

African experiences of humanitarian cardiovascular medicine: The Cardiac Centre of St. Elizabeth Catholic General Hospital, Shisong

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Abstract: The cardiac centre of Shisong inaugurated few years ago is a good example of the mobilization of humanitarian resources from the north and south for the improvement of cardiovascular diagnosis and treatment in Africa. From the inauguration of the Center to December 2011, 23 surgical missions have been organized, (5 paediatric and 18 adults) and 204 patients have been operated with the help of the partners: Associazione Bambini Cardiopatici nel Mondo and Cuore Fratello. The Catheterisation Laboratory has performed a total of 117 diagnostic and interventional procedures while 22 pace makers were implanted (12 single-chambers and 10 dual-chambers). Many problems and challenges are faced everyday but with the enthusiasm, the dynamism and the professional skills of the personnel, the help of the partners we see a bright future.

Key Words: Cardiac centre; challenges; problems; future



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The relative and absolute importance of cardiovascular disease (CVD) in children and adults in countries of sub-Saharan Africa is assumed to be increasing in urban and rural areas (1). In a study done in St. Elizabeth Catholic General hospital cardiac centre in Cameroon, in adult patients hypertension was diagnosed in 41.5% cases, congestive heart failure in 29.6%, arrhythmias in 12.2%, ischemic heart disease in 1.5% (2). In children, congenital heart diseases and post rheumatic valvulopathies were diagnosed in 13.1% and 12.5% respectively, the pathology more frequent been was isolated ventricular septal defect and mitral valve lesion (3). These pathologies are invalidating the population and also they cause premature death in young patients.

The Cardiac Center represents, in its history and management, a good example of the mobilization of humanitarian resources from the north and south for the improvement of cardiovascular diagnosis and treatment in

Africa (4).

Don Claudio Maggioni, an Italian Catholic Priest, in the midst of the trauma of the death of his sister caused by a cardiac disease, plucked the passion to dream of making cardiac medical services available to people in the developing world. "My sister could still die in the midst of available health facilities in Milan; but there are those who die without even a possibility of diagnosis." Don Claudio went on to capitalize strongly on the universally acclaimed assertion that "everyone had the right to healthcare."

He did not think of Cameroon, but Fr. Angelo Pagano, an Italian Missionary working in Shisong, providentially, was linked to Don Claudio. Fr. Pagano indicated that a Hospital in his Parish may accept to collaborate in cardiac medicines. Sr. Alphonsa Kiven, after some considerations, came to accept the willingness of the Tertiary Sisters of St. Francis (who run Shisong Hospital) to collaborate since they were notable for health care provision in various parts

of Cameroon.

Later on Don Claudio invited the experts in the cardiovascular domain, *Bambini Cardiopatici nel Mondo Association* in Italy, founded by Paediatric cardiac surgeon, Alessandro Frigiola and anesthesiologists, Silvia Cirri, in 1994.

The Association's goals are to create autonomous Cardiac Centres and provide treatment in target countries. The Association is presently involved in three main projects among which is the Cameroon Project, launched in 2001.

Don Claudio later formed an Association "*Cuore Fratello*" that has continued to provide humanitarian assistance to Cameroonian children by sponsoring their cardiac surgery.

The Cardiac Center dream came true in November 2009 following its inauguration by Cameroon's Minister of Public Health (5). This historic event could be considered a healthcare breakthrough, which has significantly reduced the need to evacuate cardiac patients from Cameroon to Italy - an activity that Shisong Hospital had carried out since 2003.

Shisong Cardiac Centre is the only private cardio-surgical Center in Central Africa, equipped with state-of-the-art technologies and prepared to offer a wide range of cardiology services including diagnosis and treatment of congenital heart defects, coronary artery disease, valvular heart disease and electrophysiology. It manages non-invasive cardiology; that is, diagnostic testing for patients with suspected cardiac problems through tests such as electrocardiography, holter, stress test, three-dimensional colour, pulsed and continuous doppler-echocardiography. It also offers both diagnostic and interventional catheterism in a hemodynamic laboratory, implantation of permanent single and dual-chamber pace makers and defibrillators. Open-heart surgeries with extracorporeal circulation are also regular at the Centre. The Project is jointly sponsored by the *Tertiary Sisters of St. Francis*, the Association *Bambini Cardiopatici nel Mondo* and *Cuore Fratello Association* in Milan (Italy). Cost of constructing and equipping the Center was about 4 billion FCFA (800 millions USD).

Regarding cardiac surgeries, the Center depends on adult and paediatric specialists that come regularly from various Health Institutions in Europe and Africa, such as San Donato Policlinic; San Ambrogio Hospital, Milan; Ancona United Hospital; Hesperia Hospita, Modena; Gemelli Policlinic, Rome; Chaine de l'Espoir, France; Leuven Catholic Hospital, Belgium; Mapotu Heart Institute, Mozambique; and Stokolm Karolinska Institutet, Sweden. Most of the surgical missions are organized and financed by *Bambini Cardiopatici nel Mondo*.

Meanwhile consultations, diagnosis, medical treatment, pace maker implantations and catheterizations are performed by a resident, Cameroonian team.

From the inauguration of the Center to December 2011, 23 surgical missions have been organized (5 paediatric and 18 adults), and 204 patients have been operated (6). The Catheterisation Laboratory has performed a total of 117 diagnostic and interventional procedures while 22 pace makers were implanted (12 single-chambers and 10 dual-chambers). The two resident cardiologists consulted 11,376 patients within this time range.

Our international collaboration model offers us lessons on issues of teamwork, management, harmonization of objectives.

The importance of teamwork is obvious to everyone in cardiovascular/cardiac surgery domains. Consequently the technical infrastructure of the hospital as well as the entire team learn to work very consistently and carefully to maximize the use of resources and of results. We can consider this team as two rings. Firstly, the group which can be called the internal ring includes the anaesthesia, surgical and intensive care services. Then the group which can be called as the external ring includes all other medical disciplines, such as cardiology, internal medicine, endocrine, nephrology, neurology, and hematology as well management. The operation of this whole team in coordination brings the first step to success. Of course the technical/maintenance team is indispensable!

The second step concerns monitoring the patient in long-term. After we perform our systematic post-surgical controls within the first and fourth months, we monitor our patients in the first anniversary and then annually. The rest of the follow-up is performed by the cardiology department. More than 20 years of research and experience in high-risk industries such as nuclear power and military operations demonstrate that team work overcomes the communication and collaboration hurdles that usually bring about undesirable consequences. This is also true in health care management in the Center.

A recent report reviewed 16 studies demonstrating the empirical relationship between teamwork behaviors and patient outcomes. Peer-reviewed literature shows the positive impact of teamwork training on patient care quality, safety, cost-effectiveness as well as in inpatient medical and surgical wards and intensive care units. Effective teamwork improves clinical processes, reduces medical errors, improves surgical team performance, and encourages provider adherence to clinical guidelines, good organization

and discipline.

Italian staff worked with, mentored and supervised our local staff in medical, technical and management areas thus building their capacity and preparing them for autonomy. From recommendations that proceeded from our annual evaluations in 2011, surgical mission will not just be limited to performing operations, but to some scientific discussions for building capacity of local personnel.

Challenges

Sponsorship of surgery cost

In a Country with per capita income of 517,000 FCFA (795 Euro), with no national health insurance scheme, the challenge of auto-sponsoring surgery is obvious. Most patients who are recommended cardiac surgery are usually faced with the option of selling real estate in order to meet the cost or to withdraw and surrender to fate. Selling real estate to save the life of a loved one puts the family in perpetual poverty because such estate, such as land, usually provides the basic needs of the family.

Locally the Center mediates for Government subsidy for the less affluent patients, which is hard to come by. The Partner Associations such as Cuore Fratello, the Capuchins in the Cameroon Custody, and the Tertiary Sisters of St. Francis try to find funds to subsidize surgery cost. The Cardiac Center has also initiated a Heart Foundation, charged with finding financial assistance for the non-affluent cardiac patients.

Procurement

As the Pioneer Cardiac Center in Cameroon, appropriate medication and medical disposables are not available in the Country, but have to be bought and shipped from Europe. The Center took quite some time and effort to find European pharmaceutical companies willing to collaborate. Notwithstanding, the process of procuring items from Europe is usually long and costly, thus increasing treatment cost for persons with cardiovascular diseases. The exoneration from import taxes and duties granted by the Cameroonian Government to the Cardiac Center has been quite helpful. We re-use material supplies as appropriate in order to improve sustainability.

The post surgical follow-up of patients

Illiteracy, poverty and unhealthy cultural believes hinder

some patients from coming back to the Hospital for post-surgical reviews despite sensitization and counseling. It was a surprising discovery to note that some operated adults as well as parents of operated children did not fully understand the importance of our recommendation to return to the Hospital for post-surgical review. With the disappearance of the symptomatology, they considered themselves healthy, not needing anymore, medical care and prescribed medication. Consequently the patients exposed themselves to complications related to poor anticoagulation and, eventually, post surgical death.

Poverty

In a developing country where the mean monthly income of our patients is 500\$, the surgical fees 4,000\$, even though five times less expensive than in European Countries, are still very expensive for the population. The death registered after diagnosis before surgery is 32.5% while only 26.5% of those diagnosed benefited from the surgery. Obviously the psychological condition of a poor patient, diagnosed with a disease that requires surgery is characterized by intense trauma. Part of the poverty as indicated above, consists of illiteracy and lack of information. It is not common for an average Cameroonian to freely undertake health screening while many consult a medical doctor as a last resort when the illness is far advanced.

The above challenges pose a threat to the sustainability of the Cardiac Centre.

Cardiac center's contribution to the improvement of health care in cameroon

Since the program was launched in 2001, the Hospital has continuously embarked on health sensitization in various mass media. This usually consists of raising awareness of the causes, symptoms, prevention and management of cardiovascular diseases. Witchcraft accusations were poured on a victim when someone died suddenly in the family, but our sensitization has also clarified the allegations and explain chances of sudden deaths for persons suffering from cardiovascular diseases. Such psycho-social contributions cannot be minimized. Sensitization in this regard did not exist in the same degree in Cameroon prior to the existence of the Cardiac Center. However, personnel of the cardiovascular field regularly held meetings and congresses. There is no doubt that these campaigns are effective and do cause lifestyle changes in the Cameroonian population.

Formation of personnel

The Cardiac Center cannot exist without personnel. The two resident cardiologists underwent specialization for pace maker implantation and diagnostic/interventional catheterization in Italy. Eleven nurses were also trained as perfusionists, ICU nursing, scrub nursing, ward nurses and blood bank - all with reference to the care of cardiac patients. Those trained have continued to share skills and knowledge with new staff as well as staff from other Health Institutions in the Country who work as interns in Shisong. Incidentally a number of Cameroonians studying abroad have decided to return and work in the Country (Cardiac Center) because of its challenging technological climate.

Diagnosis and treatment with appropriate tools

Prior to my working in Shisong, I worked as cardiologist in a health institution which did not have basic diagnostic tools for cardiovascular diseases, and the situation has not changed so much today. That was frustrating! The availability of a well functioning machinery for diagnosis and treatment is a wonderful gift to the people of Cameroon. When it comes to cardiac surgery, Cameroonians have a choice to be operated at home or abroad - a possibility which did not exist before. By sponsoring cardiac surgery, the *Cuore Fratello*, Association has rescued close to 200 underprivileged patients through cardiac surgery either in San Donato Policlinic Milan or in Shisong since 2009. Apart from heart transplant services, the Cardiac Center offers to persons with cardiovascular diseases a high percent of chances of being treated.

Future Plans

The sustainability plan of the Cardiac Center consists of

the resource mobilization, funds sourcing and partnerships to that every cardiac patient, irrespective of their economic status, can be assisted to avail of the services offered.

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