IAEA Free Webinar

Pediatric Nuclear Medicine: Standardization of Administered Radiopharmaceutical Activity and Image Quality Optimization

Date: **30 May 2017, 3 pm CET (check time in your country)**

Presenter: **Prof. S. Ted Treves, MD, Prof. Frederic H. Fahey, DSc**
Harvard Medical School, Boston, MA, USA

Organized jointly with the Alliance for Radiation Safety in Pediatric Imaging (the Image Gently Alliance)

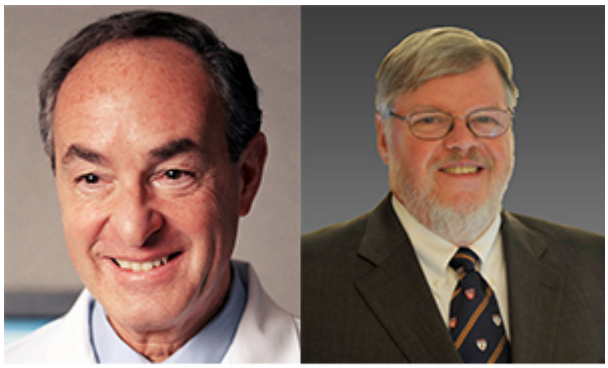
Pediatric nuclear medicine is very useful in the diagnosis and assessment of several pediatric disorders including diseases of the genitourinary and digestive systems, the central nervous system, the cardiopulmonary system, the musculoskeletal system as well as oncologic diseases. Although the word “nuclear” has elicited concerns about radiation exposures, the levels of patient radiation exposure in pediatric nuclear medicine are similar to and often lower than those in common diagnostic radiological procedures. Until very recently however, there was a lack of universally accepted guidelines for radiopharmaceutical administered radioactivity. Surveys of premiere pediatric centers in North America and elsewhere revealed a very wide variation. This webinar will discuss the results of several expert consensus workshops in the US and Europe has resulted in the development of universally accepted guidelines for pediatric radiopharmaceutical administered activities. The most recent set of guidelines is the “2016 Update of the North American Consensus Guidelines for Pediatric Administered Radiopharmaceutical Activities.” Dissemination of these guidelines has resulted in an overall reduction of administered activities with a reduction of radiation exposures to patients both in pediatric as well as in adult hospitals in many countries. Utilizing advanced image processing, there are efforts directed at further lowering radiation exposures in children while achieving improvements in diagnostic image quality.

Efforts are under way to define better pediatric radiopharmaceutical biodistribution and bio-kinetics that would result in more precise estimation of radiation exposures and potently risk. Improved approaches to reduce CT exposures in the context of hybrid imaging are being investigated. All that should ensure that pediatric patients receive the lowest radiation exposures with the highest diagnostic yield.

Learning objectives

1. Recognize the existence of universally accepted pediatric guidelines for the administration of radiopharmaceutical activities
2. Learn of the effect of these guidelines in the practice of pediatric nuclear medicine
3. Learn methods to reduce radiation exposures while preserving diagnostic image quality using advanced image processing
4. Recognize the challenges for the assessment of biodistribution and pharmacokinetics and children
5. Recognize ongoing efforts to optimize/reduce CT radiation exposures in the context of hybrid imaging

Presenters



Prof. S. Ted Treves, MD

Prof. Frederic H. Fahey, DSc

Prof. S. Ted Treves, MD

Dr. S. T. Treves is Professor of Radiology, Harvard Medical School. Trained at the University of Montreal, McGill University and at Yale Medical School. He founded the Division of Nuclear Medicine and Molecular Imaging at Boston Children's Hospital (BCH) in 1970 and served as its chief until 2011. Dr. Treves was chief of the Division of Nuclear Medicine and Molecular Imaging at Brigham and Women's Hospital. He is a life-member of the American Board of Nuclear Medicine. He founded the Small Animal Imaging Laboratory at BCH. He has been a member of the FDA Radiopharmaceutical Advisory Committee. He has published more than 300 original articles; several review articles and book chapters, and a textbook entitled "Pediatric Nuclear Medicine and Molecular Imaging" published in 2014. His research interests include physiological imaging in children with nuclear medicine and systems integration in medical imaging. Dr. Treves has led a multi-institutional effort resulting in the development of the 2016 North American Guidelines for Pediatric Radiopharmaceutical Administered Doses. More

recently he played a central role in the development of the Pediatric Doses Harmonization Guidelines between the North American group and the European Association of Nuclear Medicine. He received several awards including the George V. Taplin Award from the Society of Nuclear Medicine, the Mentor of the Year Award form the American College of Nuclear Physicians and in 2013 the Georg Charles deHevesy Award form the Society of Nuclear Medicine and Molecular Imaging.

Prof. Frederic H. Fahey, DSc

Frederic H. Fahey, DSc, has been the Director of Nuclear Medicine/PET Physics at Boston Children's Hospital since 2003 and is a Professor of Radiology at Harvard Medical School. He received his Doctor of Science from the Harvard School of Public Health in Medical Radiological Physics in 1986. Dr. Fahey is certified in nuclear medical physics by the American Board of Radiology. Prior to coming to Boston Children's Hospital, he had worked at Georgetown School of Medicine from 1984 to 1991 and Wake Forest School of Medicine from 1991 to 2003. He served as president of the Society of Nuclear Medicine and Molecular Imaging in 2012-2013. He is currently the SNMMI liaison to the Department of Energy Nuclear Sciences Advisory Committee. He is currently a member of the Board of Directors of the American Association of Physicists in Medicine. He is a consultant to the International Atomic Energy Agency and sits on the Nuclear Medicine Technologist Certification Board. He is a fellow of the Society of Nuclear Medicine and Molecular Imaging, the American College of Radiology and the American Association of Physicists in Medicine. His research interests include PET and SPECT instrumentation, image processing, reconstruction of tomographic data and the radiation dosimetry, particularly in the realm of pediatric nuclear medicine. He is actively involved in the Imaging Gently and Image Wisely campaigns as they pertain to nuclear medicine.