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REVIEW

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The practice of paediatric cardiology in Nigeria: A Review

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Abstract *Background:* The practice of Paediatric cardiology in Nigeria is at its early phase and it is being choked in an environment overwhelmed with economic, ethnic and political issues. Paediatric cardiology covers a broad area of medicine. This includes diagnosis, medical treatment, interventional cardiology, prenatal diagnosis and surgery. It will also not thrive without a high level of infrastructure manned by personnel with advanced training and expertise. Regretably, the manpower and infrastructure that are needed is grossly inadequate in Nigeria.
For the practice of paediatric cardiology to gain ground, a well knitted corroborative mechanism involving the government and hospital authorities must be endorsed
Methods: A search for published works on practice of paediatrc cardiology in Nigeria was performed using Google and Pub Med. The Cochrane Database of Systematic Reviews was also searched.
The areas of focus were historical facts, burden of the problem, organization, factors militating Paediatric cardiology practice in Nigeria and the way forward.
Results and Conclusions: Contrary to what is widely believed in many quarters, though erroneously, there is overwhelming evidence that the practice of paediatric cardiology has left much to be desired.

Keywords: paediatric cardiology; Nigeria; manpower; infrastructure

Introduction

A student who wanted to read medicine has several examinations to write and about six to twelve years of major examinations in order to become a consultant paediatrician. Paediatrics is a major course which needs to be passed before qualifying as a doctor[1]. To be a pediatric cardiologist, someone need to at least spend an additional two years to qualify after becoming a consultant pediatrician. Pediatric cardiology in developing country is tasking. It is difficult to procure all the necessary ingredients to fend for the surgical needs of a very large number of children with congenital heart defects while dealing with severe financial constraints, poor funding from the government, lack of sustainability and maintaining quality in the backdrop of constant turnover of trained medical, nursing, and other paramedical personnel[2].

Historical background

It is has been documented that four of the sixteen nations in the West African sub-region have accounts of open heart surgery[3,4]. The first open-heart surgery in Nigeria was performed on 1st February 1974 At the University of Nigeria Teaching Hospital (UNTH) in Enugu.[5] The team of surgeons included F.A. Udekwu and his colleagues. By the year 2000, a total of 102 such operations had been carried out at the center by different Nigerian teams led by Professor Martin Aghaji[5]. In Ghana, open heart surgery began in 1964 when Professor C.O Easmon's team successfully performed closure of an atrial septal defect using surface cooling to achieve hypothermia[6]. In Senegal, the Surgery Department of Dakar´s Fann University Teaching Hospital began her first open heart program in 1990[7].
In 1983, a group in Cote D'Ivoire reported their results of the first 300 cases of open heart surgery performed in Abidjan.[8]

Burden of the topic

It is pertinent to note that lack of facilities for sustainable paediatric cardiac services in the developing world results in preventable deaths and suffering[9]. It is estimated that 15 million children die or are crippled annually by potentially treatable or preventable cardiac diseases. Ignored for a long time, this issue is starting to be a cause of major concern to individuals, governments, and, most importantly, cardiovascular specialists who

can appreciate the gravity of the problem and that the current situation is unacceptable[9]. In parts of western Africa, only 20% of the parents of children less than 15 years old requiring surgery for congenital heart disease are able to finance the operation within 12 months of diagnosis[7].

A study in Nigeria revealed that only a handful (6.2%) of children with congenital heart disease had surgery and a good number defaulted follow up[10]. Treatment of children with CHD are limited to larger cities and it is quite expensive and beyond the reach of the poor[10]. So many parents could not afford this cost and they will either abandon routine hospital visits or leave their children in the hands of fate[10].

To improve the survival of children with cardiac disease, there is need to diagnose and treat them at earliest age through provision of affordable human resources, diagnostic and surgical as well as other interventional facilities at each of the six geo-political zones of the country.[10]
In developed countries, the need to create and fund paediatric units is related to national need. A survey conducted by the WHO on resources for paediatric cardiac services concluded that a center able to perform 300 to 500 paediatric operations annually is needed in developed countries for populations of two million people[11]. No accurate statistics are available about the need for paediatric services in the developing world in general and Nigeria in particular. The painful and lamentable part is that many developing countries like ours with populations of about 250 million people are without a single specialized paediatric cardiac center able to offer modern preventive and therapeutic procedures[12].

Organization

For paediatric cardiology to take root in Nigeria, it cannot exist alone. A program must be enacted that will rotate around it[13]. This will comprise of both personnel and instruments. They include board certified physicians and expert nursing and ancillary team members: Cardiothoracic Surgery, Paediatric Anesthesiology, Paediatric Cardiology and Interventional Cardiology, Paediatric Intensive Care Medicine Neonatology, Paediatric Medicine, Maternal-Fetal Medicine , Adult Congenital Cardiology, Advanced Practice Nursing, Genetics Nursing, Perfusionist, Respiratory Therapy, Nutrition Therapy, Social Workers, Occupational Therapy, and Physical Therapy[13].
The Pediatric Cardiac team is in a unique position to provide optimum, individualized care for each patient.[14] Diagnosing and treatment of children's heart diseases require specialized knowledge and dedication.

Diagnostic facilities should include a fully equipped paediatric echocardiography laboratory, a paediatric cardiac catheterization and electrophysiology laboratory, and appropriate additional facilities and capabilities for comprehensive laboratory and non-invasive diagnostic evaluations of critically ill children[15] Therapeutic components that must be on ground should include a paediatric cardiac catheterization laboratory equipped for interventional cardiology and transcatheter radiofrequency ablations, a cardiac operating suite suitable for surgical treatment of all paediatric cardiovascular patients, an extracorporeal membrane oxygenator (ECMO), and a cardiac intensive care unit (ICU) or paediatric ICU and/or neonatal ICU equipped and staffed to care for paediatric cardiovascular patients[16,17].

While we are battling with these standards above, developed countries have even moved a step ahead by the use of mechanical assist devices as a bridge to heart transplantation in children.
Another vital area that militates cardiology practice in Nigeria is the area of funding, research training and sustainability. To ensure sustainability, trained staff should be retained. This can be done by creating good working conditions, inclusion of programs for postgraduate training and facilities for research to enhance professional and academic satisfaction[18].

Factors militating Paediatric cardiology practice in Nigeria

Paediatric cardiac service is too expensive for most developing nations like ours. Though cardiac disease is the leading cause of morbidity and mortality in the United States for the past 80 years[19], it may not be the same in developing countries, where malaria and malnutrition are major culprits that take priority when it comes to budge allocation[20].
The state of our health infrastructure ,referral systems, overemphasis on malnutrition, and the HIV/AIDS pandemic made development of a good paediatric cardiac practice inconceivable[21].

The way out

The practice of paediatric cardiology in Nigeria can gain ground, if the teaching of Dearani et al is upheld[22]. He opined that a comprehensive education strategy from the paediatrician to the allied health care provider is the mainstay for successful paediatric cardiology program. He also noted that the road to successful advancement of paediatric cardiology depends on many factors, such as government support, hospital administration support, medical staff leadership, and a committed and motivated faculty with requisite skills, incentives, and resources[22].
Medical and health staff and personnel support is a very vital tool in the promotion of paediatric cardiology practice. For instance, in 2001, there were 1609 certified paediatric cardiologists in the United States[23]. The ratio was approximately 45,000 children younger than 18 years per paediatric cardiologist. It is estimated that more than 19,000 cardiac surgeries are performed in children younger than 18 years in the United States each year[23]. The case for Nigeria is far fetched It is therefore pertinent for all concerned to join hands together to make the practice of paediatric cardiology worthwhile in Nigeria

Conclusion

The practice of paediatric cardiology in Nigeria is still at a primordial stage. Much is needed to be done to make the practice worthwhile. A good and formidable paediatric cardiology program will curb economic and brain drain we are experiencing in our country

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