



**International Atomic Energy Agency
Department of Technical Cooperation
and
Department of Nuclear Sciences and Applications,
Division of Human Health, Section of Nuclear Medicine and Diagnostic Imaging**

RAS6091

**Enhancing the Management of Non-Communicable and Communicable Diseases
through Capacity Building**

**Regional Workshop on Clinical Applications of Cardiac Multimodality Imaging in
Clinical Based Setting Including PET/CT**

30 September to 04 October – 2019

**Furate Multi purpose room
Hokkaido University Graduate school of Medicine
Sapporo, Japan**

IAEA Scientific Secretary

Dr. Diana PAEZ

Head Nuclear Medicine and Diagnostic Imaging Section
Division of Human Health
Department of Nuclear Sciences and Applications
d.paez@iaea.org

Local Organizers

Dr. Nagara Tamaki

Professor, Department of Radiology
Graduate School of Medical Science
Kyoto Prefectural University of
Medicine
Tel:+81-75-251-5620
natamaki@koto.kpu-m.ac.jp

Dr. Tohru Shiga

Associate Professor, Department of
Diagnostic Imaging
Graduate School of Medicine
Hokkaido University
Tel:+81-11-706-5151
tshiga@med.hokudai.ac.jp

Participants

Shaila SHARMIN BANGLADESH
Soley VAROEUN CAMBODIA
Li WANG CHINA
Pushan BHARADWAJ INDIA
Layth Shakir AL-ARAJI IRAQ
Umar Khalid Abd-Alameer AL-TIMIMI IRAQ
Mordechai LORBERBOYM ISRAEL
Michal WEILER SAGIE ISRAEL
Lattana KHAMKHOUTLAVONG LAO P.D.R.
SUZANA BINTI AB HAMID MALAYSIA
Sukhbayar NOMKHON MONGOLIA
Erdenechimeg SEREEGOTOV MONGOLIA
May Wathan MYO MYANMAR
Hayman SOE MYANMAR
Syeda BOKHARI PAKISTAN
Aatif Hussain MEMON PAKISTAN
Chandrasiri LOKUBALASURIAGE SRILANKA
Prasanna Ravinath RABEL SRILANKA
Nadeeja Himanthi Gamalath SRILANKA
Fawaz BADDOUR SYRIAN ARAB REPUBLIC
Amer MOUNA SYRIAN ARAB REPUBLIC
Majdi Mohamad ZEIN SYRIAN ARAB REPUBLIC
Apichaya CLAIMON THAILAND
Waralee TEEYASOONTRANON THAILAND
Sharaf SHAREEF YEMEN
ADDULLAH OTHMAN ALQARNI Kingdom of Saudi Arabia
Rouaa Beshr Osaka University
Kharisma Perdani Kusumahstuti Osaka University
Suman Shrestha Gunma University

Program

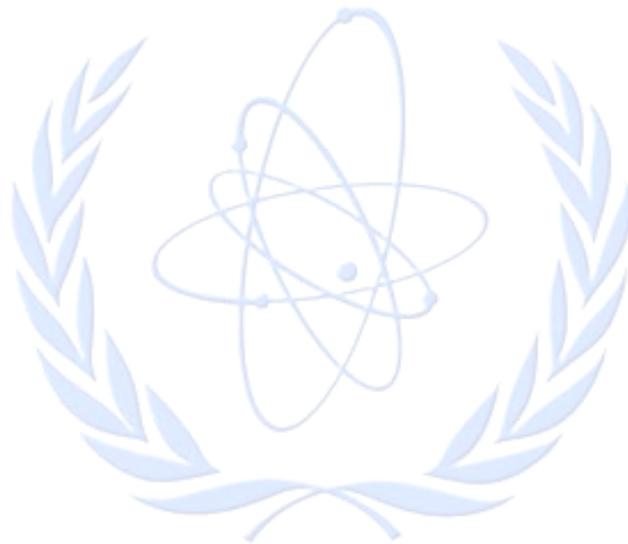
DAY ONE - Monday, 30 September 2019		
09:30 – 10:00	Registration	
10:00-10:40 (40 min)	Opening remarks Self-Introduction	Prof Mitsuhiro Yoshioka (Dean, Hokkaido University Graduate School of Medicine) Dr. Diana Paez (IAEA) Prof. Jun Hatazawa (President, Japanese society of Nuclear Medicine, Asia Oseania Foundation of Nuclear Medicine and Biology)
10:40-11:00 (20 min)	Nuclear cardiology: a global perspective	Dr. Diana Paez (IAEA)
11:00- 12:00 (60 min)	(1) Overview of Cardiac Multimodality imaging Learning Objectives (LO) to review: 1. Increasing numbers of cardiovascular disease around the world and the role of non-invasive multimodality cardiovascular imaging for patient's management 2. Importance of myocardial perfusion imaging including PET and SPECT and anatomical imaging including CTA in ischemic heart disease 3. Cardiovascular inflammatory imaging using multimodality imaging	Dr. Keiichiro Yoshinaga (National Institute of Radiological Sciences)
12:00-13:10 (70 min)	Lunch Break	
13:10- 14:00 (50 min)	(2) Cardiac CT LO 1. Morphological assessment in Multiple detector computed tomography (MDCT) 2. Functional assessment in MDCT 3. Delayed enhancement in MDCT	Dr. Yasuka Kikuchi (Center for Cause of Death Investigation, Hokkaido Univeristy)

14:00 – 14:50 (50 min)	(3) PET/CT/MRI of inflammation LO 1. How to assess cardiac inflammation by PET, CT, and MRI 2. Complementary roles of each modality for assessing inflammation	Dr. Osamu Manabe (Department of Diagnostic imaging, Hokkaido University)
14:50- 15:10 (20 min)	Coffee / Tea Break	
15:10- 16:00 (50 min)	(4) Myocardial perfusion PET LO 1. Myocardial perfusion imaging in coronary artery disease 2. Quantitative coronary flow reserve by PET 3. Coronary microcirculation and cardiac death	Dr. Masanao Naya (Department of Cardiovascular Medicine, Hokkaido University)
16:00-16:50 (50 min)	(5) Cardiac MRI LO 1. Review the role of MRI in the evaluation of myocardial ischemia 2. Analyze the strain imaging 3. Discuss the new MRI insights with cardiac mapping	Dr. Noriko Oyama-Manabe (Department of Diagnostic and Interventional Radiology, Hokkaido University Hospital)
16:50-17:40 (50 min)	(6) Multimodality imaging in cardiac sarcoidosis LO 1. Epidemiology and pathophysiology of sarcoidosis 2. Standard Screening for Cardiac Sarcoidosis 3. Imaging of Cardiac Sarcoidosis with Cardiac PET and MRI 4. Immunosuppressive Management of Cardiac Sarcoidosis	Dr. Keiichiro Yoshinaga
18:00-19:30	Welcome reception	Prof. Yuji Kuge (Central Institute of Isotope Science, Hokkaido University)

DAY TWO - Tuesday, 1 October 2019

09:30-10:30 (60 min)	<p>(C1) Interactive case analysis MPI SPECT part 1</p> <p>LO</p> <ol style="list-style-type: none"> 1 Demonstrate the role of MPI SPECT in the evaluation of CAD 2. Illustrate the evaluation of quantitative parameters 3. Analyze appropriate use of MPI/SPECT and difficult cases 	Prof. Joao Vitola
10:30-11:30 (60 min)	<p>(7) Atherosclerosis imaging</p> <p>LO</p> <ol style="list-style-type: none"> 1. Importance of atherosclerosis imaging with PET/SPECT 2. Present status of atherosclerosis imaging with PET/SPECT 3. Perspectives of atherosclerosis imaging with PET/SPECT 	Prof Yuji Kuge
11:30-13:10 (100 min)	Lunch Break	
13:10- 14:00 (50 min)	<p>(8) Clinical Utility of Echocardiography in Management of Cardiovascular Disease</p> <p>LO</p> <ol style="list-style-type: none"> 1. Basics of clinical echocardiography 2. Assessment of hemodynamics using two-dimensional and Doppler imaging 3. Advanced methods: 3D, strain-imaging, and image-processing 	Dr. Hiroyuki Iwano (Department of Cardiovascular Medicine, Hokkaido University)
14:00- 14:50 (50 min)	<p>(9) Ammonia (N13) PET and Cases</p> <p>LO</p> <ol style="list-style-type: none"> 1. Stress myocardial perfusion ammonia-PET imaging for chronic CAD 2. Representative cases highlighting the importance of perfusion PET and FDG-PET 3. Microvascular dysfunction assessed with ammonia-PET and further applications 	Dr. Shiro Miura (Hokkaido Ohno Memorial Hospital)
14:50-15:40 (50 min)	<p>(10) Exercise testing and cases</p> <p>LO</p> <ol style="list-style-type: none"> 1. Basics of exercise testing 	Dr. Takashi Yokota (Clinical Research and Medical Innovation Center,

	2. Clinical application of exercise testing 3. Case presentation	Hokkaido University Hospital)
15:40-16:00 (20 min)	Coffee / Tea Break	
16:00-17:00 (60 min)	(C2) Interactive case analysis MPI SPECT part 2 LO 1 Demonstrate the role of MPI SPECT in the evaluation of CAD 2. Illustrate the evaluation of quantitative parameters 3. Analyze appropriate use of MPI/SPECT and difficult cases	Prof Joao Vitola



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DAY THREE - Wednesday, 2 October 2019

9:30- 10:30 (60 min)	<p>(C3) Interactive case analysis: cardiac PET/CT and Coronary CTA Part 1</p> <p>LO</p> <ol style="list-style-type: none"> 1. Illustrate the role of PET/CT in the evaluation of patients with coronary artery disease 2. Illustrate the quantitative coronary flow reserve using PET 3. Demonstrate the evaluation of coronary microcirculation using PET 	Prof Marcelo DiCarli
10:30- 11:30 (60 min)	<p>(C4) Interactive case analysis: cardiac PET/CT and Coronary CTA Part 2</p> <p>LO</p> <ol style="list-style-type: none"> 1. Illustrate the role of PET/CT in the evaluation of patients with coronary artery disease 2. Illustrate the quantitative coronary flow reserve using PET 3. Demonstrate the evaluation of coronary microcirculation using PET 	Prof Marcelo DiCarli
11:30-12:20 (50 min)	<p>(11) Clinical implications of cardiac sympathetic nerve imaging in heart failure</p> <p>LO</p> <ol style="list-style-type: none"> 1. Alterations of cardiac sympathetic function in heart failure 2. Cardiac sympathetic imaging with I-123-metaiodobenzylguanidine (MIBG) 3. Risk stratification and prognosis assessment using I-123 MIBG in heart failure 	Dr. Tomoaki Nakata (Director, Hakodate Goryoukaku Hospital)
12:20-13:40 (80 min)	Lunch Break	
13:40-14:35 (55 min)	<p>(C5) Interactive case presentation participants: SPECT – SPECT/CT</p> <p>Participants will have the opportunity to bring difficult cases and analyze them with the experts</p> <p>LO</p> <ol style="list-style-type: none"> 1. Improve the learning experience through hands-on exercises 2. Apply the concepts learned during the workshop 3. Practice analysis and report of cases 	Prof Marcelo DiCarli Prof Joao Vitola Prof Nagara Tamaki

14:35- 14:55 (20 min)	Coffee / Tea Break	
14:55-15:45 (50 min)	<p>(13) SPECT perfusion cases</p> <p>LO</p> <ol style="list-style-type: none"> 1. Stress myocardial perfusion imaging cases (ischemia) 2. Myocardial perfusion imaging cases (cardiomyopathy) <p>(12)</p>	<p>Dr. Takao Kato (Department of Cardiovascular Medicine Kyoto University)</p>
15:45- 16:35 (50 min)	<p>(13) Basic segmental approach of congenital heart disease using imaging modalities</p> <p>LO</p> <ol style="list-style-type: none"> 1. Basic concept of segmental approach for congenital heart disease 2. Clinical application of segmental approach using imaging modalities 3. 3D-printed heart models for congenital heart disease 	<p>Dr. Atsuhito Takeda (Department of Pediatrics Hokkaido University Hospital)</p>

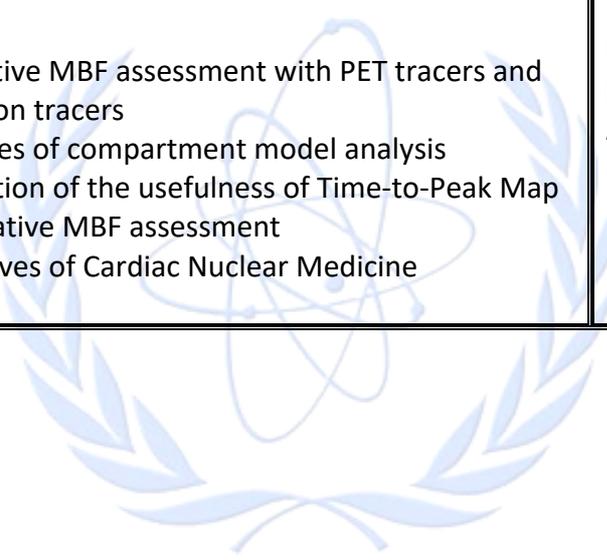


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DAY FOUR - Thursday, 3 October 2019

<p>9:30-10:30 (60 min)</p>	<p>(C6) Case review perfusion studies PET</p> <p>LO</p> <ol style="list-style-type: none"> 1. Illustrate the role of PET/CT in the evaluation of patients with coronary artery disease 2. Illustrate the quantitative coronary flow reserve using PET 3. Demonstrate the evaluation of coronary microcirculation using PET 	<p>Prof Marcelo DiCarli</p>
<p>10:30-11:10 (40 min)</p>	<p>(14) Perspectives of Nuclear Cardiology in the Era of Multimodality Imaging</p> <p>LO</p> <ol style="list-style-type: none"> 1. Stress myocardial perfusion imaging for chronic CAD versus CTA and FFR-CT 2. Importance of perfusion PET and FDG-PET in the era of multimodality imaging 3. Perspectives of PET and SPECT imaging in CAD assessment 	<p>Prof Nagara Tamaki</p>
<p>11:10-12:00 (50 min)</p>	<p>A case series of rare cardiovascular diseases with multimodality imaging</p> <p>LO</p> <ol style="list-style-type: none"> 1. Clinical insights with multimodality imaging for cardiovascular diseases 2. Representative clinical cardiovascular cases with multimodality imaging 	<p>Dr. Satonori Tsuneta (Department of Diagnostic and Interventional Radiology, Hokkaido University Hospital)</p>
<p>12:00-13:30 (90 min)</p>	<p>Lunch Break</p>	
<p>13:30-14:30 (60 min)</p>	<p>(C7) Interactive case presentation participants: PET – PET/CT</p> <p>Participants will have the opportunity to bring difficult cases and analyze them with the experts</p> <p>LO</p> <ol style="list-style-type: none"> 1. Improve the learning experience through hands-on exercises 2. Apply the concepts learned during the workshop 3. Practice analysis and report of cases 	<p>Prof Marcelo DiCarli Prof Joao Vitola Prof Nagara Tamaki</p>

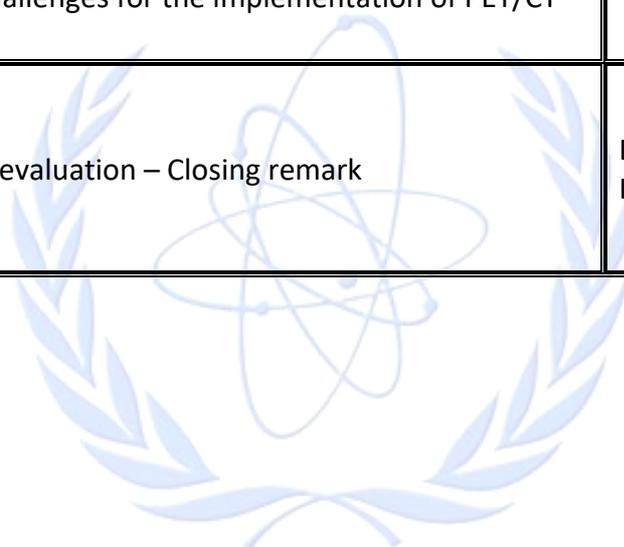
14:30- 15:00 (30 min)	Coffee / Tea Break	
15:00-16:00 (60 min)	<p>(C8) Case review nuclear medicine viability PET</p> <p>LO</p> <ol style="list-style-type: none"> 1. Illustrate the role of PET/CT in the evaluation of myocardial viability 2. Illustrate the importance of patient preparation 3. Discuss the appropriate use of PET for viability 4. Analyze difficult cases 	Prof. Marcelo DiCarli Dr. Masanao Naya
16:00-16:40 (40 min)	<p>(15) Quantitative MBF assessment with single-photon myocardial imaging tracers</p> <p>LO</p> <ol style="list-style-type: none"> 1. Quantitative MBF assessment with PET tracers and single-photon tracers 2. Procedures of compartment model analysis 3. investigation of the usefulness of Time-to-Peak Map for Quantitative MBF assessment 4. Perspectives of Cardiac Nuclear Medicine 	Prof Atsutaka Okizaki (Department of Radiology, Asahikawa Medical University)



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DAY FIVE - Friday, 4 October 2019

09:30-10:00 (30 min)	(C9) How to reduce radiation dose in nuclear medicine LO 1. Discuss the optimization of nuclear cardiology studies 2. Present the IAEA INCAPS study and recommendations 3. Discuss the strategies for dose reduction	Prof. Joao Vitola
10:00-10:20 (20 min)	(C10) Take-home messages LO 1. Discuss challenges for the implementation of PET/CT	Prof. Marcelo DiCarli
10:20-11:20 (60 min)	Post-course evaluation – Closing remark	Dr. Tohru Shiga Dr. Diana Paez (IAEA)



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Project Member

Hokkaido University

Tohru Shiga, MD. PhD.

Eriko Suzuki

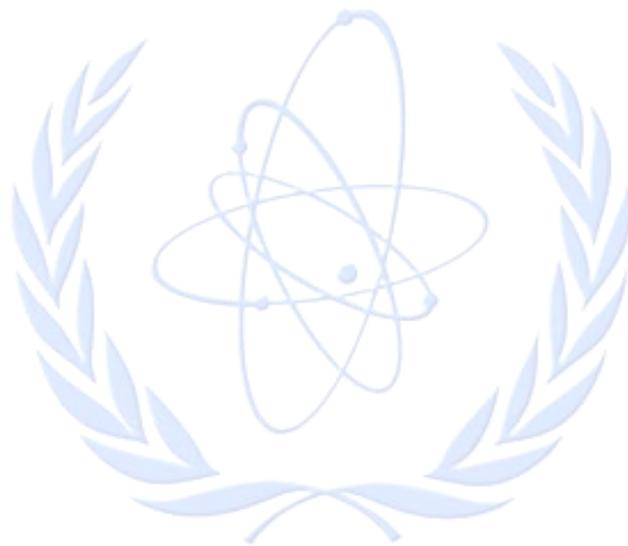
Miho Ohta

Fuji Women's University

Masako Wada, PhD.

Ami Kanbayashi

Sayaka Shibayama



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