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Bizolé Balepna YD
Faculty of Medicine and
Biomedical Sciences, University
of Yaoundé I, Cameroon

Essi MJ
Department of Public Health,
Faculty of Medicine and
Biomedical Sciences, University
of Yaoundé I, Cameroon

Handy ED
Department of Surgery and
Specialties, Faculty of Medicine
and Biomedical Sciences,
University of Yaoundé I,
Cameroon

Nseme E
Department of Morphological
Sciences and Anatomical
Pathology, Faculty of Medicine
and Biomedical Sciences,
University of Yaoundé I,
Cameroon

Ibrahima F
Department of Surgery and
Specialties, Faculty of Medicine
and Biomedical Sciences,
University of Yaoundé I,
Cameroon

Sosso MA
Department of Surgery and
Specialties, Faculty of Medicine
and Biomedical Sciences,
University of Yaoundé I,
Cameroon

Correspondence
Bizolé Balepna YD
Faculty of Medicine and
Biomedical Sciences, University
of Yaoundé I, Cameroon

Orthopedic itineraries and public health challenges in the management of fractures in a tertiary hospital in Yaoundé Cameroon

Bizolé Balepna YD, Essi MJ, Handy ED, Nseme E, Ibrahima F and Sosso MA

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Abstract

Background: Fractures are more and more frequent, because of the extent of traffic road accidents and the rise of moto-taxis in Cameroon context. However, there are major public health challenges in the therapeutic response within the pyramidal care chain.

Method: This was a cross-sectional study with mixed component (qualitative and quantitative) that lasted ten months (from October 2017 to July 2018). It covered a six-year period (between 2012 and 2018) and was carried in the departments of orthopedic surgery and traumatology of Yaoundé Central Hospital. Included were the medical records of patients with fractures.

Results: The sample consisted of 428 patients, with a clear male predominance (sex ratio of 2.6) and a median age of 39 years. Biomedicine and ethnomedicine represented the most widely used treatment options in first (52.3%) and second-line (57%) respectively. As for self-medication, it constituted 44% of the first recourse, because of its geographical accessibility, and 40.2% of the third remedies. The orthopedic itineraries are very erratic, because of the medical pluralism observed within the health system. In addition, the therapeutic response within the pyramidal care chain has been marked by several public health challenges. They were respectively epidemiological (with extent of fractures and traffic road accidents), organizational (due to poor organization of front-line services) and financial (because of ineffectiveness of universal health coverage and socio-economic context specific to low-resource countries).

Conclusion: This study will make efficient data available to stakeholders, in order to improve the supply's organization of orthopedic care according to the demand, through perspectives of resolution of epidemiological, organizational and financial challenges in the pyramidal chain of fractures management.

Keywords: management, fractures, therapeutic remedies, public health challenges

Introduction

Orthopedic itineraries are defined as all the systems of representation of health and illness intervening in the choices made by an individual in his recourse to care, in cases of orthopedic trauma. Over time, the universalization and cohabitation of sometimes opposing cognitive and cultural paradigms have gradually led to the emergence of new therapeutic models, and also and especially to the diversification of therapeutic itineraries in some African societies [1]. This pluralization of care models includes three major therapeutic remedies that are ethnomedicine, self-medication and biomedicine.

The impact of fractures is becoming more and more important in low-resource countries like Cameroon, because of the increase of traffic road accidents and the rise of two-wheeled machines [2]. As a result, communities desperate for the health factor are sometimes awkwardly organized in their therapeutic responses. A study conducted in Yaoundé had noted an undulating medical pluralism, vertical at the beginning of the therapeutic trajectories to gradually become horizontal at the end in the context of complementary medicines, mainly with the ultimate use of biomedicine in case of failure of alternative therapies [3]. This reflects the vulnerability of the supply and accessibility of orthopedic care within the pyramidal care chain.

This mismatch between supply and demand in a context marked by the rise of the fractures and

the vulnerability of the care's supply motivates the present contribution which raises the issue of recourse mechanisms to orthopedic care. So it aims to describe the orthopedic itineraries and determine the major public health challenges in the care of victims in a third reference hospital in the city of Yaoundé.

Materials and methods

A descriptive cross-sectional study with mixed component (qualitative and quantitative) was carried out after the procurement of the ethical and administrative authorizations of Yaoundé Central Hospital. Data collection lasted ten months (from Monday 2nd October 2017 to Tuesday 31st July 2018), in the orthopedic surgery and traumatology departments of the said hospital. Included were the medical records of patients with fractures, between 2012 and 2018. Patients fulfilling the inclusion criteria were recalled through their phone numbers in medical records, for an interview. After being properly informed of the objectives of this research, methods, sources of funding, benefits, their right to refuse to participate in the study without retaliation, their free and informed consent was obtained in writing. The interviews were then conducted through semi-structured interview guides that identified patients' therapeutic itineraries and the main public health challenges that marked their management.

Results

The study population was predominantly male (sex ratio 2.6) with a median age of 39 years. It consisted mainly of young adults with 75% of patients fewer than 48 years of age. Traffic road accidents were the main etiology, accounting for 79.4% of cases. Patients living in poor households (annual consumption below US \$ 679.43 according to the criteria of

the National Institute of Statistics based on the results of the fourth Cameroon household survey) were the most frequent (58%).

Biomedicine was the most popular care system for first-line patients with proven cases of fractures (52.3%), particularly through: direct recourse to orthopedic surgeons in 92.8% cases, and the use of front-line services without a specialist physician (7.2%). Self-medication accounted for 44% of first-time referrals because of geographic accessibility (91.5%) and financial accessibility (8.5%). It was mainly of two types: firstly by the laying of makeshift splints by laypersons generally present not far from the accident places (57.5%) then medicated, through the consumption of non-steroidal anti-inflammatories (32%) and traditional bark (10.5%). Likewise, she represented 40.2% of the third appeal. Ethnomedicine accounted for 3.7% of first referrals mainly through the solicitation of traditional massage.

In second intention, traditional medicine constituted the main therapeutic remedy (57%). Biomedicine accounted for 33.6% of cases, with 80.5% of direct referrals to orthopedic surgeons and 19.5% of first-line services not having a specialist. In addition, self-medication was solicited in 9.4% of cases through the use of non-steroidal anti-inflammatories (40%), the use of homemade canes (25%), the consumption of traditional bark (20%) and the use of crutches (15%). In the third line, 40.2% of self-medication patients were found mainly via non-steroidal anti-inflammatories use (50%), use of homemade cane (27.8%) and use of traditional bark (22.2%); 28.9% of patients used physiotherapy in biomedicine and 19.6% of them used traditional massage with bonesetters. In addition, 2% of patients associated physiotherapy and traditional massages in both models of care (see Figure 1), and 9.3% did not adopt a third model of care.

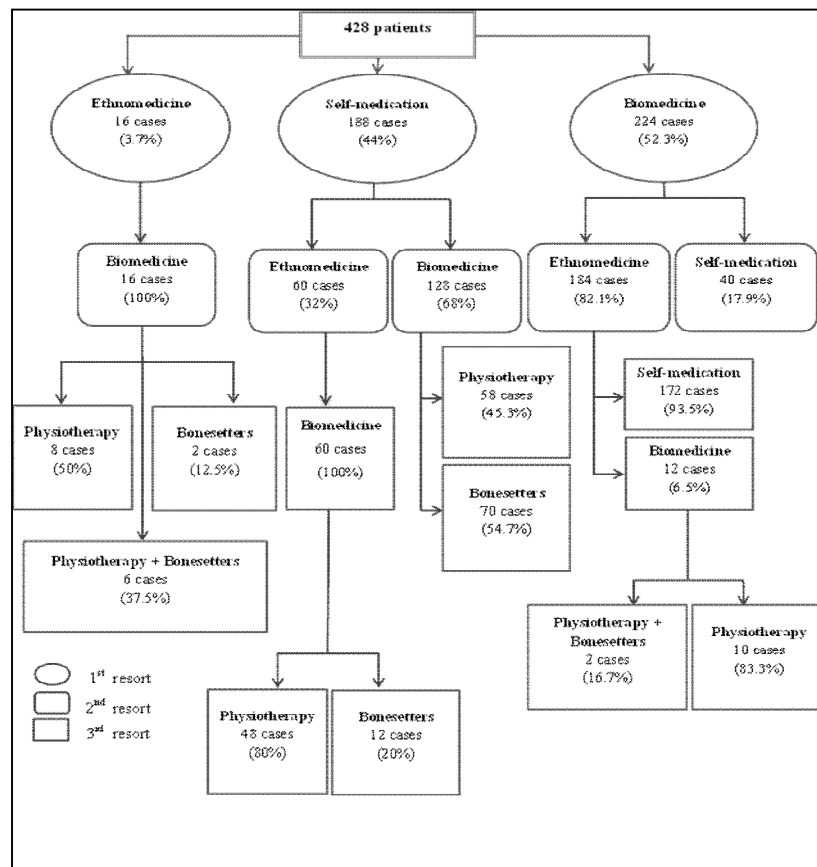


Fig 1: Algorithm of therapeutic itineraries in patients with fractures

It is nevertheless crucial to note that 98% of third-line ethnomedicine use were carried out independently of the patient's wishes, because of the lack of physiotherapy services into certain hospitals. Thus motivating the solicitation of these rehabilitation services outside the

biomedicine and in the context of complementary medicines. In addition, the therapeutic itineraries have been undulating, varying between ethnomedicine biomedicine and self-medication (see Figure 2).

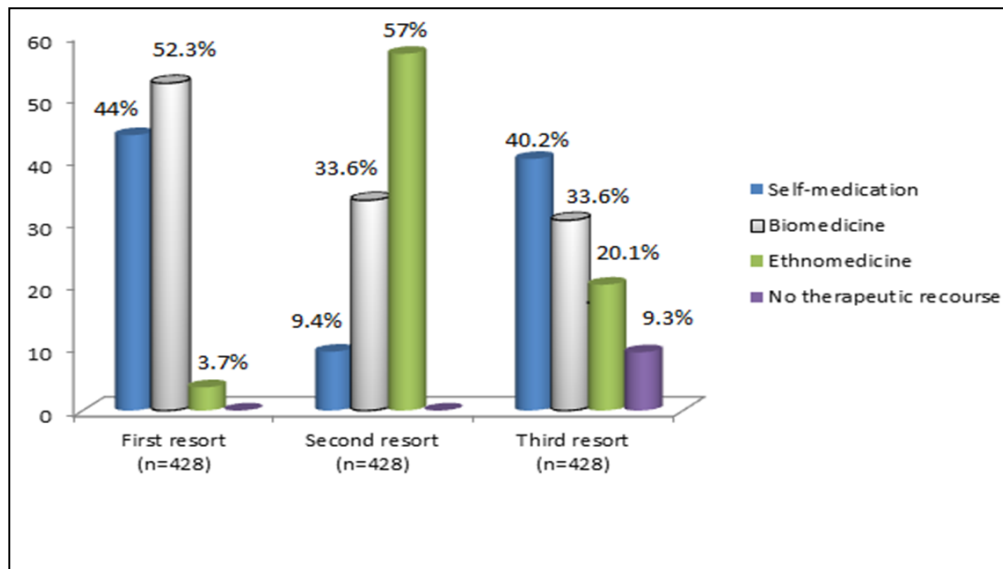


Fig 2: Frequency of healthcare systems

Front-line services, which should normally be the point of contact for people with the health network, have been the least sought in first, second and third intention. Indeed, they aimed to provide first aid after the fractures occurrence and are responsible for directing the patient to specialized services.

Discussion

Traffic road accidents were the main etiology of fractures in this study. They're more and more common in low-income countries, particularly because of the growth of two-wheeled vehicles in road traffic and also the sometimes perfectible condition of road infrastructures. This finding has been corroborated by studies carried out both in Cameroon [4-5] and sub-Saharan Africa in a socioeconomic context no less different [6-7]. Indeed, in 2008, they were the ninth leading cause of death in developing countries, accounting for 2.2% of all deaths. This mortality is constantly increasing due to the combination of several socio-economic and environmental factors. According to World Health Organization, in 2030, this figure will rise to 3.6%, the fifth leading cause of death in developing countries [8].

Self-medication accounted for nearly 44% of first referrals (the second most sought), particularly because of its geographical accessibility, via the availability of certain temporary materials generally used in making makeshift splints not far from accident sites. This could be explained by the ineffectiveness of the emergency medical assistance services and policies of collection of traumatized public roads, thus exposing the populations to other therapeutic remedies a little more accessible in first intention before any use of biomedicine.

Front-line services were not the most sought in first intention for each of the three different remedies. Yet they are described in a hierarchical approach of services supply, such as services that ensure the first contact between the patient and the health system and that guarantee access in an

integrated and coordinated way, to all preventive services, curative, psycho-social, rehabilitation and home care that he needs [9]. This could reflect failures in the organization of the first line in Cameroon. In addition, service delivery is fundamentally about improving the organization, management and delivery of health services in general and front-line services particularly [8]. Moreover, the modes and places of services are also determining factors for the accessibility and continuity of health services [10].

Ethnomedicine was the second most widely used health care system (57%), due in part to its accessibility and economic difficulties. This requires the structuring of front-line services in order to facilitate access to patients in an integrated and coordinated way. To achieve this, additional economic resources need to be carefully injected into the health system to ensure equitable access to health services, availability of quality services and financial protection of people: the role of universal health coverage. In this study, patients living in poor households were the most frequent (58%). In addition, the total health expenditure in Cameroon is US \$ 6.8 per capita with almost 70% of direct payments still coming from households [11]. Now and by the way, the biomedical management of a fracture costs on average US \$ 1000 per patient. It is therefore necessary to imperatively implement universal health coverage in order to put most of the fractures victims away from any financial risk. However, prepayment, pooling of resources and risk allocation are the basic principles for ensuring access to services and financial protection. It will only be feasible if there are institutions that pool funds in advance and use them to provide services (health promotion, prevention, treatment and rehabilitation) in an efficient and equitable manner [12].

Conclusion

The present study focused on orthopedic itineraries and public health challenges in the pyramidal chain of fracture management in patients treated in a third reference hospital in

Yaoundé. At the end, we see that the orthopedic trajectories are erratic and characterized by a medical pluralism within a health system where biomedicine seems a priori unable to absorb the totality of the demand for orthopedic care. However, this disability inexorably reflects a mismatch between demand and care's supply, mainly because of three public health challenges related to care in Cameroon. In case, the epidemiological challenge marked by the scale of traffic road accidents and fractures, the organizational challenge justified by the poor organization of front-line services and the financial challenge, due to the lack of universal health coverage. These observations therefore, suggest a real public health policy concerning the questions of traffic road injuries and bone fractures, a better organization of front-line services in the pyramidal care chain and the establishment of universal health coverage, guaranteeing equitable access of the population to quality services and safe from financial risks.

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