

Pediatric Cardiology in India: Onset of a New Era

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Pediatric cardiology is outgrowing from the shadows of adult cardiology and cardiac surgery departments in India. It promises to be an attractive and sought-after subspecialty of Pediatrics, dealing with not only congenital cardiac diseases but also metabolic, rheumatic and host of other cardiac diseases. The new government policy shall provide more training avenues for the budding pediatric cardiologists, pediatric cardiac surgeons, pediatric anesthetists, pediatric cardiac intensivists, neonatologists and a host of supportive workforce. The proactive role of Indian Academy of Pediatrics and Pediatric Cardiac Society of India, towards creating a political will at the highest level for framing policies towards building infrastructure, training of workforce and subsidies for pediatric cardiac surgeries and procedures shall fuel the development of multiple tertiary cardiac centers in the country, making pediatric cardiology services accessible to the needy population.

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In India, Pediatric cardiology has only recently been identified as a separate subspecialty of pediatrics. It evolved as an offshoot of the adult cardiology services, as they had the necessary infrastructure (echocardiography, Cardiac catheterization laboratory) [1]. Creating a wholesome pediatric cardiology care program was usually considered economically unviable because of the need of a lot of infrastructural investment.

Congenital heart diseases (CHDs) account for 6-10 % of all the infant deaths [2,4]. However, with recent advances in diagnostic and treatment modalities, over 75% of these patients can survive and lead normal lives [4]. Approximately 180,000 to 200,000 children are born with CHD every year in India, of which one-third to half are critical CHD requiring early intervention [4]. Only about 2500 are operated, whereas the rest either perish or are added to the ever increasing total pool of cases with CHD in the country [1]. This is not only because of non-affordability; even if we use our existing infrastructure to its optimum, we may be able to handle only around 10% of the patient load [5]. In the absence of an organised program and an acute shortage of pediatric cardiologists, pediatric cardiac surgeons, pediatric anesthetists and other trained workforce in the country; along with an absence of a well-oiled referral and tertiary-care infrastructure network; and no fund allocation, these children and their families are left to themselves [6].

There were several reasons for poor evolution of this subspecialty of pediatrics in our country. In the early era

of its development, pediatric cardiologist was entirely dependent on the adult surgical units. Unlike in the West, there was no dedicated hospitals in our country where structured training in pediatric cardiology could evolve due to lack of optimum surgical facility, pediatric cardiac catheterization services, pediatric intensive care and echocardiography. Even today, these facilities are insufficient and non-existent in vast swathes of Northern and Eastern parts of India. Pediatric fraternity did not identify the need to prioritize and take up the issue of pediatric cardiology with the erstwhile establishments. Pediatricians not only found it extremely difficult to enter the 'cardiology' training program, as the entrance examination was more oriented towards students with MD in Internal Medicine, but also the overall cardiology program were mainly oriented towards 'coronary care', which was of little use to them. Quality pediatric cardiology training and care programs were only available in a couple of centers. Overseas training, on the other hand, required huge investments. This largely restricted pediatricians from venturing in this field. Cardiologists from internal medicine background were more interested in looking after adults, and were hesitant in taking up pediatric cardiology since they do not have the background training in neonatology and pediatrics.

In contrast, by the late 1950s, pediatric cardiology centers had developed all over the USA. Pediatric cardiology became the first sub-board of pediatrics and by the end of 2002, the total number of certified pediatric

cardiologists was 1740, with every medical school having a pediatric cardiologist [3]. Financial support for training of pediatricians was provided by the National Institutes of Health.

In keeping with the requirements, the Government of India, Ministry of Health and Family Welfare endorsed Pediatric cardiology as a subspecialty of pediatrics in 2012. It, for the first time, underlined the need of an MD in Pediatrics, with two years of training in pediatric cardiology as one of the basic qualifications needed, as recommended by the Medical Council of India; DM cardiology was no longer considered an essential requirement for this post. This shall go in a long way to promote the growth of pediatric cardiology in India by handing over pediatric cardiology services to pediatricians.

The grim scenario of pediatric cardiology in India cannot be changed overnight. Certain drastic steps need to be undertaken as follows:

1. *Improving institutional deliveries:* Most of the births are not attended by trained personnel, and most of the critical CHDs are missed at birth. 'National Health Mission' will go a long way to address this.
2. *Improving skills of pediatricians:* Usually pediatricians are unaware of the diagnosis, prognosis, treatment options and the appropriate time of referral of congenital heart diseases to the tertiary hospitals. Structured program of pediatric cardiology during postgraduate training in pediatrics coupled with compulsory update courses are needed.
3. *Creating divisions of pediatric cardiology:* Throughout the globe, pediatric cardiology is a subspecialty evolved and practised within the ambit of pediatrics, in close conjunction with the surgical and anesthesia team [7]. Neonatologists and the pediatricians are best trained in the normal physiology as well as critical care of sick babies. They are already using cranial and abdominal ultrasound and placing arterial and venous sheaths and long lines, skills which could be of great help in managing babies with congenital cardiac defects. DM courses and/or fellowships in other pediatric sub-specialties are being run in the pediatric departments in several government medical colleges and private corporate hospitals. It is high time that pediatricians should develop Division of pediatric cardiology with the entire necessary infrastructure, especially where adult cardiology and cardiac surgical back-up is present. In the presence of all the pediatric subspecialties under one umbrella, the infant with congenital cardiac lesion

with other common co-morbidities can be best managed.

4. *Increasing the number of pediatric cardiologists:* Indian Academy of Pediatrics (IAP) should impress upon the urgent need of getting at least one faculty trained and certified as 'pediatric cardiologist' at the cost of the government exchequer from every medical college through the existing centers of excellence within the country. The fellowship programs in Pediatric cardiology as initiated by the National Board of Examination and the DM (Pediatric Cardiology) will take too long to correct the current scenario. There are no formal training programs for pediatric cardiac surgeons and anaesthetists, which will become a major bottleneck as new centres are established.
5. *Increasing awareness about cardiac diseases:* IAP along with Pediatric Cardiac Society of India (PCSI) should make efforts towards educating the masses for early detection of cardiac diseases. They should create political will at the highest level for framing policies towards creation of infrastructure, training of work force and subsidies for pediatric cardiac surgeries and procedures.
6. *Creation of a proper referral system:* Community health centers and district hospitals should have a state of the art referral system supported by telemedicine and proper triage.

The future of Pediatric cardiology in India looks bright. With better education, rising per-capita income, sustenance of nuclear family model and shrinking family size, emphasis on management of congenital disease is increasing. With increasing awareness among masses and pediatricians, more and more infants are diagnosed with cardiac defects leading to an increase in procedures and surgeries. Moreover, the recent changes in the recruitment rules for the post of pediatric cardiologist by Government of India have increased the job opportunities for pediatricians with fellowship in pediatric cardiology.

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