CEIF Report on Humanitarian Mission to Nigeria by Maqsood Elahi, MD

April 26 to May 1, 2016

As per the World Health Organization (WHO), there are at least eight neonates out of a thousand surviving, who suffer from congenital heart disease (CHD) [1]. Yet the grossest issue is that 80% of the cases require operation within the six months of life. Cardiac surgery imposes a huge burden on limited healthcare resources and is therefore not available in most sub-Saharan countries. Where it is available, surgery is performed in small numbers due to financial constraints and shortage of human resources. Therefore, several countries are running collaborative programmes between local institutions and teams from Europe and America, mostly sponsored by local or international non-governmental organizations [2].

When we talk about Africa, the Middle East and parts of Asia, the incidence of CHD is rising yet the infrastructure is inadequate to treat these children. We estimate hundreds of thousands of children who are born annually with surgically treatable CHD. Millions are living with untreated, correctable CHD [3]. Most of these children die by the age of 20 from the effects of prolonged cyanosis, pulmonary hypertension, and increased left ventricular pressure [1-3].

We believe that humanitarian missions consisting of highly specialized cardiovascular teams travelling from developed countries can provide valuable local assistance with patient care. Interventional and corrective surgical procedures can be performed and potentially save the lives of patients with no alternatives. For humanitarian mission groups to provide safe and high-quality cardiovascular care to these patients, it is critical to recognize local needs and inherent challenges and to triage appropriately while recognizing the local and visiting team's limitations.

Teamwork is particularly important in cardiac surgery, because the weakest link can determine the ultimate results. A star surgeon cannot perform without adequate support from anesthesia, perfusion, and postoperative care, or without a precise preoperative diagnosis. This team approach renders training in our specialty difficult in countries where there are no established or experienced training centers; foreign aid becomes mandatory.

Making regular and frequent visits to a selected center in developing countries and performing surgery with the aid of local specialists is an excellent way of transmitting knowledge within developing countries. This manner of training has the further advantage of giving immediate high-quality care to the local population, which is usually sorely in need, because there is often a huge backlog of patients.

However, to date, there has been no organized, sustained effort to improve treatment capabilities in local communities for these patients or provide direct care for large numbers of these children or train staff. At the Heart-Lung & Research Institute, Cardiac Eye International Foundation (CEIF) has dedicated most of its resources to develop prototype centers around the world that would address these problems. Cardiac Eye International Foundation is an independent non-profit organization to encompass a source of educational information, scientific research and health care outreach heart charity for professionals e.g. physicians and surgeons, provide a technical infrastructure that can be shared by medical and surgical organizations to support information exchange, collaboration, and administration and offer an optimal and richly interlinked platform for major health care activities around the world. The primary goal of CEIF is to improve care for children with CHD and increase the number of children receiving adequate care within the African and South East Asian region. In this regard, we report on our first ever mission of this experience in Obafemi Awolowo University, Ile-Ife, Nigeria. We describe the specific challenges faced, how we addressed them and our attempt to develop sustainable cardiovascular care within this region.

Location of Mission

The CEIF Nigeria project was held in the Obafemi Awolowo University Teaching Hospital Complex, OAUTHC, Ile Ife, Osun State, and performed successful paediatric open heart surgeries on six children including Ventricular septal defect repairs, atrial septal defect repairs, Tetrology of Fallot repair and mitral valve replacement. The children hail from various parts of the country including Ilesa and Ikire in Osun State, Akure (Ondo State), Warri (Delta State), Offa (Kwara State) and Port- Harcourt (Rivers State) and the operations were carried out on them between Tuesday, April 26th and Sunday, May 1st, 2016. The success was recorded due to understanding between the Hospital and the Cardiac Eye Foundation International headed by Professor Maqsood Elahi who is a pediatric and adult Cardiac Surgeon. Professor Elahi also noted that the Congenital Heart Disease problem was currently rampant in the country and hence commended the Medical team and the management of the Hospital because of the huge financial involvement in the treatment of the problem.

Teamwork

Professor Dr. Maqsood Elahi made an exploratory visit six months earlier to the planned mission and made to establish contacts with the University to ensure local support from within university, governmental and nongovernmental sources. During this visit, the levels of local experience and knowledge were assessed and the available equipment was examined and tested. A long-term project was proposed for a duration dependent upon the level of local expertise, and a team of fully trained specialists was proposed for regular visits, the composition of the team depending on the local needs.

The local team included Dr. John Akintunde Okeniyi, the paediatric cardiologist, Dr. Uvie Onakpoya and Dr. Akin Ogunrombi the cardiothoracic surgeons, who selected and recruited the patients in consultation with Professor Elahi. The proposed cardiovascular surgical team, for the mission, was made up of a surgeon, an anesthetist, a perfusionist, a scrub nurse, an intensive care nurse or a respiratory therapist (or both), and a physical therapist. Our team was the only foreign visiting team training the local staff (Figure 1).

Figure 1: The team (Professor Dr. Maqsood Elahi and the local and international staff) with the Professor Victor A. Adetiloye, Chief Medical Director OAUTHC

Frequency

We have decided with the local authorities to make at least 4 visits, usually of 10-12 days duration. With this frequency, the local staff had time to admit patients and to follow up them after the departure of the visiting team. This frequency also enabled the local team to remember the techniques and routines, which is not the case if visits are too far apart.

Caseload

A sufficient number of cases were mandatory if the intention is to render the local staff independent. However, as we have said, in most developing countries there is a huge backlog of cases, but financing surgery for so many patients may be a problem. Here in ILE-IFE, for example, our foundation participated in the cost of diagnostic procedures and surgical treatment to afford patients free access to cardiac surgery. Patients were supplied through regular contacts and meetings with the local diagnostic team. Usually, at the beginning of each project, 2 cardiac cases are scheduled daily; later, in subsequent missions, as experience increases, a 3rd and even a 4th case can be performed in a day. However, the teaching process requires time, and excessive caseloads are deleterious to teaching. Therefore, we preferred to handle 10 to 12 cases in a 10 day mission allowing time for bedside rounds, teaching, and meetings with the cardiology staff to review newly diagnosed cases for future visits (Figure 2).

Figure-2: (a) Professor Dr. Maqsood Elahi operating with the CardiacEye International Foundation and Local Team on a child for the Tetrology of Fallot Repair **(b)** Tetrology of Fallot Repaired child in the intensive care unit post extubation.

Equipment

In all of these countries, the local authorities definitely wanted to initiate, develop, or improve cardiovascular medicine—cardiac surgery in particular. Investment for the acquisition of equipment was made by the local hospital or governmental authorities. The ordering of disposable material was also left to the local hospital administration. This was considered evidence of the transient role of the visiting team—that is, it enabled the locals to learn how and where to obtain the necessary cardiologic, anesthetic, and surgical material for daily use with the visiting team, and also for use once the local team took over. Advice was available from the visiting team, and suggestions regarding the choice of equipment were made by us when requested. Donations of used equipment came from hospitals and companies with which we have contacts at home. The local king of the ILE-IFE supported the project and enabled us to offer expertise without expense to the recipients. The International College of Surgeons-US Section also supported the cardiac surgery project in ILE-IFE. However, with time and experience, we also discovered that it is not always beneficial for the purpose of teaching and transmission of knowledge, to make projects totally free of charge. In some countries and in some settings, hospital authorities do not encourage teaching if patient care can be given by experienced foreign physicians at no charge. We now encourage joint ventures between the local government or hospital and our foundations, the prices of services being minimal and adapted to local standards, but not totally free.

The Experience of the CEIF Team

The CEIF team made its way to Lagos Murtala Muhammed Airport on the 24th April flying over the Sahara desert, the weather was hot in Lagos. After immigration clearance the team travelled to ILE-IFE with the host who was there to receive us. We were given a warm welcome by our hosts at the university guest house.

The next morning we visited the pediatric cardiac ward and attended the patients who were listed for surgery. Then we went to the physical therapy department where the local staff arranged a good classroom for the lectures. We were introduced to all the therapists and the HOD Prof. Rufus Adedoyin discussed the program agenda. Following that we met the hospital administration staff and doctors. Then we visited the ICU and Operation Theatre. In the afternoon, we prepared the theaters with the local teams and equipped them with all necessary perfusion hardware such as a heart lung machine, hypothermia machine, ACT machine & blood gas analyzer. All the cannulae, oxygenators & hemofilters for pediatric patients were checked. In the evening, we returned to the guest house, had dinner and then discussed all patients that were planned for surgeries.

Figure-3: The local classroom

The first patient was a 7 months old male baby, who had large OS- ASD. The surgery was started late as everyone had to get ready for the 1st case in the history of this institution. Surgery went well and the defect was

closed with pericardial patch. He was shifted to ICU and extubated early morning the next day. Our other surgeries also went well. We all were pleased to see the recovering post operative paediatric patients in ICU.

Along with the surgeries performed the team was involved in the teaching and training right from nursing perspective, to ICU management, perfusion and physical therapy. The CEIF team remained involved in the lectures and the live demonstrations to train the local staff.

Figure-4: The CEIF team remained involved in teaching and training nurses, to ICU management, perfusion and physical therapy.

Then we visited the TV station, the King's palace and town. Our host, Dr. Onakpoya took us to the TV station of the town. Then we visited the King's palace. It was nicely built; saw their court of law. After it we visited the university campus, saw various departments and liked nicely structured buildings.

Figure-5: Professor Dr. Maqsood Elahi thanking the King Adeyeye Enitan Ogunwusi of Osun State and introducing his CEIF team. At the end of the ceremony the CEIF and university team had a group photo with the King.

The next day was an off day as we finished surgeries. Everybody dressed formally as there was a press conference with the media at the university. After seeing patients in the ICU, we were taken to the university admin hall where a press conference with media personnel was held [4]. The Chief Medical Director, Prof V. A. Adetiloye chaired the meeting. He admired everyone's participation in this mission, gave a comprehensive review of what we had done, talked about the future plans and thanked all for their hard work and commitment. Then Professor Dr. Maqsood Elahi introduced the Cardiac Eye International Foundation, presented his views about the development of cardiac surgery on a Humanitarian basis all around the world and gave his future plan for how to develop a fully fledged cardiac surgery department in this university. He also introduced each member of his team. Our group photo with Chief Medical Director was taken. All were pleased about the successful outcome of the surgeries.

Conclusion

I feel that cardiovascular health care professionals from developed centres must continue to increase efforts to assist with international health initiatives in centres in the developing world. The burden of cardiovascular disease is increasing, and without such assistance this will become an important health issue in the decades to come. Even though humanitarian missions have limitations, they can still provide substantial health care benefits to those treated and can provide the educational framework to help many local physicians care for their future patients. These missions must be structured properly to create sustainable improvements in cardiovascular outcomes. In describing our experience, we hope to instill in others the same passion for international surgery initiatives and raise further awareness of the increasing incidence of cardio vascular disease in developing countries.

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