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Research Article

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Pathologic Profil, Management of Resources and Quality of Care at The Orthopedic Surgery Department of The Central Hospital of Yaounde

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Abstract

***Introduction**: According to the World Health Organization (WHO), an effective healthcare system must provide quality care for all, which requires regular assessments. In Cameroon, evaluating the quality of orthopedic care is essential due to the growing demand for these services.*

***Objective**: Assess the quality of care in the Orthopedic Unit at the Yaounde Central Hospital, describe the pathological profile, and evaluate resources.*

***Methodology**: A situational analysis was conducted in the orthopedic surgery department of the Central Hospital of Yaounde (CHY) in 2023, over an 8-month period. The assessment used data sheets and considered the pathological profile and human resources.*

***Results**: The evaluation of the pathological profile, based on medical records, showed a median patient age of 39 years, ranging from 6 to 87 years. The sex ratio was 1.63, favoring men. Road traffic accidents accounted for 79% of trauma cases. Fractures were the most common trauma, with 54.41% being closed and 41.5% open fractures, caused by direct mechanisms in 95% of cases. The lower limb was the most affected area (70.76%), followed by the upper limb (14.41%). Also, the most common post-operatory complication was skin infection (5%), followed by deep veinous thrombosis DVT (1.5%). Analysis of material resources revealed that 69.4% of technical equipment was in good condition, 97.1% fully functional, but only 37.5% easily accessible. The quality of care in the orthopedic unit was adequate in 98% of cases.*

***Conclusion**: Although the quality of care in the orthopedic surgery department at YCH is generally adequate, more efficient management of material resources, especially in terms of accessibility, could help reduce treatment delays and onsets of complications.*

Keywords: Evaluation, Material Resources, Quality of Care, Orthopedic Surgery Unit, Cameroon

1. Background

Traumatic injury is an important and significantly increasing problem to health care systems worldwide [1]. According to the World Health Organization (WHO), traumatic injuries are one of the leading causes of mortality in the world, with 90% of the injuries estimated to occur in developing countries where preventive efforts are often nonexistent, and health-care systems are less prepared to meet the challenge [2,3]. This epidemiologic occurrence brings about a public health problem that needs to be managed by providing quality care. As stated by the institute of medicine: quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge [4-6]. Therefore, we can proceed by saying that evaluation of care quality is a scientific and systematic procedure which helps to determine in what measure an act or several actions lead to the successful achievement of one or more predetermined objectives. Thus, assessing quality of care will help in the provision of an optimum health care to patients, improve the unit and hospital actual standard of medicine.

2. Methods

A situational analysis was conducted in the orthopedic surgery unit of the Central Hospital of Yaounde between November 2022 and June 2023. The pathological profile was evaluated through a review of medical records using a questionnaire, while data on material resources were gathered using an observation grid. The data was analyzed using version 26 of the Statistical Package for the Social Sciences (SPSS). Mean and median values were calculated for the quantitative variables, and a four-point Likert scale was used to qualitatively assess the continuity, safety, and effectiveness of care for each patient. The aggregated data provided a quantitative estimate of the quality of care in each medical record, leading to an overall measure of care quality.

3. Results

3.1. Pathological Profile

The pathologic profile objectivised a median age of 39 years, a sex ratio of 1.63 in favour of male, RTA represented the most frequent etiology of traumatic injury in the orthopedic unit with 79% of cases. The lower limb with 70.76% was the most affected part. Also, fractures were the most encountered trauma type, more precisely closed fractures with 54.4%, followed by open fractures which accounted for 41.5%. Moreover, surgical treatment was done in 91% of cases. Lastly the mean awaiting time for surgery is 7.27 ± 6.08days. See below Table I: frequency of trauma type and their localization.

Variable	Modality	Frequency (N)	Percentage n (%)
Traumatized body part	Brain and skull	12	5.08 (5.08)
	Cervical spine	1	0.42 (0.42)
	Lumbar spine	2	0.85 (0.85)
	Thorax	4	1.69 (1.69)
	Superior limb Pelvis Lower limb	34 16 167	14.41 (14.41) 6.78 (6.78) 70.76 (70.76)
Trauma type	Closed fracture Open fracture Bruises Dislocation Sacroiliac disjunction Wound Pubic symphysis disjunction Crushed Traumatic amputation Ruptured ligament Ruptured tendon	108 83 12 11 8 7 6 4 4 3 2	54.0 (54.0) 41.5 (41.5) 6.0 (6.0) 5.5 (5.5) 4.0 (4.0) 3.5 (3.5) 3.0 (3.0) 2.0 (2.0) 2.0 (2.0) 1.5 (1.5) 1.0 (1.0)

Table 1: Frequency of Trauma Type and Their Localization

3.2. Management of Resources

3.2.1. Technical Equipment

Most of the technical equipment was functional (97.1%) and in good state (69.4%) but had reduced accessibility (52.5%). More details are available in Table II: Data on technical equipment

Variable	Modality	Frequency (N= 36)	Percentage (%)
Functionality	operational	35	97.1
	Less operational	1	29
Accessibility	Available Less available Unavailable	15 21 4	37.5 52.5 10.0
State	Fit Less fit Worn out	25 8 3	69.4 22.3 6.3

Table 2: Data on Technical Equipment

3.2.2. Quality of Care at Orthopedic Unit

• Safety

Safety refers to minimizing the risk of avoidable harm to the patient during the provision of healthcare services. This includes the prevention of medical errors and the effective management of incidents when they occur. View Table III: Data on safety.

Variable	Modality	Frequency (N)	Percentage n(%)
Outcome	Discharged	196	98.0
	Death	4	2.0
Onset of complication after surgery	Yes No	54 146	27.0 73.0
Pharmacological treatment	A B C D E F	180 184 197 183 101 131	90.0 92.0 98.5 91.5 50.5 65.5

Table 3: Data on Safety

• Continuity

Continuity of care refers to consistency and seamless delivery of care to patients over a period. It involves effective coordination between different healthcare professionals and facilities, ensuring that the care provided aligns with the patient's needs throughout their healthcare journey. The details are demonstrated in Table IV: Data on continuity.

Variable	Modality	Frequency (N)	Percentage (%)
Surgical past history	Remarkable Un remarkable	4 196	2.0 98.0
Complementary imaging exam	Yes	200	100.0
Number of patients with follow up	Yes	200	100.0

Table 4: Data on Continuity

• Efficacy

Efficacy refers to the effectiveness of an intervention in providing the best result for the patient, based on actual medical knowledge and guided by conclusive data (41). Readmission rate, evolution, complication prior surgery. Other information is displayed in Table V: Data on efficacy.

Variable	Modality	Frequency (N)	Percentage (%)
Evolution	Favourable	196	98.0
	Unfavourable	4	2.0
Readmission rate	Yes No	6 194	3.0 97.0
Complication prior surgery	Yes No	7 193	3.5 96.5

Table 5: Data on Efficacy

3.4. Quality of Care

The four-point Likert scale was used to qualitatively assess the continuity, safety, and effectiveness of care for each patient. This scale assigns a rating to each criterion, ranging from "best" to "worst" These assessments were then used to estimate the quality of care in each medical record. Table VII below gives an overview of the cases in which the 3 different quality criteria were best spotted out. That is out of the 200 files examined, efficacy, safety and continuity were seen best in 93.5%, 71.0% and 98.0% respectively. See Table VI: Data on Quality of care.

Variable	Modality	Frequency (N)	Percentage n (%)
Efficacy	Best Better Bad Worst	187 9 3 1	93.5 (93.5) 4.5 (4.5) 1.5 (1.5) 0.5 (0.5)
Safety	Best Better Bad Worst	142 54 4 0	71.0 (71.0) 21.0 (21.0) 2.0 (2.0) 0.0 (0.0)
Continuity	Best Better bad worst	196 4 0 0	98.0 (98.0) 2.0 (2.0) 0.0 (0.0) 0.0 (0.0)

Table 6: Data on Quality of Care

3.5. Overall Quality of Care

This is a quantitative assessment of care quality derived from each medical record, based on an aggregated four-point Likert scale that qualitatively evaluates continuity, safety, and effectiveness of care for each patient. Only 2% of cases in the study were found to have inadequate levels of care. More information is illustrated in Figure 1: Overall quality of care.

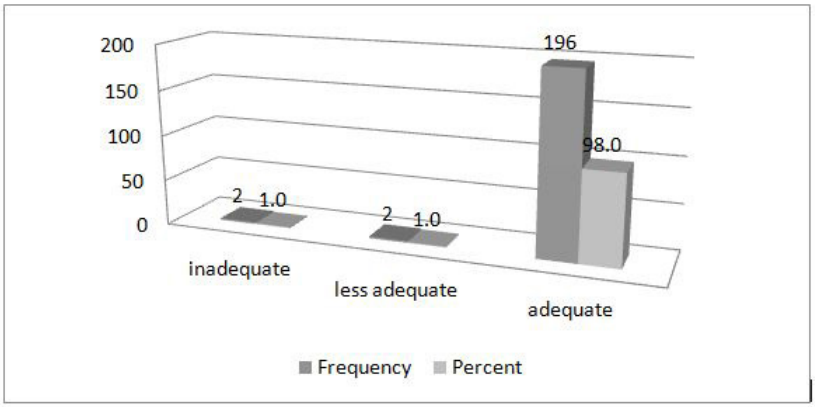

Figure 1: Overall Quality of Care

4. Discussion

This study was not without limitation. The absence of a proper referential on service quality in our context led to the adaptation of the servqual and WHO referential in fulfillment of our objective. Another limitation was the incompleteness of medical files which introduced a bias since some of the medical files recruited retrospectively had to be excluded due to lack of certain criteria such as completeness of content, accuracy, timeliness.

4.1. Pathological Profile

The main age group affected was between 31-40 years with 29.5% of cases which is similar to a study carried out by author [7-10]. This frequency in young adults could be explained by the hyperactivity of this segment of the population (which is therefore more exposed to trauma). The median age in our study was 39 years, which is identical to a study conducted in 2019, with an interquartile range of 30 to 53 years and extremes ranging from 6 to 87 years. Furthermore, the sex ratio was 1:1.63 in favor of men. This result is lower than that of studies, which observed a ratio of 2.5 and 2.6 respectively. The male predominance in our study can be explained by the fact that by their nature, males are more active and likely to be involved in riskier activities. The most common cause of traumatic orthopedic injury was RTA with 79% that is superposable to with 78.37% and 79.3% respectively [11,12]. The hostile African environment would certainly explain this predominance of RTA, that is the poor state of the roads, the disorganization of emergency services and transport of the wounded, the non-generalization of road safety rules, in short poverty and all its corollaries.

Majority of the fractures were closed fractures, 54.41%, while open fractures accounted for 41.5% of the cases. Fractures are the commonest trauma type because most trauma happened through direct mechanism 90.5%, suggesting a high amount of energy was imparted to the body during the accident. In our study, the lower limb was the predominant body part affected by 70.76% followed by 14.41% for the superior limb. This trauma predominance to the lower limb was reported by the study as 45.7%. The preponderance of lower limbs trauma is due to the fact that extremities are more exposed hence susceptible to injury, usually due to direct trauma in vehicle and bike accidents or falls [13]. Moreover, the operative treatment was done in 91% of cases which is higher when compared

to [14]. This is so because the commonest trauma encountered were lower limb fractures. Such fractures lead to serious long-term complications if they are not managed surgically. Besides, the mean waiting time for surgery is 7.27 ± 6.08days this must be reduced to minimize the advent of complications. Last but not the least the most common post-operatory complication was skin infection (5%), then DVT (1.5%), these complications are similar to those found in most studies but with higher prevalence.

4.2. Management of Resources

4.2.1. Material Resources

The study helped us to find out that 69.4% of the technical equipment was in good state, and 97.1% functional. These percentages are superior when compared to which had 65.69% and 92.31% respectively [15]. Due to the level of Central hospital in the health pyramid the orthopedic department of the latter benefits from the financial advantages put at its disposal. However, despite a functionality rate of 97.2%, the study reveals a shortage of essential equipment, including orthopedic tables, portable ventilators, and image intensifiers in the operating room, as well as poor condition and an insufficient number of surgical kits. Also, an accessibility of 37.5% implies that the store must be replenished, worn out should be discarded and maintenance be assured for the less fit equipment. On the other hand, rolling stock materials are mostly weary and scarce therefore must be renewed.

4.3. Care Quality at the Orthopedic Unit

The quality of care of the orthopedic unit in this study was high 98%. This is superior to that obtained by that is 79.13% and superposable to who had 98.1%. This can be explained by the fact that other care quality criteria such as effectiveness, patient-centeredness, equity, and integration were not evaluated, and patient opinion was not considered in the study [10,15]. Also, the difference in referential used could explain the high value of care quality. Furthermore, the different indicators of outcome measures had higher percentages.

4.4. Resource Management and Quality of Care in Relation to Pathologic Profiles

The study underscores that, despite achieving a high standard of care (98%) compared to previous reports [10,15]. The overall effectiveness of treatment could benefit from better resource management. Although the orthopedic unit maintains a high quality of care and has a significant proportion of its technical equipment in good (69.4%) and functional (97.1%) condition, gaps remain, particularly in essential resources like orthopedic tables, transportable respirators, and X-ray image intensifiers. These deficiencies are concerning given the high rate of operative interventions (91%) for lower limb fractures, which demand precise and reliable surgical tools to avoid long-term complications. Improving the availability and maintenance of these resources is crucial for reducing surgical waiting times (average of 7.27 days) and potentially lowering complication rates, thereby bridging the gap between quality of care and the practical challenges of managing severe orthopedic injuries from RTAs.

5. Conclusion

Enhancing resource management is crucial for improving treatment outcomes. Addressing equipment shortages and maintenance issues can help reduce waiting times and complications, hence resulting in a better alignment of care quality with practical needs.

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