Reflections on growth of cardiac electrophysiology in India: On cusp of a revolution!

Man's mind, once stretched by a new idea, never regains its original dimensions.
- Oliver Wendell Holmes

There has been tremendous growth in the field of cardiac electrophysiology over the last three decades. In India also, we have seen huge progress in cardiac electrophysiology and arrhythmia management in parallel with the rest of the world. The growing number of electrophysiologists today form a vibrant community, thanks to ever increasing interaction aided by a revolution in electronic communication and social media.

Unfortunately, the year 2020 has been clouded by the COVID-19 pandemic. It has ravaged several countries, and their economies. But medical community taken it as a challenge. Even as we fight the devastating disease, we have discovered new opportunities. We have found new and effective ways to connect with each other, to continue medical education by virtual meetings, and to use this period to plan research activities.

The pandemic also showed us how the technology can provide us solutions to reach out to people and provide a host of services at the point of care, without patients having to travel long distances to larger cities. This includes telemedicine and remote follow-up. There is an accelerated adaption of technology for remote care delivery, the benefits of which may continue even beyond the pandemic. A policy document on telemedicine from government of India published in 2020 has helped by setting up guidelines and boundaries for remote interactions with patients.

In fact, these virtual interactions are an amazing thing to happen in field of education and research. What online journals did to textbooks, and what twitter is doing to journals, the virtual meetings and webinars may do the same to medical conferences. We don't need to wait entire year to meet, to interact, and to present important trial results to global community. Virtual meetings have also enhanced collaboration between various global electrophysiology societies. The outreach is simply phenomenal!

One of the most interesting development is how the expertise is becoming a commodity. In the past, acquiring expertise was a very painstaking, long, and tedious process. But the progress in technology has allowed us to feed decades of knowledge and expertise into computers which then churn out computational models and decision pathways that can match human intelligence or better it. This has benefits for the society because the gap in outcomes of different physicians has narrowed. So, a patient is more assured of a good outcome and need not necessarily look for a very experienced doctor. So, in the field of arrhythmia mapping, the tedium of arduously analyzing intracardiac electrograms is being supplemented by or even replaced by three-dimensional computerized mapping. We can create activation and substrate maps very quickly, making the procedures faster and safer to the patients.

Artificial intelligence is rapidly growing in stature. By analyzing data from thousands, and potentially millions of patients, we can create computational algorithms which are extremely powerful and predictive. So powerful, that human mind cannot match their capability. The way research is conducted will also change completely over next decade. New methods of data collection will include social media platforms, mobile devices and smart watches. India, with a huge population and tremendous internet penetration can play a dominant role in research and generation of new insights and guidelines.

As we reflect on the growth of electrophysiology in India, we cannot be unmindful of the challenges that lie ahead of us. There is still a lot of progress to be made in several areas. The growth of electrophysiology has been confined to big cities having large hospitals which can invest in the infrastructure required for electrophysiology procedures. This is especially true for 3-D mapping techniques which require significant investment on part of hospitals which may not be economically viable for smaller hospitals because of smaller number of patients. In fact, this is a very complex issue. Low reimbursements for electrophysiological procedures in India are also part of this problem.

So, we have a situation that smaller cities and smaller hospitals face huge challenges in providing electrophysiology services. The training period of an electrophysiologist is quite long, and the smaller number of patients coupled with low reimbursements make an exclusive electrophysiology practice very challenging. At the same time, it is important to deliver these services to our patients. One possible solution is to train and develop cardiologists with multifaceted expertise. Besides clinical and non-invasive cardiology, they should have adequate training in electrophysiology and intervention procedures. They should be able to perform routine procedures especially pacemaker and ICD implantation, and simple ablation procedures. And they should also have a good grasp of complex issues in heart rhythm disorders, for timely referral of patients for complex procedures to tertiary care hospitals.

One of the challenges we face in India relates to training of fellows in electrophysiology. The paucity of centers of excellence which can train electrophysiologists has slowed the growth of this specialty in India. However, there is hope on this front as well. Communication technology can have a disruptive influence...
on education and training. By virtual interactions, we can provide a level playing field to our fellows to train and to develop without having them to travel to long distances to medical conferences and to centers of excellence in western countries. Because the education and mentorship can be delivered to them wherever they are. A huge progress can be made on this front with help of Indian diaspora, many of them are very eminent electrophysiologists. Growing interaction between various national Electrophysiology societies is also a huge step in this direction.

Lastly, we need to be aware of various challenges we face in providing access to arrhythmia treatment to the vast population we have in India. The statistics of procedures related to arrhythmia therapies in India is quite dismal compared to rest of the world. The reasons for this are diverse. Economic factors, lack of awareness, and logistic challenges are the primary reasons why a large number of patients are not able to access quality healthcare. We need to constantly identify the unmet needs we have specific to our region and overcome the obstacles through collective initiatives. Even among physicians, lack of awareness and confidence about new treatment options is one of the most important barriers to delivery of appropriate therapy to deserving patients. Education and improved awareness of primary and secondary care physicians regarding current guidelines and care pathways can go a long way in development and delivery of arrhythmia therapies to deserving patients.

Declaration of competing interest

None.

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