

Anesthesia in rural Cameroon

Introduction

It is now recognized that to achieve the goal of safe and timely access to surgery by 2030, more surgical procedures and SAO workforce are required especially in low and middle income countries (LMIC) where the need is higher.^{1,2} Anesthesia has now extended beyond the operating room and is necessary for the peri-operative management to ensure patient's comfort and reduce morbidity and mortality rate.³ 313 million surgical procedures are performed each year worldwide but only 6.5 % are performed in LMICs where people needing surgical care are the most present. Inadequate access to anesthesia and surgical services is often considered to be a problem of low- and middle-income countries affecting mostly the indigenous populations.

Central African sub region is the third least accessible region as far as affordable surgical, anesthesia and obstetric care is concerned.² Cameroon, which is a country of this region, has a population estimated at 25 million with less than a hundred anesthesiologists; with its surgeons and obstetricians working mostly in the two main cities.^{1,4} To make matters worse, Cameroon is also facing the brain drain phenomenon. The problem is even greater in district Hospitals which are most often poorly equipped, where the rural populations face the issue of inaccessibility, low income, capacity and workforce. This problem is very common in many LMICs of sub-Saharan part of Africa.⁵

Anesthesia during surgical missions with local NGO

The Association of Competences for a better life known as ASCOVIME is a local Cameroonian initiative whose mission is to make accessible free and specialized healthcare services to relieve the suffering of the poor and under-served populations of rural Cameroon and some neighboring countries. Surgeons, anesthesiologist, obstetricians, students, nurses, retired and young doctors volunteer

Table 1 Number of villages covered from 2008 to 2017

Year	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Villages visited	53	41	49	53	36	31	29	21	19	3

They carefully and meticulously convert any room into an operating room during each mission and perform, with the collaboration of the local team, elective surgeries, especially general surgery, gynecology

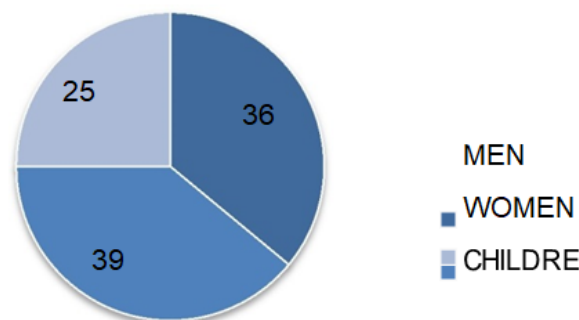
and obstetric surgeries for women, testis/hernia surgeries for boys and men and sometimes emergency Caesarian section and acute abdomen.

Their aim is to provide

- Specialized healthcare free of charge to underprivileged populations especially surgical care.
- Free didactic material to pupils and teachers of primary schools of these villages for a better educational development.

From 2008 to 2017, 333 villages of Cameroon were covered by the association with 7381 surgeries done and one in Sierra Leone in 2015, where the team performed 185 surgeries in one week, to patients who suffered for a long time from their surgical illnesses without being able to access or afford suitable healthcare.

Operated



Percentage of operated patients in 10 years

Each year the number of surgeries performed increases significantly, showing that the need is still very high.

Table 2 Evolution of surgical activities from 2008

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Hernia repair	32	174	265	340	319	452	642	900	788	890	4802
Lipomectomy	9	51	77	99	93	131	187	261	229	256	1393
Gynecology surgery	3	20	30	38	36	51	72	101	88	103	542
Testis surgery	2	79	11	14	13	19	27	38	33	44	280
Emergency (acute abdomen)	1	3	4	5	5	7	11	15	13	10	74
Others	2	10	15	20	18	26	37	52	46	64	290
Total	49	337	402	516	484	686	976	1367	1197	1367	7381

These procedures are performed on children and adults. For children, the common type of anesthesia is general anesthesia with Ketamine as a hypnotic drug.

Spinal Anesthesia with Bupivacaine 0,5% and Fentanyl is mostly used for adults when needed, depending on the indication, the patient's clinical state, availability of a care giver and the locality where we are.



Comments

Evidences and call for action

The surgeries carried out cover at least the elective essential surgery and dental care as cited in the first volume of the Disease Control Priorities, to prevent disabilities and enhance patient's social life. They are also not far from the results of Operation hernia, a Non-Governmental Organization, which performed about 9000 hernia surgeries in 13 years in sub-Saharan countries with more resources than them. In Yaoundé Central Hospital, one of the reference hospital of Cameroon, 1300 surgical procedures are performed each year

and since 3 years, ASCOVIME is near this number. Its contribution to reduce the additional 143 million surgical procedure needed worldwide is evident.

Work organization, anesthetic medications, availability of equipment and consumables as well as patient assessment prior to any surgery are evaluated to improve patient safety.^{3,6} The anesthesiologist can therefore be considered as the "team leader".

A team briefing, an adapted WHO safety Checklist, minimal monitoring equipment such as Lifebox pulse oximeter, sphygmomanometer and stethoscope are the basic elements available during missions to ensure surgery's safety knowing that the team do not always work in a conventional operating room.

Education is a priority in this association so as to make sustainable changes. During the missions, volunteers and local staff are trained on the different techniques they need to know to perform safe surgery in their day to day work places. It is also important to do this for patient's follow up after the mission (once they leave a village). More than half of Cameroon's population live in rural areas where people suffer from more incidence of surgical conditions.⁷ This NGO plays a key role in reducing the burden of surgical conditions in LMICs especially in Cameroon.⁵ The team is made of volunteer and because an anesthetist is not always available, people do not often benefit of a surgery when needed; this raised the issue of workforce in anesthesia and the importance of volunteerism with NGO.

Being able to work in difficult conditions should be a goal for every global healthcare giver including anesthesiologists. Fostering partnerships between NGOs and local governments and international institutions may be a solution to improve the quality of surgery and ensure access to essential anesthesia and surgical services.⁸⁻¹²

Through this association a project could be set up to share the vision of global surgery and gather volunteers so they should be able to advocate and work on strategies for safer surgery and anesthesia in rural Cameroon and Central Africa as recommended by Caris E. Grimes and Al. and as planned by the Program on Global Surgery & social change of Harvard Medical School.

Conclusion

While waiting to set up the universal health coverage and a national surgical plan for Cameroon, we should start somewhere and we think this is a good way to start and make sustainable changes in global surgery for LMICs, especially in Cameroon and Central Africa Sub region.

Despite difficulties, in terms of resources, the vision and the will to help and provide good care to the most needy keeps the team running every weekend.

Acknowledgments

None.

Conflicts of interest

None.

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