REPORT

Report on participation of the ICMR International Fellow (ICMR-IF) in Training/Research abroad.

1. Name and designation of ICMR- IF : Raja Selvaraj, Professor,

2. Address : Department of Cardiology,
JIPMER, Puducherry

3. Frontline area of research in which training/research was carried out : Arrhythmias in Adult Congenital Heart Disease

4. Name & address of Professor and host institute : Krishnakumar Nair
Toronto General Hospital
200 Elizabeth Street
Toronto ON M5G 2C4
Canada

5. Duration of fellowship with exact date : Two months,
27-03-2023 to 26-05-2023

6. Highlights of work conducted :

i. Technique/expertise acquired

a) Understaning of anatomic characteristics arrhythmia substrates, common arrhythmias and their management in patients with adult congenital heart disease
b) Use of intracardiac echocardiography (ICE) for delineation of anatomy, guiding interventions and monitoring for complications
c) Use of newer mapping technologies, especially CONFIDENSE, ILAM mapping and multipolar mapping with Pentaray and Octaray catheters.
d) Use of contact force for mapping and ablation.
e) Implantation of leadless pacemakers.
f) Cryoablation for pulmonary vein isolation.

ii. Research results, including any papers, prepared/submitted for publication:

a) Arrhythmias during long term follow up after Rastelli surgery – helped collate the data and prepare manuscript. Being prepared for submission.
b) Utility of ICE during mapping and ablation of ventricular tachycardia in TOF – helped prepare the manuscript. Under peer review.
c) Prognostic value of programmed stimulation after pulmonary valve replacement in TOF – helped collate data and prepare manuscript. Being prepared for submission.
d) Depolarization alternans in cardiomyopathy – helped analyze the data. Manuscript under preparation.

iii. Proposed utilization of the experience in India :

a) Improve current organization of cath lab to improve safety and reduce radiation exposure in personnel.
   (1) Minimize number of personnel inside the lab
   (2) Educate all personnel on use of low intensity fluoro and low frame rates
   (3) Move review screen, stimulator and other equipment outside the lab when possible

b) Modifications during upgrade of existing cath lab or installation of new cath lab.
   (1) Use of single large screen with customizable layout and multiple inputs
   (2) Biplane fluoroscopy system if possible to reduce contrast use, shorten procedure time and improve safety
   (3) Ceiling mounted racks to place all electrophysiology equipment
   (4) "Zero gravity" system for radiation protection
   (5) Integrated ultrasound which can be used for vascular access and intracardiac echocardiography

c) Increase use of newer technologies to optimize outcomes, especially in the setting of complex heart disease, although there are constraints due to additional cost
   (1) Multipolar mapping – significantly reduces mapping time and increases accuracy of maps
   (2) Contact force monitoring – improves safety and efficacy
   (3) Intracardiac Echocardiography
   (4) Ultrasound guided vascular access

d) Establish continuing interaction with the host institute
   (1) Virtual meetings to discuss pre-procedure planning for complex cases
   (2) Periodic online meetings to discuss cases / topics
   (3) Joint research projects where applicable

Signature of ICMR-IE

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