Original Article

Paediatric Surgical Outreach in Central Region of Ghana

Gladys Amponsah, Victor Kobby Etwire[1]

School of Anaesthesia, Ridge Regional Hospital, [1]Department of Surgery, Paediatric Surgery Unit of Korle-Bu Teaching Hospital, Accra, Ghana

Abstract

Background: Conditions that are amenable to surgery are found globally. However, surgery is not easily accessible for most people in low- and middle-income countries due to physical and financial barriers, among others. One-way of mitigating against this situation is through surgical outreach programmes. **Patients and Methods:** A paediatric surgical outreach in a teaching hospital in the Central Region of Ghana was carried out by a paediatric surgeon from Korle Bu Teaching Hospital. Data on the cases done from June 2011 to June 2014 were analysed. **Results:** A total of 185 patients had surgery during the study. There were 153 males with the mean age of 4.53 ± 3.67 years. Patients aged 1–5 years represented 51.9% of the patients. Twenty-four (13%) had major surgery and 161 (87%) had minor operations. The most common minor operation performed was inguinal herniotomy representing 47.2% of the cases. None of the patients had any complications. **Conclusion:** The need for paediatric surgical outreach programme has been shown in this paper as well as its cost-effectiveness. With the current rate of graduation of paediatric surgeons in Ghana, paediatric outreach programmes will be needed in Ghana in the foreseeable future. This outreach should be extended to other regions of the country to cover a larger percentage of children in Ghana.

Keywords: Access to surgery, paediatric surgery, surgical load, surgical outreach

Introduction

Conditions which are easily amenable to surgery are found worldwide. However, low- and middle-income countries (LMICs) have focussed more on achieving the Millennium Development Goals instead of strengthening the systems for basic surgical care.[1] LMICs have limited access to surgery. It is estimated that over 200 million major surgical operations take place annually worldwide.[2] Most of these take place in the developed countries with the poorest countries accounting for only 3.5%.[3] The reasons for this are many, but they can conveniently be summarised as 'barriers to surgery'. These barriers include physical, financial and low socio-economic status.[4-6]

Access to paediatric surgery is even more problematic. Ghana with a total population of about 26 million has only 11 qualified paediatric surgeons. The Central Region of Ghana does not have a single paediatric surgeon. To mitigate against this problem, a paediatric surgeon from Korle-Bu Teaching Hospital (KBTH) started an outreach programme at a teaching hospital in the Central Region of Ghana in June 2011, after a series of consultations with the authorities of the hospital. The surgeon visited the hospital once every month. Surgery was done on the 1st day of the 2-day visit while an out-patient clinic took place on the 2nd day. This paper is a preliminary report of the outreach programme in the hospital.

Patients and Methods

Written approval was obtained from the hospital authority for the study. The study period was from June 2011 to June 2014. All the patients who had surgery during that period were included in the study. Data were collected from the theatre records and supplemented by information from the admission and discharge book of the paediatric ward of the hospital. The main data collected were as follows: the age and sex of the patient, the type of surgery done, the anaesthetist and the type of anaesthesia given.

The information was entered into Microsoft Access. The total number of patients, the means with standard deviations, proportions (percentages) where appropriate were calculated.

Address for correspondence: Prof. Gladys Amponsah, School of Anaesthesia, Ridge Regional Hospital, P. O. Box 473, Accra, Ghana.
E-mail: gamponsah2006@yahoo.com

Access this article online

Quick Response Code:

Website: www.afrjpaedsurg.org

DOI: 10.4103/ajps.AJPS_114_16

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Amponsah G, Etwire VK. Paediatric surgical outreach in central region of Ghana. Afr J Paediatr Surg 2018;15:80-3.

Results

One hundred and eighty-five patients had surgery during the period. There were 153 males and 32 females giving a ratio of approximately 4.8:1. The ages of the patients ranged from 5 days to 17 years. The mean age of the patients was 4.53 ± 3.67 years. Patients aged 1–5 years represented 51.9% of the patients [Table 1].

Twenty-four (13%) had major surgery and 161 (87%) had minor operations. Of the major surgeries, seven were Swenson's pull-through, six laparotomies for various pathologies: feeding gastrostomy, pyloromyotomy and closure of ileostomy. The remaining 11 operations included nephrectomy, splenectomy and the repair of urethrocutaneous fistula. The most common minor operation done was inguinal herniotomy representing 47.2% of the cases. The details of the minor operations done are shown in Table 2.

All the patients received general anaesthesia for their operations. Physician anaesthetist anaesthetised 16 (8.6%) of the patients alone and worked with a nurse anaesthetist in 11 (5.9%) of the patients. The majority of the patients 158 (85.4%) were anaesthetised by nurse anaesthetists on their own.

All the minor cases were discharged on the same day, and the major cases were admitted for varying length of days on the paediatric ward of the hospital. No major complications were seen on follow-up visits.

Discussion

One hundred and eighty-five patients who had surgery in the Cape Coast Teaching Hospital over the study period is a clear indication that this outreach has helped the people of the Central Region and the Western Region from where some referrals came. The region makes up 8.9%[7] of the population of Ghana but currently does not have a single paediatric surgeon. Most of these patients would have had to travell to Accra for their surgery. There are over ten government and faith-based district hospitals in the region, each equipped with an operating theatre. These hospitals, however, do mainly adult surgery with occasional paediatric surgeries such as herniotomies. The majority of paediatric patients are referred to the KBTH, in Accra, a distance of between 50 and 150 km depending on the starting point. Awoyemi *et al*.[4] stated distance as a barrier to seeking health-care by people in the rural areas. The long distance travelled adds to the cost of surgery for these rural dwellers.

Table 1: Distribution of ages of patients

Age (years)	Frequency (%)
<1	27 (14.6)
1-5	96 (51.9)
6-10	46 (24.9)
11-15	15 (8.1)
>16	1 (0.5)
Total	185 (100.0)

Table 2: Distribution of minor surgery performed

Type of surgery	Number of patients (%)
Inguinal herniotomy	76 (47.2)
Miscellaneous*	27 (16.8)
Orchidopexy	26 (16.1)
Division of PPV	23 (14.3)
Umbilical hernia repair	7 (4.3)
Orchidopexy and herniotomy	1 (0.6)
Orchidopexy and division of PPV	1 (0.6)
Total	161 (100.0)

*Excision biopsy, syndactyly. PPV: Patent processus vaginalis

A number of barriers have been identified as limiting access to surgery by patients from the rural areas in the LMICs. These include physical, financial and socio-cultural barriers.[2,4,6] Ghana like most LMICs faces the problem of inequality in the distribution of the few specialists who are mainly found in Accra and Kumasi. This same problem was also stated by Awoyemi *et al*.[4] The Central Region is a fairly homogenous region culturally. The main language is Fante, which is understood by all the inhabitants. Moreover, Cape Coast is easily accessible from all parts of the Central Region. This is in contrast to KBTH which is very cosmopolitan, being in Accra, the capital of Ghana. The mere mention of the hospital scares people as some of them have never been to Accra in their life. Some patients may therefore not go at all on referral for fear of the unknown or from the stories heard from friends and relatives.

Financial barriers[4,6] are a major problem facing most people in the LMICs. Health financing in Ghana has undergone a number of changes since independence. From virtually free health care to the 'cash and carry' to the National Health Insurance Scheme which was established by an Act of Parliament in 2003.[8] Even though the scheme is currently facing a number of challenges, it has improved to a large extent the financial access for a number of Ghanaians, especially those who live in the rural areas. Almost all of the patients who had surgery during this period had a National Health Insurance Scheme cover. In doing the majority of the cases as a day case, the financial burden was further reduced by eliminating in-patient cost which includes that of the care-giver. These patients met the criteria for day case surgery. These include short procedure, minimal blood loss and mild-to-moderate pain which can be managed with oral analgesics.[9] Having the surgery done in Accra may involve spending 1–7 days in Accra depending on the distance travelled by the patient. The cost-effectiveness of surgical outreach was also seen in the work done by Isichei *et al*.[3] in a paper published from Nigeria compared to the referral system, with the unit cost being about half of that of the routine surgeries.

Even though all the hospitals in the Central Region are equipped with an operating theatre, the lack of appropriate personnel and equipment limit the number of paediatric

surgical cases that can be done in those hospitals. Some of the hospitals do not have anaesthetic equipment suitable for paediatric patients such as breathing system, oropharygeal airway and laryngoscope.[6] This problem was also cited by Grimes *et al*.[2] and Awoyemi *et al*.[4] in their respective papers as barriers to surgical care.

The most common surgery done was inguinal herniotomy which constituted 47.2% of all the minor cases done. An inguinal hernia is the most common surgical problem in children. The waiting time for inguinal herniotomy in KBTH was 1½ years at the beginning of the outreach. This, and other outreaches undertaken by the paediatric surgical team have shortened the waiting time to 3 months as well as reducing the pressure on KBTH. Hernias in children 6 months and below have a higher risk of strangulation than in older children and adults.[10] Obstruction of a hernia could occur while the child is on the waiting list. This could lead to an added risk to the child since the obstruction could easily be missed by the health worker who first sees the child. He/she may not have the experience in making the diagnosis. In some instances, the parent or caregiver may miss the obstruction. The obstructed hernia may lead to complications such as gangrenous bowel and damage to the gonads. It would also add to the cost of care since the child in most instances cannot be treated as a day case.

Even though KBTH has four paediatric surgeons, the number of patients they can operate on depends on factors such as the availability of anaesthetists. Operating on all the other patients in Cape Coast means operating space is made available for other patients with more urgent pathologies such as malignant conditions and congenital anomalies.

During the 1st year of the programme, minor surgical operations were done. There was the gradual introduction of major cases as the years went by. Some of these cases which were done included splenectomy, nephrectomy and Swenson's pull through. This strategy was put in place to ensure patient safety. Even though the surgeon was qualified, the ward nurses needed to be introduced gradually to paediatric surgical nursing. The hospital has only one paediatric ward for both medical and surgical patients, unlike KBTH which has a separate ward for surgical patients.

Patient safety should not be compromised during surgical outreach programmes. Adverse outcomes have been seen in some of these patients in the past. Eberlin[11] *et al*. in their paper listed some of these adverse outcomes following surgical outreach. These included preventable infections, operative complications and even death. No complications were recorded in these patients over the period.

Apart from the direct benefits of the outreach to the patients and their caregivers, other benefits were also seen. The fourth medical school in Ghana was started at the University of Cape Coast in January 2008. At the onset of the outreach programme, the first batch of medical students had just started the junior clinical rotations. The outreach thus enabled the surgeon, who is also a part time lecturer at the school, to expose the students to paediatric surgery. It is interesting to note some of these students have decided to specialise in paediatric surgery. The outreach also offered the final year students who were doing their anaesthesia rotation the opportunity to be part of the anaesthetic team for these paediatric patients.

The hospital has recently been accredited by the Ghana College of Physicians and Surgeons for the training of surgical residents. This outreach programme will help in the training of the residents pending the appointment of a full-time paediatric surgeon for the hospital. Other direct benefits to the hospital include enhancement of the image of the hospital as a tertiary health care institution as well as a source of income for the hospital.

Surgical outreach programmes are not new in Ghana. In the late 1980s, the late Prof JKM Quartey started the Operation Ghana Mission. The group consisted of mainly Ghanaian specialists who operated on patients outside the teaching hospitals. They visited places such as Sekondi, Cape Coast and Sunyani. There is another outreach team which goes to the northern part of Ghana to operate on women who have developed vesicovaginal fistulae as a complication of childbirth.

Ghana has also been visited by a number of foreign-based teams from time-to-time such as the Mercy Ship and Operation Smile (Smile Train).[12] These teams are mainly supported by donations from philanthropists, companies and other well-wishers. The visits are usually expensive and do disrupt the routine of the hospitals, especially the smaller ones. The cost of these outreaches can be very high. For example, the recent trip of Operation Smile to Ho in the Volta Region cost $150,000.[13] These teams are usually not available to deal with the medium to long-term complications of their interventions.

In contrast, the paediatric surgical outreach to Cape Coast is done at minimal cost and is also woven into the routine of the hospital so as not to disrupt the regular schedule of the hospital. Moreover, continuity of care is assured, and the surgeon is available for complications that may arise.

The West African College of Surgeons (WACS) has the mandate to train and certify specialists for all the countries in the sub-region, both Anglophone and Francophone. Even though the College has been in existence for 56 years, the number of specialists trained so far is woefully inadequate to meet the surgical needs of the ever-increasing population of the sub-region. In addition to the inadequate numbers of the specialists, the other challenge is the inequality in the distribution of these specialists.[4] In view of this, the College took a decision to organise Surgical Outreach programmes at the district hospitals of the host country during the WACS annual conferences. This decision was in line with the College's desire to strengthen the quality of health services delivery at all levels in all the member countries. So far, WACS has done 5 surgical outreach programmes since 2010 and treated more than 800 surgical patients starting in Calabar, Nigeria in

2010.[14] The last outreach was held in Sangmelima Reference Hospital, Yaoundé, Cameroun, in 2016.[15] The College has now began outreach programmes apart from those organized during the annual scientific meetings to increase coverage. The historical and inaugural outreach was carried out in Abuja at Garki General Hospital and other hospitals managed by Fellows of WACS at no cost to the patients. This took place in January 2015.

Conclusion

The need for this paediatric surgical outreach programme and other outreach programmes has been shown in this paper. The cost-effectiveness has also been established. With the current rate of graduation of paediatric surgeons in Ghana, (four in the past 5 years) paediatric outreach programmes will be needed in Ghana in the foreseeable future. This outreach should be extended to other regions of the country to cover a larger percentage of children in Ghana.

Recommendations

The Ghana Chapter of the West African College of Surgeon should consider the implementation of surgical outreach programmes as recommended by the WACS. There should also be a net-working of all the paediatric surgeons in Ghana to enable effective utilization of human and material resources. This will go a long way to bring specialist care to the doorsteps of the rural population who otherwise may not have such access.

Acknowledgement

The authors would like to thank Mr. Edward Obeng Otchere for Data collection.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Kushner AL, Cherian MN, Noel L, Spiegel DA, Groth S, Etienne C, *et al.* Addressing the millennium development goals from a surgical perspective: Essential surgery and anesthesia in 8 low- and middle-income countries. Arch Surg 2010;145:154-9.
2. Grimes CE, Bowman KG, Dodgion CM, Lavy CB. Systematic review of barriers to surgical care in low-income and middle-income countries. World J Surg 2011;35:941-50.
3. Isichei MW, Misauno MA, Shitta AH, Isichei CO, Enwerem KE. Cost effectiveness of surgical outreach compared with routine surgeries at a facility in Jos, Nigeria. IOSR J Med Dent Sci 2014;13:53-4. Available from: http://www.iosrjournals.org/iosr-jdms/papers//K013455354.pdf. [Last accessed on 2014 May 26].
4. Awoyemi TT, Obayelu OA, Opaluwa HI. Effect of distance on utilization of health care services in rural Kogi State, Nigeria. Hum Ecol 2011;35:1-9. Available from: http://www.krepublishers.com. [Last accessed on 2016 May 31].
5. Ojo E, Okoi E, Umoiyoho AJ, Nnamonu M. Surgical outreach program in poor rural Nigerian communities. Rural Remote Health 2013;13:2200.
6. Amponsah G. Challenges of anaesthesia in the management of the surgical neonates in Africa. Afr J Paediatr Surg 2010;7:134-9.
7. Ghana Statistical Service. 2010 Ghana Population and Housing Census; 2012. Available from: http://www.statsghana.gov.gh/docfiles/2010phc/Census2010_Summary_report_of_final_results.pdf. [Last accessed on 2015 Nov 18].
8. National Health Insurance Scheme. The Benefits of the National Health Insurance Scheme. NHIS; 2016. Available from: http://www.nhis.gov.gh/Faqs/the-benefits-of-the-national-health-insurance-scheme-2. [Last accessed on 2016 May 18].
9. Quemby DJ, Stocker ME. Day surgery development and practice: Key factors for a successful pathway. Br J Anaesth Contin Educ Anaesthesia Crit Care Pain 2014;14:256-61. doi: 10.1093/bjaceaccp/mkt066. Available from: http://www.ceaccp.oxfordjournals.org. [Last accessed on 2016 Sep 12].
10. The British Hernia Centre. Available from: https://www.hernia.org/types/inguinal-umbilical-hernias-in-infancy-and-childhood/. [Last accessed on 2016 Sep 12].
11. Eberlin KR, Zaleski KL, Snyder HD, Hamdan US, Medical Missions for Children. Quality assurance guidelines for surgical outreach programs: A 20-year experience. Cleft Palate Craniofac J 2008;45:246-55.
12. Operation Smile Gives Smiles 90 Children in Ghana. 6 May, 2015. Available from: http://www.ameyawdebrah.com/operation-smile-gives-to-smiles-90-children-in-ghana. [Last accessed on 2016 May 12].
13. Image Ghana News: Volta Regional Hospital Gives Smiles. 9 April, 2014. Available from: http://www.kingnobert.blogspot.com/2014/04/volta-regional-hospital- gives-smiles-to.html. [Last accessed on 2016 May 12].
14. Yangni-Angate KH. The West African college of surgeons annual conferences 1960-2015. J West Afr Coll Surg 2015;5:x-xvi.
15. The West African College of Surgeons UK Forum. Available from: http://www.wacs-ukforum.org. [Last accessed on 2016 May 12].