Assessment Of Common Surgical Conditions Encountered By Medical Officers Based In Rural Hospitals In East Africa.

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Background: Medical officers and specialists based in rural hospitals must have skills and knowledge to handle the most common emergency and elective surgical problems in their catchment population. The aim of this study was to assess the common surgical problems faced by medical officers in rural hospitals in Kenya and Tanzania that are supported by AMREF specialist outreach services and CCM-Comitato Collaborazione Medica surgeons and to assess how such training may be provided.

Methods: This study covered 31 rural district, Church, NGO and Government Hospitals in East Africa. A cross sectional survey using self-administered open-ended questionnaire was used. Forty-two questionnaires were administered to medical officers in charge of the hospitals. The data received was entered in EPINFO and analysed using SPSS to show the frequency of distribution of different variables.

Results: Of the 31 hospitals, 84% had 50 - 200 beds and 1-3 doctors; 40% had less than two. Most (80%) had outpatients load of 10,000 -30,000 per year and inpatients load of 3,000-10,000 per year; 79% of the hospital carried out 500-2000 deliveries per year. A third (35%) of the hospitals had no anaesthetist. Between 200-400 patients per year required emergency and elective surgery in 50% of hospitals. Common emergency surgical conditions and procedures were Ectopic pregnancy, Caesarean section, strangulated hernia, appendectomy and bowel resection. Hernia repair, Hydrocelectomy, Hysterectomy, prostatectomy and appendectomy were the commonest elective procedures. A total of 79% of rural based medical officers preferred a combination of on-the-job training by visiting specialists and training at a referral facility as the best method to improve their surgical skills so as to competently deal with major surgical problems in their area. The majority (85%) of the respondents preferred that training should take 6-12 months. Medical officers, supported by periodic visits by specialists to perform complicated elective surgery and refresher training, can adequately manage majority of surgical problems in rural areas.

Conclusion:

1. There is need for a critical review of the current institution-based surgical training for rural based medical officers.
2. There is shortage of health workers who can administer safe anaesthesia in rural hospitals
3. Medical officers prefer combined approach to surgical training, on-the-job training by visiting specialist and institution-based training for a short period 6-12 months.

Introduction

A surgical operation may be defined as: *"a procedures done in the operating theatre to an anaesthetized patient for the purpose of diagnosis, treatment or palliation"*. Operations may be further classified into major and minor depending on the complexity and skills and knowledge required to perform the procedure. Emergency surgery is an important life-saving treatment procedure, which every doctor working in a rural hospital is regularly faced with and is expected to adequately manage. The actual needs for emergency and elective surgery in East Africa in not known. It is estimated that 1000 operations per 100,000 people per year are needed but only 70-200 operations per 100,000 people are performed in sub-Sahara Africa[1,2]. Studies from North America and Western Europe have shown that surgical operatives rates are 10-100 times higher than sub-Sahara Africa.

Surgical health care in rural areas in East Africa is under-developed and under utilized. This is attributed to several factors such as inadequate skills, poor surgical infrastructure, lack of surgical equipment and supplies

and poor anaesthetics. Review of literature reveals that no comprehensive facility-based studies has been done in East Africa to establish the surgical procedures commonly faced by medical officers in rural hospitals.

AMREF's Flying Doctor outreach programme supports 42 isolated, remote rural hospitals through regular visits; provision of specialized health care and training, the hospitals are selected due to their distance from referral centres, poor road infrastructure or terrain and commitment to the AMREF outreach programme.

AMREF in collaboration with CCM-Comitato Collaborazione Medica (NGO from Torino) and the Surgical Department of Nazareth Hospital (Nairobi), hospitals participating in the outreach programme have been assessing ways of improving access and utilization of specialized health services to rural populations and innovative methods of improving skills and knowledge for rural based doctors and health providers.

The aim of the present study was therefore to determine the pattern of surgical operations frequently undertaken by the doctors based in the rural areas in East Africa.

Material and methods

AMREF's Flying Doctor outreach programme supports 42 isolated, remote rural hospitals through regular visits; provision of specialized health care and training, the hospitals are selected due to their distance from referral centres, poor road infrastructure or terrain and commitment to the AMREF outreach programme.

The study was a descriptive cross-sectional survey. Self-administered questionnaires were sent to 42 medical officers in charge of hospitals of who 31 responded. Rural hospitals covered by AMREF specialist outreach programme participated in the study, however two hospitals in Somalia, which are not covered by the outreach, also responded.

The study used structured questionnaires, which was send by mail to all medical officers in charge of the hospital. Data collected was analysed using EPI info for entry and SPSS for analysis to obtain frequencies of distribution of different variables.

Results

Table 1. Characteristics of the rural hospitals in the study

Catchment population	10.000-100.000	38%	>101.000	72%		
Bed capacity	50-200	38%	>200	12.5%		
No of doctors	1-2	40%	>2	60%		
No of nurses	1-10	8%	>11	92%		
Distance to nearest referral	< 3	28%	3-6	50%	> 6	22%

Table 2. Health Facility workload

No of outpatients / Yr	<10.000	21%	10-30.000	46%	>30.001	33%
No of inpatients / Yr	<3000	22%	3001-6000	30%	>600	48%
No of deliveries / Yr	<1000	39%	1000-2000	44%	>2001	17%
No of emergency surgery/ Yr	<100	25%	100-200	25%	>200	50%
No of Caesarean section / Yr	<100	38%	100-200	29%	>200	34%

Table 3. Most frequently performed surgical emergency

Ectopic pregnancy-salpingectomy	79%
Caesarean section	55%
Strangulated hernia repair	52%
Appendicetomy	48%
Small bowel resection	45%
Large bowel resection	17%
Fixation of open fracture	14%
Splenectomy	10%
Repair of internal organs	10%

Table 4. Most frequently performed elective surgery

Hernia repair		93%
Hydrocaelectomy		52%
Hysterectomy		52%
Prostatectomy		38%
Appendicectomy		14%
Salpingectomy		14%
Caesarean section		7%
Skin grafting		7%

Table 5. Surgical operation considered by Medical officers as absolutely essential for rural based doctors

Caesarean section	97%
Hernia repair	90%
Appendicectomy	87%
Ectopic pregnancy-salpingectomy	87%
Closed reduction of fracture	83%
Small bowel resection	73%
Splenectomy	70%
Amputation	70%
Hydrocaelectomy	60%
Colostomy	57%
Repair of ruptured internal organs	50%
Large bowel resection	43%
Hysterectomy	40%
Skin grafting for burns	38%
Fixation of open fracture	37%
Haemorrhoidectomy	27%
Prostatectomy	13%
VVF repair	10%
Mastectomy	7%

Table 6. What form of training do Medical Officers prefer?

Training at a busy referral centre	10%
On the Job Training by visiting surgeons	10%
Combination of both	79%

Table 7. Duration of surgical training

3 months	14%
6 months	43%
12 months	43%

Discussion

Medical officers in remote rural hospitals need an on-the-job surgical training, which cannot just be covered by periodical visits of a surgeon. It is very likely that the specialist is operating very complicated elective cases and facing very few life-saving emergencies during the short period of his visit. There is a need for medical officers to attend a selected, busy teaching centre where the number of different surgical emergencies is high. On the other hand it is important that the specialist visits regularly the rural hospital to face together with the medical officer the most common surgical problems of that area.

The majority of medical officers and surgeons prefer a planned combined approach to on-the-job surgical training by an outreach specialist programme and training in a qualified institution for a period 6-12 months. An on-the-job training course in Anaesthesia would be also essential.

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