower doses.

“The power of technology, the key feature is its flexibility,” observed Jamie Valliant, head of global product marketing for Philips CT. “If your ultimate goal is to reduce dose in, say, a pediatric patient, then we can reduce it by up to 80% and still get equivalent diagnostic image quality to what we have today with other systems. For other studies, the radiologist may need a little better image quality and dose performance that you need for the specific study that you are doing.”

Philips has looked at another aspect of CT that has generated concern over safety: the use of contrast media in patients with impaired kidney function. Along with Medrad, it has developed an interface that allows communication between the scanner and the injector device. “By sharing information between the scanner and the injector, we can simplify injection protocols to optimise the performance of the system and get much improved image quality by personalising contrast agent injections,” Valliant said.

Hitachi Medical’s is demonstrating its new platform, the Aquilion 64-slice system, for the first time in Europe at ECR. It includes the company’s own version of raw data iterative reconstruction, Intelliflux. The machine also features a number of other dose reduction technologies, including the cardiac examination tool Intelligence, which has a lateral view interface.

“This technology centres the target by laterally sliding the patient table and concentrating x-ray exposure only to the heart using cardiac ‘bow-tie’ technique,” explained Ken Fujimori, marketing manager for CT. “Another new feature is the Intelligence (CNR) function. This is the first technology developed for CT systems that optimises the dose level based on tissue contrast. Using the original tissue identification data, the effect of dose reduction becomes greater, especially for those patients with a small body size or when the voltage used is lower.”

At ECR, Toshiba is introducing Aquilion PREMIUM, a 160-slice multidetector CT scanner. The company is showcasing the system at booth 4150 on Expos C level. Compared to conventional scanners, the unit can reportedly lower the needed dose by up to 50% and the radiation dose by up to 75% by processing images iteratively. Also, it incorporates a collimator that aims to minimise the effects of helical over-rangiing and reduce patient dose by blocking out excess exposure at the beginning and end of an examination. Reconstruction of up to 50 images can be performed in parallel to high-speed technology, which results in the ability to be available for review before the patient leaves the examination room. The 781 mm wide bore in the helical gantry is 68mm longer than its predecessor, which can improve patient access and positioning, especially for critically ill patients and for interventional procedures.

The scanner also has dual energy and lung volume measurement capabilities. Dual energy can increase the amount of information about the tissue composition by applying a x-ray at two different energies. This technique minimises exposure to radiosensitive organs such as the breasts and eye lens to provide safer examinations, according to the machine’s lung volume measurement automatically detects and measures areas in the lung of low attenuation, indicating areas of emphysema. Total lung volume and low attenuation volumes are calculated and displayed in 3D.

In November 2010, the Aquilion PREMIUM was installed in the radiology department of Roede Kraan Ziekenhuis (Red Cross Hospital). Beverwijk, the Netherlands, a general hospital with a specialist burns unit. Another machine has been installed at Mount Elizabeth Hospital in Singapore.
The ESR is proud to announce the launch of the European Diploma in Radiology (EDiR); a brand new qualification that will provide General Radiologists with an objective, ESR-endorsed test of their ability. All parts of the examination will be held in English but non-native language skills will be taken into consideration by the oral examiners.

The first examination will take place at ECR 2011, on Monday, March 7, in Vienna.

Information at www.myESR.org/diploma
Hospital Management Symposium
The Future of Radiology
presented and organised by ECR 2011 and European Hospital

Saturday, March 5, 14:00-18:30, Room Q
Moderator: Prof. Michael Friebe, Director of the Institute of Radiology and Neuroimaging, Essen/DE

14:00-14:15 Welcome address and introduction
Prof. Yves Menu, ECR 2011 Congress President

14:15-15:30 Session 1 Challenges of radiology in turf battles
Hospital Management
Prof. Jörg Debatin, Medical Director and CEO, University Clinic Hamburg/Eppendorf, Hamburg/DE
Radiology
Prof. Monika Kiessling, Chair of the Department of Diagnostic Radiology, Experimental Molecular Imaging, Chair of the Department of Radiology, University of Aachen (RWTH), Aachen/DE

15:30-16:45 Session 2 What can we do about the lack of young radiologists in Europe?
Hospital Management
Dr. Harald Böhm, Medical Director and Managing Director, AMK, Luz/AT
Radiology
Prof. Jarl Jakobsen (MHA), Consultant Radiologist, Department of Radiology and Nuclear Medicine, Rikshospitalet, Oslo University Hospital, Oslo/NO

17:00-18:30 Session 3 Prospects: Radiology is on a most advanced pathway in molecular imaging
Radiology
Prof. Nicolas Gervier, Hospital ServiceChief at Service d’Imagerie Diagnostic, Université Libre de Bruxelles, Groupe Hospitalier Pitie Salpetriere, Paris/FR

Saturday, March 5, 2011
ECR TODAY 2011

8th Hospital Management Symposium at ECR 2011: the future of radiology

Although challenged by turf battles and a lack of young radiologists, the prospects for molecular imaging are bright.

What can we do about the lack of young radiologists in Europe?

ECR 2010 Congress President Professor Malgorzata Szczerbo-Trojanowska will discuss the background to this shortage and suggest ways to avert this occupational crisis. In an interview conducted by European Hospital, ECR’s organiser for this symposium, she addressed some of these problems.

Malgorzata Szczerbo-Trojanowska: “The reasons for a lack of junior radiological staff are manifold. One is that radiology is increasingly becoming a sophisticated discipline covering the whole field of medicine. This means we must continuously expand our clinical knowledge to become equal partners with our clinical colleagues. Moreover, imaging procedures can increasingly be divided into additional areas, such as molecular, cellular, genetic or functional applications. Nearly 70% of these imaging procedures performed by young radiologists did not exist 10 years ago. The introduction of new imaging technologies incited the great demand for radiological services. Statistics show that the number of imaging procedures performed in in-patient and outpatient departments is increasing by more than 10% every year. This leads to a tremendous workload resulting in an urgent need for more radiologists.”

European Hospital: “Aren’t most of the techniques carried out automatically? MIST: Yes, but this makes the situation even worse. Today, with automatic sectional imaging techniques, we acquire hundreds of images every five minutes. We are trapped in a kind of vicious circle, having more and more data to analyse and fewer experts to read them, extract vital information, and draw relevant conclusions. Therefore, the main shortage is not of radiologists, but of radiological experts. It has been discussed that imaging procedures can increasingly be divided into additional areas, such as molecular, cellular, genetic or functional applications. Nearly 70% of these imaging procedures performed by young radiologists did not exist 10 years ago. The introduction of new imaging technologies incited the great demand for radiological services. Statistics show that the number of imaging procedures performed in in-patient and outpatient departments is increasing by more than 10% every year. This leads to a tremendous workload resulting in an urgent need for more radiologists.”

European Hospital: “Isn’t it a natural consequence of the increasing number of these imaging procedures?”
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Malgorzata Szczerbo-Trojanowska: “The reasons for a lack of junior radiological staff are manifold. One is that radiology is increasingly becoming a sophisticated discipline covering the whole field of medicine. This means we must continuously expand our clinical knowledge to become equal partners with our clinical colleagues. Moreover, imaging procedures can increasingly be divided into additional areas, such as molecular, cellular, genetic or functional applications. Nearly 70% of these imaging procedures performed by young radiologists did not exist 10 years ago. The introduction of new imaging technologies incited the great demand for radiological services. Statistics show that the number of imaging procedures performed in in-patient and outpatient departments is increasing by more than 10% every year. This leads to a tremendous workload resulting in an urgent need for more radiologists.”

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Michael Frieb be gained his undergraduate degree in electrical engineering (Dipl.-Ing.) at the University of Applied Sciences in Stuttgart and his medical physics doctorate at the University of Witten, both in Germany. He also gained a Masters in Management from Golden Gate University in San Francisco.

Born in 1956, Nicolas Grenier is Professor of Radiology and Chief of Service d’Imagerie Diagnostique et Interventionnelle de l’Adulte at Groupe Hospitalier Pellegrin, Bordeaux, France. He is also a Member of the Laboratory of Molecular and Functional Imaging, CNRS, University Bordeaux Segalen.

Prof. Grenier is a member of the Société Française de Radiologie (SFR), Groupe de Recherche sur les Applications du Magnétisme en Médecine (GRAMM), the European Society of Radiology, and the International Society for Magnetic Resonance in Medicine (ISMRM), and Past-President of the European Society of Uroradiology (EUSU). A specialist in vascular radiology, uroradiology and ultrasound, he lists his main research interests as functional MR imaging of the kidney, molecular imaging of the kidney and interventional MRI using HIPI.

Molecular Imaging between hype and demand for change

Molecular imaging (MI) represents an unavoidable future of imaging, because MI is able to characterise cellular and molecular processes and will serve as a guide for new targeted or personalised therapies. However, MI appears to be hype for many radiologists because it seems to be too far removed from clinical practice. In reality, MI is already among clinical practice using PET and targeted probes. But radiologists are often excluded from these developments and they see the introduction of MI into radiological techniques on the far horizon. This is the reason why MI, although fascinating, is a source of frustration.

Nowadays, young radiologists attracted by this discipline have the chance of focusing on pre-clinical developments in laboratories and moving to nuclear medicine practice, which is separated from radiology in most European countries. What are the solutions for our younger generation? Merging of both disciplines, a tendency justified by the development of hybrid imaging systems; a project of cooperation between both disciplines for translating MI developments – using hybrid systems – into clinical applications; or a wait-and-see position until developments reach their own horizon.

Without any clearly defined policy, MI will remain attractive from an intellectual point of view but will also remain as hype for most of our community. It seems necessary that MI be increasingly linked to the direct provision of therapies and possibly be more organ/disease-specific, which could positively influence the attractiveness of the profession if coordinated well with the therapy specialists.

OSMAN RATIB is a Professor and Chairman of the Department of Radiology at UCLA. He was responsible for coordinating the deployment of an enterprise-wide strategy and infrastructure for image management and communication. In July 2005 he returned to Geneva to take the position of Head of Nuclear Medicine responsible for new molecular and functional imaging techniques and, in particular, hybrid PET-CT.

In January 2007 he was appointed Chairman of the Department of Medical Imaging and Information Sciences. In his current position he is responsible for six clinical divisions including radiology, neuroradiology, radio- oncology, nuclear medicine and medical informatics, as well as a cytolab and pre-clinical imaging unit. He is a founding member and President of the OnsX foundation, a non-profit organisation for the promotion of open-source software in medicine.

Emergence of hybrid PET-MR: first clinical experience

Whole-body hybrid PET-MR scanners are emerging onto the market and are expected to have a significant impact on diagnostic imaging, particularly in oncology applications but also in other clinical domains such as cardiology, inflammatory and infectious disease, as well as in neurological applications.

A whole-body hybrid PET-MRI imaging unit was implemented at the University Hospital of Geneva and tested against PET-CT imaging for diagnostic and follow up of oncology patients. The whole-body PET-MR scanner, consisting of a 3T MR and a time-of-flight PET scanner, sharing a single bed, allowing sequential acquisition of co-registered 3D PET and 3D images, was evaluated clinically in patients referred for diagnostic PET-CT study. PET-MR images were acquired following standard clinical PET-MR studies.

Oncological studies included lymphomas, head and neck tumours, prostate and breast tumours and lung and colon cancers.

Optimised imaging protocols were developed combining whole body MR attenuation correction data sets with standard MR diagnostic protocols of both modalities while reducing the total time of the study. The diagnostic quality of fused PET-MR images was comparable to corresponding PET-CT images and measured local SUV were also comparable. The advantages and limitations of this new technique compared to results obtained from conventional PET-CT technique will be reported.
Molecular Imaging: Challenges for the Young Generation at the Dawn of Clinical Translation

Molecular Imaging (MI) emerged in the early twenty-first century as a discipline at the junction of molecular biology and in vivo imaging to enable the visualisation of the cellular function and the follow-up of the molecular processes in living organisms. Modalities available for MI encompass MRI, CT and Ultrasound, PET and Optical Imaging, and are by nature frequently experimental. Yet, to meet the demands of the 21st century imaging, translation into clinical practice is central to enhancing the new developments in personalised medicine. Dynamic imaging techniques were among the first leading the way to MI and today are among the first on the verge of entering clinical routine – but still with challenges ahead.

Earlier this year our centre joined the Cluster Excellence Initiatives (MfB3) of the German Ministry of Education and Research (BMBF) to meet some of these challenges. The project aims at bridging the gap between accomplished experimental studies of recent years and clinical translation in a comprehensive two-phase approach towards standardised clinical studies. At the dawn of personalised medicine, interdisciplinary scientific and industrial co-operations were forged to meet the demand for a standardised and validated approach to the different dynamic imaging techniques. DCE imaging may function as a trailblazer for the establishment of functional imaging techniques in clinical radiology, complementing established metabolic imaging techniques like PET. Basic principles of MI must be spread among the younger generation of radiologists as a future pillar of radiology training programmes, in order to translate fundamental research discoveries into broad medical application and health benefits within the coming years.

Since 2008, Professor Dr. Fabian Kiessling has been leading the Institute of Experimental Molecular Imaging at the Helmholtz Center of Applied Engineering of the RWTH University in Aachen. The aim of his research is the development of novel diagnostic probes and imaging tools for disease-specific diagnosis and therapy monitoring. In this context, the main focus is on the investigation of angiogenesis-related processes.

Fabian Kiessling studied Medicine and did his thesis at the University in Heidelberg. Until the end of 2002, he worked as a resident in the Department of Radiology at the German Cancer Research Center (DKFZ) in Heidelberg. In 2003 he moved to the Department of Medical Physics in Radiology of the DKFZ as leader of the Molecular Imaging group. In parallel he did his clinical training at different Departments of the University of Heidelberg and received board certification as a radiologist in 2007. Fabian Kiessling did his habilitation in experimental radiology in 2006.

He is the author of more than 100 publications, has received many research awards, including the Emil Salzer Prize for Cancer Research and the Richtzenhain Prize. Shortly after his move to the RWTH-Aachen University he co-founded invivoContrast GmbH together with Professor Matthias Bräutigam, which distributes diagnostic probes for the pre-clinical market.

The role of molecular imaging within the future diagnostic concept: Molecular imaging is reported as an increasingly important diagnostic field for radiologists to focus on. However, molecular imaging should not be considered to be a new discipline that only adds to today’s clinical practice or that even may replace the traditional, more morphology-oriented diagnosis. Rather, the whole diagnostic concept should be re-considered. Since today we know about important molecular, physiological and morphological characteristics that determine the aggressiveness and treatment responsiveness of diseases, one has to develop imaging strategies that are particularly focused on the key parameters with the highest diagnostic impact, independent of whether these are molecular, functional or morphological. This means, future radiologists need to understand and know the reasons for disease development and the pathophysiological processes that go along with the pathology down to the molecular level. The same applies for the effects of treatments.

In this context, the response of a pathology to a molecular therapy (e.g. using targeted antibodies), will often be assessed earliest and with most sensitivity if its primary effect on the target cells is cached. Functional or morphological effects usually occur at a later stage.

Therefore, it is mandatory to closely connect the development of therapeutics to the development of diagnostic probes and to the development of appropriate imaging concepts. However, such a disease-related diagnostic concept will certainly not work without molecular imaging and will be a pre-condition for the successful clinical translation of personalised medicine.
Advanced e-learning at ECR 2011 with ePACS

By Dr. Peter Pokieser, Medical University Vienna, Austria

For the fifth time, ePACS is again encouraging ECR participants to expand and deepen their radiological knowledge, by providing case collections and structured expert reports for self-directed learning at the meeting (Abb1).

ePACS is a radiological e-learning project developed at the Medical University of Vienna (MUV) with the support of the European Society of Radiology. It combines an electronic patient record with collaborative design (Unified Patient) with a Java™-based DICOM viewer (by Tiani-Spirit) for a browser-based learning environment.

For 2011, new cases have been added and two new collections will be presented: ‘Foetal MRI Imaging’ and ‘Critical Care Chest’. The case collections will provide an opportunity to see some very instructive original cases, their clinical background and the report – just the core of our daily needs.

The following ePACS case collections are available at ECR 2011:

- Lung CT
  C.J. Herold and C. Müller-Mang; Vienna/AT
- Musculoskeletal MRI
  M.J. Breitenseher; Horn/AT and M. Zanetti; Zurich/CH
- Acute Abdomen CT
  H. Ringl and T. Moritz; Vienna/AT
- Cardiac CT
  C. Loewe, A. Stadler and F. Wolf; Vienna/AT
- Foetal MR Imaging
  G. Kasprian and D. Prayer; Vienna/AT
- Critical Care Chest
  C. Schaefer-Prokop; Amsterdam/NL

eLearning in radiology has been more successful than in other medical disciplines. The modern master tools of diagnostic radiology, PACS and RIS, are excellent eLearning tools just as they are available at the workplace. They serve as a perfect eLearning environment for the education of residents and students, and allow interdisciplinary communication with colleagues of other disciplines. Workplace-oriented eLearning with PACS is the backbone of radiological eLearning (Abb2). ePACS aims to add this component to the other sources of eLearning at the ECR, such as the PowerPoint media presentations of traditional lectures and self-directed learning through electronic posters in EPOS™ and other established ESR tools, like EURORAD or EDIPS. The different tools are complementary and in future they will merge into an ‘ESR eLearning cockpit’.

All these methods of eLearning try to contribute to modern radiological education, but depend strongly on the contributions of educators. Traditional lectures and workshops are still the dominant setting for teaching and learning at radiological meetings. To meet the experts personally and to have the instructive input of lectures, allows participants to select further materials for self-directed learning. Only about 20% of the content of a lecture can be kept in mind by the audience, depending on previous knowledge. But the stimulation by the active performance of the lecturer can lead to motivation and further learning.

ePACS can support lectures, by inducing an interactive learning process in a practical setting shortly after or before a lecture.

In a survey at ECR 2010 (Hofmeister and Hirsch), 227 ECR participants were asked about their preferred learning activities. Among different age groups, the respondents consistently estimated 10% of study time was spent with eLearning resources and the rest with journals or books and courses. Many respondents’ comments underlined the importance of personal contact with educators and the combination of courses and case collections.

Supporters of eLearning should remain patient, but the use of electronic media is growing rapidly. However, eLearning cannot replace the teacher, but can reinforce the effect of the teacher’s instructions and stimulate the student to gain deeper insights into a topic. The ePACS team tries to promote further use of routine cases and their structured reports in radiological eLearning and will be happy to welcome you to the ePACS Booth next to the EPOS Area & Lounge on the 2nd level!
Euro-BioImaging preparatory phase kicks off

By Pamela Zaffa

On December 1, 2010, the 3-year Preparatory Phase Project, Euro-BioImaging: European Research Infrastructure for Imaging Technologies in Biological and Biomedical Sciences, officially started. The project is funded under the 7th Framework Programme of the European Union.

Euro-BioImaging is one of ten Biological and Medical Sciences (BMS) Projects included in the roadmap of the European Strategy Forum on Research Infrastructures (ESFRI). The project is scientifically coordinated by the European Institute for Biomedical Imaging Research, EIBIR (Medical Imaging) and the European Molecular Biology Laboratory, EMBL (Biological Imaging), and aims to establish a pan-European research infrastructure for biomedical imaging in a coordinated and harmonised manner.

Euro-BioImaging will meet the imaging requirements of the biological and medical imaging communities by creating infrastructure facilities (‘nodes’) in many European countries under one umbrella and therefore significantly addresses the fragmentation of such efforts currently present in Europe.

The overall aims of Euro-BioImaging are:
• To bring together key research areas in biomedical imaging, stretching from basic biological and epidemiological level of medical imaging.
• To create a coordinated and harmonised plan for imaging infrastructure development in Europe.
• To provide access to state-of-the-art imaging technologies, training, and a continuous development of imaging research technologies.

2010: The Preparatory Phase Project takes shape

In April 2010, EIBIR appointed Prof. Stefan Schönberg (University Medical Centre Mannheim) as one of the two Scientific Coordinators of the Euro-BioImaging Preparatory Phase Project. In this function Prof. Schönberg succeeds Prof. Gabriel Krestin and takes responsibility for reaching the project goals. The total Euro-BioImaging Preparatory Phase consortium comprises 39 core partners and more than 100 associate partners institutions from 23 countries.

The preparatory phase of Euro-BioImaging aims to develop a plan to construct and operate a set of complementary and strongly interlinked imaging infrastructure facilities. This plan will be based on a comprehensive assessment of researchers’ needs in terms of access, service, and training. Furthermore, the legal, governmental and financial framework for the future infrastructure will be established and agreements with funding bodies will be sought. Eligibility criteria for participating facilities will be defined, an independent evaluation panel will be established, and a call for applications will be announced. Thirteen strongly interlinked preparatory phase work package groups will closely collaborate to meet the ambitious goals of the project.

Five core technology work packages will cover imaging technologies ranging from General Advanced Light Microscopy, Innovative ALM Technologies, via Molecular Imaging up to Innovative Medical Imaging Technologies and Patient and Population Imaging. The work packages will focus on surveying user requirements, conducting proof-of-concept studies and finally drawing up a construction plan for the respective imaging infrastructure. Common to all Euro-BioImaging facilities is the necessity to prepare a draft for user access to and training in the imaging technologies they intend to offer. In addition, by users’ application of any of these technologies in their research, this generates large amounts of digital image data, which creates a common need for data management, processing, and storage tools. These overarching technical objectives will be addressed by the three work packages User Access, Training and Data Storage and Analysis.

Furthermore, as a pan-European infrastructure project Euro-BioImaging will have to define the legal and governance framework under which it will be constructed and operated. Similarly crucial is the development of a finance plan in close cooperation with the national funding bodies to provide the monetary basis required for construction and operation. Based on both the legal framework and the finance plan, the key objective of the preparatory phase is to establish an overarching business concept that provides a realistic basis for the infrastructure design. These objectives will be met by the three strategic work packages Legal, Governance & Ethical Issues, Process Plan and Finance Planning.

Getting involved:
Stakeholders and Associated Partners
To ensure a comprehensive and early consultation and engagement process, and to build a community of stakeholders in the field of biomedical imaging, EIBIR and the EMBL have already hosted two Euro-BioImaging Stakeholder Meetings in 2009 and 2010. European and non-European stakeholders joined this event and seized the opportunity for interactive communication and exchange of ideas in ten work-package-related breakout sessions. The next Stakeholder Meeting will take place in January 2012.

Additionally, an internal section (WIKI) of the Euro-BioImaging website (www.eurobiomaging.eu) was established, which will serve as the central communication platform for all associated partners of Euro-BioImaging.

For further information please visit: www.eurobiomaging.eu.

EIBIR Network Member Session
Saturday, 5 March, 18:00-17:30, Room Z

Euro-BioImaging takes shape
Moderator: B. Schönberg, Mannheim/DE

General and specific aspects of Euro-BioImaging will be presented by the Scientific Coordinator and three work package leaders in order to introduce the project and to define a clear pathway for the involvement of the medical imaging community. Talks will specifically address work package related topics, but also indicate how the respective imaging community is represented in Euro-BioImaging.

• EIBIR Updates
  J. Hennig; Freiburg/DE
  • Overview Euro-BioImaging
  B. Schönberg, Mannheim/DE
  • Health Technology Assessment
    L. Sampietro; Barcelona/ES
  • Access to Innovative Technologies in Medical Imaging
    J. Hennig; Aarhus/DK
  • DK Emerging Technologies in Medical Imaging: From Patient to Population
    J. Fröske; Aarhus/DK
  • Discussion and Reception

ENCITE Session
Sunday, March 6, 10:30-12:00, Room Z

Visualisation of cell therapy meets clinical application
Moderator: B.P. Kreaint, Rotterdam/NL

The European Network of Cell Imaging and Tracking Expertise (ENCITE) is pleased to present cutting-edge developments of novel cell therapies pointing to clinical applications. Within the European community of cell imaging, this advance is of specific interest as, according to the recent developments, novel imaging tools are absolutely vital for the understanding of therapeutic effects to patients. Three examples of visualisation show promising results.

• ENCITE – a translational approach for novel cell therapy applications
  B. Alves; Turin/IT
• Visualising transplanted neural stem cells and tissue regeneration by MRI
  M. Mody; London/UK
• Imaging dendritic cell vaccinations in melanoma patients
  M. Srinivas; Nijmegen/NL
• Monitoring of SPIO labelled pancreatic islets in human liver by MRI
  M. Haji; Prague/CZ
• Discussion and exchange

EuroAIM Session
Sunday, March 6, 10:30-12:00, Room Z

Evidence-based radiology: why is evidence-based radiology crucial?
Moderators: G.P. Kreaint, Rotterdam/NL
  F. Sardanelli; Milan/IT

The experts from the European Network for Assessment of Imaging in Medicine (EuroAIM) will reply to this question. A special highlight will be the presentation of results of preliminary analysis focusing on the radiologists’ role in the production of secondary evidence, which is the best way to make impact on the whole medical world.

Abstracts of more than 3,000 published articles (1/2000 to 5/2010) were reviewed in order to select systematic reviews and meta-analyses regarding imaging and interventional procedures. About 40% of them were submitted for analysis to the members of the Evidence-Based Radiology Working Group promoted by the European Network for Assessment of Imaging in Medicine (EuroAIM).

• Applying EBM to radiology – the EuroAIM project (A-356)
  F. Sardanelli; Milan/IT
• Secondary evidence for diagnostic imaging (A-357)
  L.M. Sciorroncone; Miref/IT
• Secondary evidence for interventional radiology (A-358)
  D. Vorwerk; Ingolstadt/DE
• The ACRIN experience (A-359)
  B.J. Hillmann; Charlottesville, VA/US
• Discussion and Reception
How IT supports radiology: an overview of current developments

The information booth of the ICT Subcommittee at ECR 2011

By Peter Mildenberger, ICT Subcommittee Chairman

The introduction of digital imaging in all fields of radiology and digital workflow using RIS and PACS has led to fundamental changes in the daily work of many radiologists. Therefore, radiologists should know some fundamental facts about the underlying IT concepts.

Knowledge in this field can help in decision-making on the acquisition of new IT systems; in the evolution of workflows; in discussion with IT administrators; and in other situations. It is not necessary to become an IT expert, but to have an idea of current concepts and IT tools, which could help radiologists to improve their daily work.

The Information and Communication Technology (ICT) Subcommittee of the ESR has prepared some informative posters on different topics. These are:

- Introduction and Overview on DICOM and IHE
- Workstation Development and Multimodality Viewing
- Structured Reporting
- Image Sharing with Portable Media
- Image Compression
- Radiation Exposure Monitoring
- Learning - Overview of ESR Activities
- Integrating Teaching Files into PACS using IHE TCE
- eHealth - Developments and Initiatives in Europe

This combination of topics will provide ECR 2011 participants with current high quality information on:

- The concepts of DICOM, which is the standard in medical imaging, and IHE, which is an initiative to enhance interoperability of modalities and information
- The development of the reporting workflow, which has changed completely over the past decade, now including 3D imaging, CAD and new concepts in reporting
- Technical developments to enhance the documentation and tracking of radiation exposure; new recommendations on the use of image compression or image sharing with portable media (e.g. CD, DVD, USB Memory)
- How to use the digital infrastructure to improve activities in research and education
- The development of eHealth and influence of radiology
- An international high-level expert panel on ‘Image Compression’ initiated by the ESR.

The results of this work were accepted as an ESR Position Paper in December 2010.

There will also be a chance to meet experts in this area. Interested visitors are welcome to share their experience and expertise with the ICT subcommittee.

Visit the ICT Information Booth in Foyer A on the 2nd Level!
ESOR: Enhancing training through scholarships and exchange programmes

By Mélisande Rouger

Ever since their creation in 2007, the ESOR scholarships and exchange programmes have enabled 149 young residents from all over the world to benefit from a three-month training period at prestigious European hospitals. Recently, non-European institutions have decided to join these successful programmes, including the Memorial Sloan-Kettering Cancer Center (MSKCC) in New York and the Case Western Reserve University in Cleveland, Ohio, USA. The visiting scholarship programmes, in partnership with Bracco, as well as the exchange programmes for fellowships, in partnership with the subspecialty societies, offer a chance for trainees to gain focused experience and knowledge on specific areas that may not be readily available in their countries, and to create long-term educational links with reference centres. These programmes can also prompt the radiologists in the training centres to ask themselves why they do things in a certain way and open their horizons to new perspectives.

Professor Paul M. Parizel, Professor and Chair at Antwerp University Hospital and President of the European Society of Neuroradiology (ESNR), is a member of the ESOR committee and has been a tutor twice. He explains why these programmes are a win-win situation for both parties, and how they contribute to building an international radiological community.

ECRT: Why is it important to do training in another hospital and especially abroad?

Paul Parizel: In a very general sense, the exposure to a different way of doing things and looking at things is always beneficial to young people and trainees in general. In radiology, as in any scientific business or undertaking, there are many similarities across Europe and internationally, but there are also dissimilarities. People tend to get stuck in a certain way of doing and reporting things. But if you go to another centre, you may discover different solutions to answer a problem that are equally good, if not better.

A second important message is that different hospitals, even academic hospitals, have different points of emphasis. If one goes to a different institution, one may see other types of examination that are not so common at the place where one normally trains.

ECRT: Can young residents from other countries, even from outside Europe, gain the same benefits from this programme as those residents who usually do their training in Europe do?

Paul Parizel: I think the first time you welcome students to a hospital somewhere, you will see more. Of course, a longer period would be preferable, but that would be logistically much more difficult to organise, both financially and in terms of finding accommodation. It would also be harder for the people coming from outside Europe to get to know each other when necessary. So three months is an ideal compromise that gives the administrative and practical point of view, quite fitting. It means that if residents choose to take part in a programme for three months, they should have a specific idea of what they want to work on during this time, for instance non-invasive coronary artery imaging, advanced neuroradiological techniques, virtual endoscopy, etc. This training should ideally be targeted towards a specific goal, and people should have a good idea of what they expect out of the experience before they arrive.

ECRT: Are they given any real responsibilities during their training?

Paul Parizel: No, they are not, for the simple reason that your training is funded by the Ministry of Health and you cannot practice and take care of patients in most countries. It is a long and complex administrative process, and this is probably too big an undertaking for only three months.

They are not allowed to carry out procedures or sign reports themselves, but of course they can present when procedures are being performed and observe the reporting. When they arrive, trainees are handed a programme on the first day, a sort of guide to the hospital, to let them know what conferences they should attend, the local staff meetings they should go to, when the readout sessions with senior doctors take place and so on.

In addition, we try to involve them in a prospective study or project which they can do independently and within three months. For example, the young doctor we welcomed from India two years ago was given a prospective study on the new sequence Susceptibility Weighted Imaging (SWI), with emphasis on the technique and clinical applications. His study was published as a pictorial essay. These studies have a limited scope, but they could be worked towards an abstract for an ECR presentation or something along those lines.

ECRT: What are the benefits for any hospital in becoming a training centre for a foreign scholar?

Paul Parizel: The most important thing brought by the ESOR programmes is an international dimension, i.e. the possibility to meet people from different parts of the world. The people who have come through ESOR were very welcome in my department. Most young radiologists were very curious and eager to know them, they wanted to talk to them and compare things in their respective countries.

The benefit of having visitors is that it makes you think about why you do things in a certain way and not another. It forces you to rethink why you do things. Most residents we welcome through ESOR are very eager to learn, and they are also among the very best of their generation, so they are smart people who ask questions. When they ask you why you do things in a certain way, it is wonderful.

Then, and especially when working with younger people, one realises that radiology is a truly international discipline. Its practice may be slightly different, with different types of examinations or different diseases in other parts of the world. It is an international specialty and it makes you belong to an international family.

Perhaps it may sound a little emotional or old fashioned, but I truly believe that, if we want to build a radiological community that is truly international in Europe and beyond, this is the best way to do it. These trainees will become ambassadors to the European ideal and thought, and they will actually see that there is a benefit in working within Europe. It is a different experience than going to a European congress for a few days, this is really living in the country for three months, working within a medical community and sharing the good things and the bad things. If you do a presentation for a scientific meeting, people tend to present the best but they do not talk about the worst. However things are not always as good as they seem. If you spend three months in a hospital somewhere, you will see more.

ECRT: Would you be a tutor a third time?

Paul Parizel: If they give me the chance, yes, with pleasure. I think the first time you welcome students it is the most difficult, because you need to get everything in order. There is a checklist of things that should be taken care of. First, you should find suitable and comfortable accommodation for them, which is not so simple when it is only for three months. Second, a tutor should prepare for the arrival of the ESOR trainee in the institution: announce it to the medical director of the hospital and to the department, make sure the trainer has identification to use all the relevant programmes like PACS, organise a computer for him/her, etc.

ECRT: How easily do ESOR trainees integrate into the team?

Paul Parizel: These trainees are, like I said earlier, very smart. They usually only need a couple of weeks to get started with work. They adapt quickly to their new environment and are sociable. They have a good relationship with the rest of the team. In my experience, the first week I usually take them with me to all meetings, then a change occurs after the second week: they get more integrated in the team, develop their own network, go for a drink with the colleagues, etc. Many of my junior colleagues are still e-mailing former trainees and they keep in touch long after they are gone.
Combining art and medicine: Belgian specialist provides fascinating insights in today’s guest lecture

By Simon Lee

In recognition of his outstanding career and unique accomplishments within the world of radiology, Dr. Majda M. Thurnher from Vienna, Austria, will present the Pierre et Marie Curie Honorary Lecture ‘Beyond morphology and into physiology: newer spine imaging techniques’ at ECR 2011.

Majda M. Thurnher is Associate Professor of Radiology at the Medical University of Vienna, a position she has held since 2001. Her primary focus is on neuroradiology, especially spinal imaging, and she has shared her experience throughout Europe and the USA as a visiting professor.

“My lecture will show the evolution of spinal cord imaging from the beginning, the introduction of MR and the new imaging techniques that allow neuroradiologists to be as good as pathologists and pathophysiologists,” she said.

Thurnher was born in Pula, Croatia, and received her MD in 1989 from the Vladimír Barisic Medical University, Bijeka, Croatia. She completed a two-year residency in neurology at the General Hospital Vienna, Austria, and University Hospital Zurich, Switzerland, and went on to undertake a residency in radiology at the General Hospital Vienna. She achieved her board certification at the Medical University of Vienna in 2000 to become Attending Radiologist and then Associate Professor of Radiology at the General Hospital Vienna.

“My primary wish was to become a neurologist and I started residency at the well-known Hospital in Philadelphia and Hammersmith Hospital in London. Ghysels worked in hospitals for about fifteen years before bringing his expertise to the art world. Coming from a family of artists and collectors, he established a private radiology practice in Brussels, where he analyzes antiques and art works from a wide range of cultures, whatever their age or material – as long as they are not made of metal and are small enough to pass through a medical scanner.”

“My father is a sculptor, my mother collects ethnic art, and my brother is an art historian and publisher: For years I had been casting around for an activity which would combine art and medical imaging,” he explained. “In 2002, my friend Dr. Emmanuel Agnieszko opened my eyes to what was going on and it gave me such a shock that I left clinical work at the age of 42 and devoted myself full-time to this field of medical-cultural activity.”

Ghysels is based in Brussels, but his work has also taken him to Paris, Geneva, New York, Houston, Toronto and Hong Kong, with art specialists across the globe calling on his radiological skills and knowledge to authenticate antiques. His expertise is used to detect the methods used to make art works, what damage they have suffered, how much restoration has been done, and to expose the many tricks used by forgers to deceive not only the discerning eye of the collector but also the more commonly used methods of scientific analysis.

“This is an atypical application for radiology, which, although it is not new, has great potential for development as the number of authentic art works now being found is obviating every day and copies or fakes are invading the art market, whether in Chinese antiques. African art or pre-Columbian terracotta,” added Ghysels.

Renowned neuroradiologist looks beyond morphology in today’s honorary lecture

By Simon Lee

In recognition of her exceptional dedication to education in radiology, Professor Majda M. Thurnher from Vienna, Austria, will present the Pierre et Marie Curie Honorary Lecture ‘Beyond morphology and into physiology: newer spine imaging techniques’ at ECR 2011.

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“My primary wish was to become a neurologist and I started residency at the well-known...”

The ECR is without any doubt a great meeting, and I am honoured to have been a part of it for so many years. I have learned with each (even the smallest) job I did and I always grew and expanded my limits. I have met many extraordinary radiologists from whom I have learned a lot, and many of them have become good friends.

Neuroradiology, among others. She has delivered more than 130 invited lectures at international meetings and has been a regular member of the Programme Planning Committee for the European Congress of Radiology (ECR). She is a member of several scientific societies, including the European Society of Radiology, the European Society of Neuroradiology, the American Society of Neuroradiology, and the American Society of Spine Radiology.

“The ECR is truly a great meeting,” said Thurnher. “In the last 10 years I have been given different duties and responsibilities for the ECR and every time I have felt honoured and thrilled, but also a bit anxious to fulfill the high level and expectations the ECR has.”

HONORARY LECTURE

Saturday, March 5, 13:30-14:00, Room A

Pierre et Marie Curie Honorary Lecture ‘Beyond morphology and into physiology: newer spine imaging techniques’ Majda M. Thurnher; Vienna/AT

When you’ve checked in to ECR 2011 on www.esr.org catch up with the latest #ECR2011 news – follow us become a fan and post a photo at www.facebook.com/ESR and then check out our videos at www.youtube.com/ESR


Marc Ghysels from Brussels/BE

Marc Ghysels from Brussels/BE
In January 2010, the ESR launched a new journal called Insights into Imaging. The reasons for creating a second journal were to accompany the well-known flagship publication European Radiology, which was based on the need to find more publication space without diluting the reputation of the existing journal (as increasing the number of articles also necessarily decreases the Impact Factor). Another significant factor was the growing need for a specific platform for educational articles as well as statements and policies from the European radiological and subspecialty societies, and from the ESR itself.

As there must be a first time for everything, the young journal made its way through the process of creating an editorial board, finding reviewers, promoting its services to potential authors, processing submissions with a new online system, shaping accepted manuscripts in detail and sending them to production. Teething problems need to be taken care of, and the communication between all parties involved needs to be established on a solid basis. It may not always be easy to see as the smaller companion of a major journal, but in the end, Insights into Imaging got off to a good start and by the end of 2010, the ESR could proudly present 385 pages of high scientific content.

After this exciting year, Insights into Imaging’s Editor-in-Chief, Robert Hermans from Leuven, Belgium, looks back over the achievements so far and makes some interesting points about the present and the future.

ECRT: Are there any tips you can give to submissions?
RH: I would recommend potential authors to check the instructions for authors, which can be found on the journal’s website (www.i3-journal.org) – it is important to follow them. Reviews or pictorial essays on any topic related to radiology are considered. Insights into Imaging also considers manuscripts dealing with non-clinical aspects of medical imaging, such as management, audit, radiation exposure, best practice, etc.

ECRT: How is the cooperation with the Editorial Board? Was it hard to get people involved in a completely new project?
RH: I’m happy to have the support from an active Editorial Board, who give me valuable advice. Many members of this board are very helpful in reviewing submitted manuscripts. The enthusiasm from the board clearly reflects the need that exists for such an education-based journal.

ECRT: How is the general feedback from authors?
RH: In general, the feedback is very positive. On average, the review time of submitted manuscripts is short, and, as already indicated, the quality of the reviewers’ work is high. Also, once accepted, the time to publication is quite fast. These are all factors that are greatly appreciated by authors. Furthermore, the online format makes the journal very flexible – somewhat longer or more richly illustrated manuscripts can be published in a full version, and even complementary digital material, such as movies, can be added.

ECRT: Is it a problem that Insights into Imaging is not PubMed-indexed yet? When will that happen? How can Insights into Imaging be found now?
RH: All ESR members have free access to the journal, via myesr.org. Articles published in Insights into Imaging can also be retrieved via Google and other search engines, but not yet via PubMed. Inclusion in PubMed requires a formal application that is only considered if continuous quality and reliability with regards to timely publication is proven. We will apply for inclusion in PubMed in the near future, as I anticipate these conditions will be considered fulfilled. Once included, articles published in our journal will become more easily retrievable. This will increase the likelihood that other authors will cite these articles, which is important for acquiring an impact factor.

ECRT: What is the relationship between Insights into Imaging and European Radiology? Is it hard to be compared with the ‘big one’? What makes Insights into Imaging unique?
RH: The publication strategy of the ESR journals is discussed at regular intervals within the Editorial Boards of both journals, as well as in the ESR Publication Committee. While European Radiology aims to publish cutting-edge scientific articles, the focus of Insights into Imaging is on educational articles. Furthermore, as said, Insights into Imaging also incorporates original articles in the field of audits and standards of practice, and guidelines, recommendations and policy statements from the ESR as well as associated radiological societies. So both journals can be regarded as being complementary to each other.

To get more information on the journal please visit the Insights into Imaging Booth close to Foyer E on the entrance level. And enjoy your personal copy of the Special ECR 2011 Print Issue, which you will find in your congress bag.
ESGAR promotes further cooperation and interaction

By Yves Menu, ESGAR President

Having the opportunity to be Congress President of ECR 2011 is a great honour. But every ECR President has another home, namely a subspecialty society, and I am proud to write to you about mine, which is ESGAR.

The European Society of Gastrointestinal and Abdominal Radiology (ESGAR) is led by simple and efficient principles, namely quality, evaluation, interactivity, multidisciplinarity, communication and friendship. The first one is quality, and this applies equally to science and education. All the delegates who attended the previous annual meeting unanimously recognize that the content of the meeting is outstanding.

Quality

Quality also applies to other activities of the society, like the CT colonography and liver imaging workshops. This is not by chance. This is because the local organizing committees, in conjunction with the ESGAR Programme Committee, build an attractive programme taking into account the hottest topics within the subspecialty. This is also related to the endless efforts of the groups that build the workshops, which are very successful. Because quality starts with education and training, ESGAR has been working on a re-evaluation and modernization of the European Training Charter, and has created a working group in order to constantly remodel the means and goals of education. We have developed a new concept of ESGAR Fellowship, which more-or-less defines what an abdominal subspecialist is. Quality is finally related to our second principle, which is evaluation.

Evaluation

We have developed a very comprehensive system in order to collect the delegates’ feedback and remarks. All scores and opinions are carefully examined and decisions are applied to future meetings. However, evaluation is only a dead end unless it is associated to our third principle, innovation.

Innovation

We constantly propose new features, test new ways of teaching and try all sorts of new ideas. The workshops are places where innovation is an engine. Taking more advantage of technology can also be tremendously useful, like providing education material online, encouraging inter-net discussions and exchanges. Innovation also applies to the annual meeting, and is directed towards interactivity and multidisciplinarity.

Interactivity

We at ESGAR believe that education and science can no longer be only the one-way downstream relationship between the ‘teacher’ and the ‘attendees’. We try to stimulate new dialogue between people, try to extract all relevant issues and questions from a specific topic, and provide a large amount of time for direct conversation between presenter and attendees. An example is the Research Corner, which is a session (actually, there are two), during the annual meeting, dedicated to specific hot research topics. More than half of the session time slot is dedicated to questions and answers, and our experience is extremely positive; actually, most delegates would even like the discussion time to be further increased. The role of session moderators is therefore critical, because they have to drive the discussion, and make sure that all relevant issues have been correctly detailed. The ESGAR meeting will certainly continue in this direction in the coming years. Interactivity means that different experiences can be shared, and this is also the reason for multidisciplinarity.

Multidisciplinarity

In our professional lives, we constantly refer to clinicians, biologists, and even other subspecialists in radiology. Consequently, these colleagues are often absent from meetings of the subspecialty. This is why we have decided to formally organize sessions with other colleagues, with whom we embark on the same medical trip. In Venice, we will start with two combined sessions. We have invited the European Society of Digestive Oncology, because we manage patients together, to discuss with us the topic of colorectal cancer. We also invited the European Society of Urogenital Radiology, because they are friends and neighbours, and we will together examine the results and potential of Diffusion Weighted Imaging of the Abdomen and Pelvis. ESGAR thanks its friends for accepting these invitations. Multi-disciplinarity is obviously a ‘school for communication’.

Communication

Communication is the key to the modern world and to mutual understanding. Thanks to the ESGAR Office, we have developed an interesting newsletter, both electronic and on paper, a member’s handbook, and all sorts of initiatives in order to improve dialogue between the members. Ultimately, we will increasingly make the best use of technology in order to optimise the circulation of information. We are also participating in the ESR Patient Information project. Also, because the ESGAR meeting visits a different country every year, we had the idea to acknowledge the role of the hosting country by establishing a combined session between ESGAR and the host nation’s radiological society. The first edition will be in Venice, where the Italian Society of Medical Radiology (SIMR) will host a session on abdominal emergencies.

Friendship

Finally, there is a last constant feature of ESGAR, which is friendship. ESGAR is a friendly society. Every year it welcomes not only subspecialists but also many general radiologists. In Dresden, the meeting gathered almost 1,100 delegates, and there are just over 900 members in the society. We are certainly looking forward to welcoming you to our next annual meeting in Venice, from May 21 to 24. The postgraduate course topic will be pancreatic imaging. This course will be named after Carlo Procacci, who was a leader in this field and left us too early to our great regret. ESGAR is faithful to its own history, but never stops building its future. If you are interested in abdominal radiology, you are very welcome within the ESGAR family!

Please mark your calendar:

Annual Meeting
ESGAR 2011 / Venice (Lido), Italy / May 21–24

CTC Workshops
Göteborg, Sweden / April 13–15, 2011
Dundee, Scotland / September 14–16, 2011

CTC Doctor–to–Doctor Training Sessions

Liver Imaging Workshops
Dublin, Ireland / June 9–10, 2011
Taormina, Italy / November 3–4, 2011

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The future of European healthcare is still at stake

The Alliance for MRI continues with its campaign to safeguard the use of MRI procedures

By Sonja Guttenbrunner

The Alliance for MRI was officially launched in March 2007 in response to the implementation of the Physical Agents 2004/40/EC (EMF) Directive in April 2008, and aims to ensure that the threat posed by this Directive to the future of MRI is averted, and that patients in Europe will not be denied state-of-the-art healthcare services.

The current version of the Directive puts limits on the exposure of operating staff (including those maintaining equipment) to electromagnetic fields from zero frequency up to 300GHz.

The limits proposed are huge extrapolations from largely hypothetical conditions and are an overestimation of very limited experimental data. The Directive has consequences for clinical MRI, which, while apparently concerned, are potentially disastrous. These limits notably restrict and limit the use of MRI in interventional applications and in imaging vulnerable patients and children where closer patient contact is required. Furthermore, not all member states have developed EMF limits that will be severely restricted as well routine cleaning and maintenance of MRI equipment. The Alliance for MRI therefore requests an EU-wide exemption for the medical use of MRI and related research from any limit values and the implementation of user guidelines.

Since its launch in 2007 the Alliance has successfully campaigned to effect an exemption from the limits set in the ‘EMF’ Directive while supporting the development of guidelines to support the hopefully updated safety standards.

A major achievement was the postponement of the implementation date of the EU Directive in April 2008 until April 2012, a landmark case. It was the first time ever that the implementation of a Directive had been delayed. The European Commission made clear that it was never its intention to impose the use of MRI and it was committed to undertaking studies to evaluate the impact of the legislation on the technology.

In September 2010, after two years of continued evaluation of new data on EMF and its short-term effects on the human body, the responsible European Commissioner for employment, social affairs and inclusion, Liikidt Andor, confirmed his intention to propose an exclusion for MRI from the binding exposure limits in the revision of the EU Physical Agents Directive 2004/40/EC on electromagnetic fields. The Commissioner outlined that new scientific studies have not shown any new evidence of adverse effects of MRI.

In addition, the proposal would include stronger qualitative measures to protect the health and safety of the workers concerned. This would include covering documented administrative procedures such as governing controlled access to the examination room; dissemination of best practice and development of good practice to limit workers’ exposure (i.e. guidelines); reinforced information and training for the workers concerned with, for instance, the development of additional training tools.

However, the proposal to revise the EMF Directive 2004/40/EC and introduce an exclusion for MRI from the exposure limits will now only be adopted in Spring 2011, rather than by the end of 2010 as initially expected.

The Alliance for MRI is concerned about this delay (which is due to the impact assessment not being approved) given that the implementation date for the (revised) Directive is April 2012. This means that unless the European Commission proposes to postpone the implementation date again, it will be vital that there is early agreement between the European Parliament and the Council on the revised proposal. This may well be ambitious given the length of time it often takes to get agreement in the EU and the fact that not all member states support this exemption for the clinical and research use of MRI.

There is still a widespread lack of understanding and awareness regarding the implications of the EMF Directive. As a result, it is likely that the forthcoming European Commission proposals will be contentious, with different lobbying groups advocating for different changes to the Directive.

Therefore, it is important to continue with the campaign and further raise the awareness of what is at stake for European healthcare. After the adoption of the European Commission proposal it is important that the European Parliament and the Council soon agree on a final text so that the amendment can be adopted into EU law and the current uncertainty regarding the use of MRI can be removed. As some member states do not support the exemption for MRI, opinion making in the national context is extremely important. National radiological societies are strongly encouraged to support the Alliance by getting in touch with their respective ministers of social affairs and labour, health, research and sending personal letters to all relevant decision makers in their country (templates and contacts can be provided by the Alliance for MRI secretariat). Inform the general public and your colleagues of the threat posed to MRI and help to secure the future use of MRI procedures.

Contact:

Alliance for MRI secretariat
au-affairs@myesr.org
www.alliance-for-mri.org

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ESPR aims to further multi-national research in paediatric imaging

By Catherine M. Owez, ESPR General Secretary & 2011 IPR President

The European Society of Paediatric Radiology aims to:

• Organise/bring together physicians involved in the field of paediatric imaging
• Contribute to the progress of paediatric imaging practices within (but also outside) Europe
• Encourage training/education with other branches of medical imaging and paediatrics in clinical, scientific, educational and research fields

Membership

Persons authorised/licensed to practise medicine involved in paediatric imaging are eligible for ESPR Membership. There are active, corresponding, honorary and retired members.

Europe includes the countries surrounding the Mediterranean Sea. In 2010 ESPR had 486 members.

We coordinate a popular annual four-and-a-half-day meeting with approximately 600 attendees. The meeting has a prescribed format with postgraduate courses, clinical symposia and offers an active social programme encouraging long lasting friendships (see ESPR below).

A second, smaller, two-day educational meeting (ECPR) is held in October, rotating between four paediatric sub-specialties. It attracts young radiologists in a congenial atmosphere to mix with a world-class teaching faculty in a stimulating learning environment.

The ESPR hosts several taskforces

The CT dose taskforce is led by Prof. Richard Fotter. It liaises with ESUR to produce guidelines and numerous publications on best practice for paediatric CT imaging.

The Genito Uroradiology taskforce is led by Prof. Michael Riccabona and his enthusiastic team, who liaise with ESUR to produce guidelines and numerous publications on best practice for paediatric GU imaging.

The Hip taskforce is led by Prof. Karen Rosenholz. The taskforce addresses the current shortfall in evidence-based guidelines and expertise in this high-profile, difficult internati onal medical and social malady.

The Oncology taskforce was set up to standardise imaging practices in the diagnosis and management of children undergoing treatment for cancer. Led by Dr Heide Brisse, this taskforce enables ESPR members to influence imaging protocols and access information related to oncological imaging so as to rationalise risk/benefit issues in tumour imaging.

The European Excellence Network on Paediatric Radiology is led by Prof Richard Fotter, aims to engage stakeholders and facilitate and enhance multi-institutional clinical trials with paediatric radiology, so as to strengthen the profile of medical imaging on a global scale.

The Paediatric Neuroimaging group is led by Prof. Andrea Rossi and Maria Agroopoulos, the group intends to stage joint meetings to develop guidelines and eventually plan a European diploma in Neuro imaging.

Pediatric Radiology: our journal

Pediatric Radiology informs readers of all areas of paediatric imaging and related fields through a blend of original papers and reviews presenting knowledge within particular subspecialties and summarising specific topics.

Advances in technology, methodology, apparatus and auxiliary equipment are described. It is also the official journal of our sister societies the Society for Pediatric Radiology (SPR), the Ano-Ocianic Society of Paediatric Radiology (AOSPR) and the Sociedad Latino Americana de Radiologia Pediatrica (SLARK). The European Editor is Prof. Guy Sebag. The European Sub Editors are Drs. Veronica Domnguez and Oystein E. Olsen. The Impact Factor in 2009 was 1.186.

Every tenth year a combined SPR/AOSPR/SLARK/ESPR meeting rotates through Europe.

The 2011 London venue offers a strong scientific programme with a selection of world-class speakers, debates, competitions, sunrise sessions, 200 posters and state-of-the-art mini-symposia, and a social programme inspired by London's unique artistic, historic and architectural heritage. We welcome Professor Sam Gamble from Stanford, USA, a world leader in Molecular Imaging, as the joint lecturer of the Feeney and Neuhouser lecturer on Molecular Imaging.

The event begins Friday, May 27 with two major radiological sessions on ultrasound and international cancer screening and registration is now open at www.ip2011.org.

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How can we deal now with what may appear in the future? Current status and trends in Austrian radiology based on a national survey

By A.E. Tamotsu, A. Baierovic, J. Dementevicne, S. Lukesovics, N.R. Valecino, R. Brodeine

The Lithuanian Radiologists’ Association (LRA) currently includes 311 active members. The association is governed by the president, Assoc. Prof. J. Dementevicne, two vice presidents representing the two biggest cities and medical schools, Prof. A. E. Tamotsu (Vilnius) and Prof. A. Baierovic (Kaunas), and a board consisting of 16 members who are leaders of regional societies and sub-specialty groups.

We are glad to have an opportunity to present our major research activities that may be of interest to the European radiological community. Our main research activities and training of residents in radiology are conducted in two medical schools: the Faculty of Medicine of Vilnius University and the Lithuanian University of Health Sciences.

The research at Vilnius University is mainly oriented toward cardiovascular pathology, which historically appears to be a priority field of medicine, considering facilities and financial resources in Lithuania. Two research projects are underway, which are granted by the Research Council of Lithuania – a member of the European Science Foundation. The first is an imaging of cardiac adenocarcinoma in coronary artery disease. This is being performed under the directorship of specialists from Vilnius Gediminas Technical University. The goal of this project is to evaluate the current status and trends in cardiovascular medicine, evaluation and follow-up of oncological indications, and emergency medicine, evaluation and follow-up of oncological indications, and MRI imaging of cardiac adenocarcinoma in coronary artery disease. The second research topic given a grant by the Research Council of Lithuania is a joint effort with specialists from Vilnius Gediminas Technical University. The goal of this project is to evaluate the current status and trends in cardiovascular medicine, evaluation and follow-up of oncological indications, and emergency medicine, evaluation and follow-up of oncological indications, and MRI imaging of cardiac adenocarcinoma in coronary artery disease.

Cardiac insufficient and sudden death are very important clinical entities for the aging Lithuanian population. Information obtained may help to reduce patients who need conservative pre-operative treatment, interventional heart failure treatment procedures or heart transplantation. In general, the waiting time for planned MR investigations was 9.7 days at the time of the survey. In comparison the data for Germany is one MR unit per 39,900 people, and for Switzerland one MR unit per 33,800 people.

Regarding MR investigations, the results demonstrate the central role of radiology to patients and offers of cooperation; please contact the Secretary of the LRA, Dideite Rutkanskaitė at dideite.rutkaskaite@sa.lt.

Conclusion
This survey helped to define prognostic factors for the number of staff radiologists, personal and technical requirements, and demands for in-hospital and extramural supply.

Regarding MR investigations, the results demonstrated that on the current basis of personal and technical resources, medical tasks cannot be fulfilled in the way demanded by patients and insurance companies. Major discrepancies exist for some specific indications, which should be transferred on a routine basis.

The definition of acute and emergency radiological indications for myocardial infarction is important and central position of radiological processes within general patient management.

The results may be used as a basis for further plans regarding the general development of medical institutions and of radiological units in particular. They define the status and requirements of regional and national plans and serve as an informative platform. The study also demonstrates the central role of radiology to patients and people in general.

We would like to present a few current research activities at the Lithuanian University of Health Sciences, which are oncology-oriented and include the following topics.

One is an application of CT and MRI (with MRI DWI) in evaluation of colorectal liver metastases and response to systemic treatment. The aim of the study is to investigate CT, MRI and MR diffusion imaging features of patients with colorectal cancer liver metastases. Findings of DW-MRI may be an effective biomarker for treatment outcome both for vascular disruptive drugs and for therapies that induce apoptosis. The main object of this study is to use MRI DWI for small lesion detection and evaluate the ability of the apparent diffusion coefficient (ADC) to help predict response to chemotherapy in patients with colorectal hepatic metastases.

Another study is to compare diagnostic values of radiological-diagnostic methods in the evaluation of chronic pulmonary embolism; and assess the possibility of replacing one expert with CAD, to decrease the variability of interpretations among experts. Other objectives of the study are to evaluate and compare cancer detection and recall rates for film-screen mammography and digital mammography screening with CAD.

The Institute of Oncology at Vilnius University started a prospective study on digital mammography and CAD in breast cancer screening programmes. The main task of this study is to clarify the possibility of replacing one expert with CAD, to decrease the variability of interpretations among experts. Other objectives of the study are to evaluate and compare cancer detection and recall rates for film-screen mammography and digital mammography screening with CAD.

The Institute of Oncology at Vilnius University and Kaunas University of Technology are interested in such research areas as vascular, cerebrovascular, emergency, perfusion/diffusion imaging, MRI for oncological indications, and MRI indications in chronic pulmonary embolism; and assess the possibility of replacing one expert with CAD, to decrease the variability of interpretations among experts. Other objectives of the study are to evaluate and compare cancer detection and recall rates for film-screen mammography and digital mammography screening with CAD.

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Egon Schiele, Edith Schiele, the artist's wife, seated, 1918 © Belvedere
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Please note that all performances, except at Vienna’s English Theatre, are in German!

Akademietheater
1030 Vienna, Lisztstraße 1
phone: +43 1 51444 4145
www.burgtheater.at
19:30 Die Kunst der Unterhaltung
by Jan Lauwers & Needcompany

Burgtheater
1010 Vienna, Dr. Karl-Lueger-Ring 2
phone: +43 1 51444 4145
www.burgtheater.at
19:00 Was ihr wollt
by William Shakespeare

Rabenhof
1030 Vienna, Rabengasse 3
phone: +43 1 712 82 82
www.rabenhof.at
20:00 Austrofred – You can shove your magic flute up your a…
A correspondence carried on between Austrofred and W.A. Mozart

Schauspilhaus
1090 Vienna, Porzellangasse 19
phone: +43 1 517 01 01
www.schauspielhaus.at
23:00 Kreisky – wer sonst? Folge 8
by Bastian Kraft and Daniela Kranz

stadlTheater waldschmäusen
1010 Vienna, Waldschmäusen 4
phone: +43 1 712 82 82
www.waldschmäusen.at
20:00 Ond e de choc
O Vertigo (Canada), choreography by Ginette Laurin, music by Michael Nyman

Theater in der Josefstadt
1080 Vienna, Josefstädter Straße 26
phone: +43 1 42 700 300
www.theaterinderjosefstadt.org
19:30 Drei Schwestern
by Anton Tschechow

Vienna's English Theatre
1080 Vienna, Josefsgasse 12
phone: +43 1 402 12 60 0
www.englishtheatre.at
19:30 Cat on a Hot Tin Roof
by Tennessee Williams

Volkstheater
1070 Vienna, Neustiftgasse 1
phone: 43 1 52111 400
www.volkstheater.at
20:00 Die Alpenkönig und der Menschenfeind
by Ferdinand Raimund

Concerts & Sounds

Musikverein (Classical Music)
1010 Vienna, Bösendorferstraße 12
www.musikverein.at
19:30 Wiener Symphoniker, conductor Adam Fischer, Denis Matsuev, piano Z. Kodaly; F. Liszt; J. Brahms

Porgy & Bess (Jazz)
1010 Vienna, Riemergasse 11
www.porgy.at
20:30 Joe Lovano’s U5 Five

Arena (Alternative Music)
1030 Vienna, Baumgasse 80
www.arena.co.at
22:00 Mainframe presents J. Majik

Gasometer (Alternative Music)
BA-CA Halle Gasometer
1110 Vienna, Gugglgasse 8
www.planet.tt
23:00 Beatstraks

Szene Wien (Alternative Music)
1110 Vienna, Hauffgasse 26
www.szene-wien.com
20:00 Eleven years of Rooftop Clique

Opera & Musical Theatre

Volksoper
1090 Vienna, Währingerstraße 78
www.volksoper.at
19:00 Carmen
by Georges Bizet

Wiener Staatsoper – Vienna State Opera
1010 Vienna, Opernring 2
www.wiener-staatsoper.at
19:30 Don Quixote
by Ludwig Minkus, conducted by Ermanno Florio
Ballet by Marcus Pappi and Rudolf Nureyev

Raimundtheater
1060 Vienna, Wallgasse 18–20
www.musicalvienna.at
19:30 Ich war noch niemals in New York
by Udo Jürgens & Gabriel Barylli

Bosnacher
1010 Vienna, Sollersstätte 9
www.musicalvienna.at
19:30 Tanz der Vampire
by Jim Steinman & Michael Kunze