



Mission: To enhance cooperation among cardiologists on radiation safety in cardiac catheterization procedures and in procedures that utilise ionizing radiations

From the Editor's Desk

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Dear Colleagues,

It has been remarkable that our newsletter has reached the 3rd year. Initially the newsletter published articles from interventional cardiologists (IC) from the Asian region, later it reached further to include our IC colleagues from Latin America and now covers electrophysiologist (EP) from Eastern Europe. Please continue to share this newsletter with your colleagues (be it IC, EP, nuclear cardiologists and our latest colleagues in cardiac CT) in your country, your region and other regions. Please continue to contribute articles as the success of this newsletter depends on you; the "grass roots" on the ground.

We will need to continue to ensure that topics in radiation protection feature in the regional or national cardiac conferences. We are very grateful for the tireless efforts of Dr Lim Soo Teik from Singapore for presenting the radiation topics in many of the meetings in ASEAN, China, Korea and Japan. You can download the latest teaching materials from the newly revamped IAEA's website

http://rpop.iaea.org/RPOP/RPoP/Content/Addition/AlResources/Training/1_TrainingMaterial/index.htm). You can also find our newsletter on the same website as well as on the website of Asian Pacific Society of Cardiology (APSC) <http://www.apscardio.org> and Asian Pacific Society of Interventional Cardiology (APSIC) <http://www.apsic.net>. Please encourage your national societies or professional bodies to web link to our newsletter and to the latest IAEA's teaching materials.

Please help to dispel the myth of radiation, "can't see, can't feel, can't harm". Be responsible to your patients, fellow colleagues, family and to yourself. I urge you to share and circulate this newsletter and the information on radiation safety with your colleagues in the region and your country's cardiac fraternity. All of us, be it the junior cardiologists or the senior cardiologists, the low volume or high

volume IC, need to be reminded and refreshed on radiation protection on a *regular* basis in order to keep up with the new scientific data.

Looking ahead, apart from courses, lectures, this newsletter on radiation protection, we will need to continue to have more collaborative projects in our region as well as in Latin America and Eastern Europe.

As always, I welcome your comments and look forwards to receiving your contributions in radiation safety be it in cardiac interventions, cardiac imaging or any interesting news items in the field for this newsletter.

Lastly, my gratitude to IAEA for continuous leadership and support in radiation protection.

Changes in my practice 2 months after the IAEA Training Course on Radiation Protection

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Dear colleagues,

It is my pleasure to greet all of you through the pages of this Newsletter. I'm an interventional cardiologist, working in the field of electrophysiology and performing RF ablations. In

November 2008 an excellent chance was presented to me to attend an IAEA Regional Training Course on Radiation Protection in Cardiology that was held in Yerevan, Armenia. I gained a lot of knowledge in the field of radiation protection. Now I know that technique norms as X-ray tube away from the patient, image intensifier close to the patient, avoidance of steep angulations, lesser magnification, collimating the beam, reduction of fluoro time, using personal protective devices and patient dose measurements are essential.

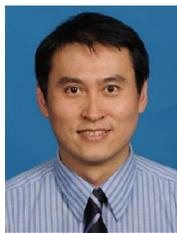
So, how this knowledge influenced my personal work and the work of my colleagues? First of all we agreed on recording not only fluoro time but radiation exposure of the patient (Air Kerma, DAP).

We began using lead aprons in an effective way. Now we realize that 0.5 mm lead apron absorbs (thanks to meaningful demonstration by Dr. Rehani in X-ray room in Yerevan, showing efficacy of such an apron) about 98% of the scattered radiation, and there is no need to wear 2 of them. We now tend to use the ceiling suspended screen. I began using personal dosimeter on regular basis. Now all of us pay attention to how far the tube from the patient and the operator is, and how close the image intensifier is and our angio-machine in EP-lab is often set to low value of 15 fps.

What next? Postgraduate Education Program in Interventional Cardiology and Endovascular Surgery in our clinic is starting this year. I am going to present data and report on radiation protection in cardiology as optional class based on materials acquired from the training course. "Knowledge is power!"

CT scan in pregnancy: A case report
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A 34-year-old pregnant lady at 12-weeks presented with acute left-sided weakness and numbness. She had chronic rheumatic heart disease, with severe mitral stenosis. Five months ago, she underwent mitral valve replacement with St Jude mechanical valve. She was on warfarin since.

On examination, her pulse was 82/min, in atrial fibrillation, BP 120/80 mmHg. No significant murmur detected. She had left hemiparesis and ipsilateral hemiaesthesia. Clinical diagnosis was acute right-sided thromboembolic stroke. Echocardiography showed preserved ventricular function. Mitral valve prosthesis functions normally. No intracardiac thrombus.

The relative risk and benefit of imaging with either MRI or CT brain scan were debated. Eventually, CT head confirmed diagnosis of cerebral infarction with involvement of right corona radiata and white matter of parietal lobe; no evidence of intracerebral haemorrhage. She was anticoagulated with heparin, as her symptoms improved and power recovered to 4/5 after 24 hours, Warfarin was restarted.

CT head could be performed with negligible risk to the fetus in this case. The radiation dose to the fetus from a head CT is <0.005 mGy and this dose is extremely small to cause radiation effects (http://rpop.iaea.org/RPOP/RPoP/Content/SpecialGroups/1_PregnantWomen/PregnancyAndRadiology)

[htm](#)). However, justification must be based on principle of potential benefit to the mother. Her history suggested a thromboembolic aetiology. Imaging is recommended for young stroke to confirm the diagnosis, to define the extent, any haemorrhagic component, and to exclude other uncommon causes like tumour, AVM, etc. Imaging also guides the timing of anticoagulation.

Latest Guidelines and Consensus on Cardiac CT Usage Launched in Malaysia
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The National Heart Association of Malaysia in collaboration with the College of Radiology (Malaysia) announced their joint statement on the usage of Cardiac CT recently <http://www.malaysianheart.org/article.php?aid=129>. The guidelines are intended to create awareness about Cardiac CT, its indications, benefits and the risks involved. The target audience are general and family practitioner and physicians and appropriately the guidelines were launched at the biennial meeting of the Academy of Medicine of Malaysia and Singapore. Another section is devoted to the training and accreditation of cardiologists and radiologists and other staff intending to provide Cardiac CT services.

Designed in anticipation of rapid technological advances, the statement describes only the current information on indications and contraindications and chose to leave out a large section of conditions and situations which border on the fringe of cost and risk benefit. Research and audit are encouraged and recommended as part of the criteria for completion of advanced level training.

An important undertaking of the joint statement was focused on the reporting of extra-cardiac thoracic features in the imaging acquired. Should this be the responsibility of the cardiologist? Should the entire lung fields be captured and how would this move impact upon the radiation risk? The summary and conclusions of this and other pragmatic issues are incorporated into the guidelines.

Finally the guidelines will be reviewed by 2011 or sooner.

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