Cardiac electrophysiology in India: Academic publications in the last decade and the way forward

“Strive not to be a success, but rather to be of value.”
—Albert Einstein

The past twenty-five years have witnessed a steady rise in the field of cardiac electrophysiology in India, in parallel to the developments happening all around the world. While the previous diagnostic electrophysiology (EP) remained largely an intellectual pursuit, the advent of curative ablation sparked the interest of many. That was also the period when interventional cardiology had opened new horizons and hence a majority of emerging cardiologists followed this fascinating route. Hence it was just a handful of dedicated cardiologists who decided to foray into the field and set up an EP program from scratch, against a backdrop of an always struggling public healthcare infrastructure. Initially training was sought abroad. Over a period of time, EP training was subsequently realized, albeit at a small scale, within the country, breeding a new cadre of young dynamic electrophysiologists. With setting up of EP programs all over the country, addition of many young vibrant electrophysiologists to the EP community and the availability of technological revolution of communication and data transmission at hand, we stand at an important juncture where we need to take stock of our achievements and plan our way forward.

Looking back at our academic achievements we have done modestly over the last decade. Running a Pubmed search with keywords “India” and “electrophysiology”/“pacing”/“arrhythmia” returned 146 publications over the last decade, after exclusion of multi-national projects where authors with Indian affiliation do not feature amongst first 3 authors. However, a large chunk of these (63 publications, 43% of 146) is comprised of case reports/electrophysiology rounds/similar categories. Approximately half of these were published in Indian journals. Original articles were the next major chunk, consisting of 51 publications (35%) with more than half of them finding their way into high ranked international journals. This fact is encouraging as more clinical research done in our country is getting recognition and is being published worldwide. Further, there were more than 600 citations for these original articles, while there were 100 citations for the case reports. Notable practice-changing articles have been the evaluation and management of granulomatous myocarditis; cardiac sympathetic denervation for refractory VT in structural heart disease; and optimized pacing during and after cardiac implantable electronic device implantation. There have been few nicely compiled review articles which would act as texts of reference in coming times as well as few notable thought-provoking editorials published in international journals of repute. Importantly, there have been important registries of atrial fibrillation and heart failure which have a high citation rate. Still, we significantly lack at organising collection, compilation and analysis of indigenous national level data from multiple centres, an area which needs to be actively looked into.

A proactive approach is needed to carry forward from here as we intend to project Indian EP community as leaders in clinical research in contrast to being followers. The focus needs to shift from gathering publications in the form of interesting cases and traces (which should be left to fellows under training) to more meaningful clinical research which is expected to change current practice. To foster clinical research, making quality healthcare delivery for arrhythmia patients accessible and cost effective is the need of the hour. There is an unmet need to look into our indigenous issues and address them first before entering the arena of Western world problems. There lies a great opportunity in addressing issues related to the middle income countries and be the leaders in these areas. For maximising the efficiency of our limited spending capacity, we need to identify major problems which would entail collection of large scale multi-centric data from various registries set up all over the country. This would provide the direction in which the time and energies need to be spent.

One of the key areas where we have lagged behind is research in basic science and technological advances. For example, India still suffers with a significant disease burden of rheumatic heart disease and associated arrhythmias. However, the research associated to it is largely absent in the current scenario. Arrhythmic substrates need to be identified and their pathophysiology studied in disease entities like rheumatic heart disease, inflammatory cardiomyopathies and infective (like tuberculosis, HIV) cardiomyopathies; so that we can better manage these patients. We also need our own basic research and development into anti-arrhythmic agents and therapeutic modalities. Premier academic institutes with government help will hopefully make a start in this direction by setting up EP bench research laboratories.

Further avenues need to be created for medical follow up of all patients, a key area where we are lacking currently. A good follow up forms the cornerstone of any robust data, especially as we look forward to large scale long term clinical research with clear messages rather than short term observational studies intended for successful publications. Needless to say, there is a shortage of funding for research and academic training. Thus we need to judiciously utilize the resources available and tap potential resources from all corners. Various research grants offered by Indian council of Medical Research, Dept of Science and Technology, Indian Heart Rhythm Society and various other national/international bodies.

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should be actively sought for. Developing a system of medical insurance and reimbursement for bringing the latest international technology to the table in a timely fashion is another challenge which needs to be addressed as an intermediate term goal.

One of the encouraging developments in the COVID 19 era is greater use of technology for communication. The whole EP community has now come closer given the virtual nature of meetings, allowing a larger proportion of the members to join in and contribute. This provides us with unique opportunities to work together. The importance of pooling multi-centric data to gather numbers for drawing meaningful conclusions cannot be overemphasized, and can be brought to reality in the near future. Interdisciplinary collaborations are also crucial; to cite an example, RF ablation started with trigeminal neuralgia, then for arrhythmias, later for tumors and other applications. Also close collaboration between the medical and technical streams (joint projects and theses between EP and engineering faculty, for example) can help develop our own diagnostic and therapeutic modalities. For instance, while I was doing my EP Fellowship in the Netherlands, an engineer who was refining the EP system was posted for his project in the hospital, and would have daily interactions with the EP faculty and fellows, with regular implementation and evaluation of the clinicians’ suggestions. Pooling in ideas from all directions will further help to improve the quality of research we undertake. It requires only some stretching of imagination to scale new heights in the field. Also, our endeavours together should make a larger impact on the face of the electrophysiological community at an international level.

To sum up, we already have a strong foundation for future development of the EP community in terms of great manpower with an academic bent of mind. A careful and meticulous approach is needed to invest and plan our future direction for a fruitful course.

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