



Original Research

In-Hospital Mortality and Associated Factors in Acute Geriatric Care in Cameroon: A Retrospective Study

Déterminants de la mortalité hospitalière dans un service de gériatrie au Cameroun : une étude rétrospective

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ABSTRACT

Introduction. Older people hospitalization may lead to adverse outcomes and increased mortality due to the combination of acute illness and geriatric syndromes. We aimed to determine in-hospital mortality and its correlates among patients admitted in an acute geriatric unit in Cameroon. **Methods.** Records of all patients aged 65 and over consecutively admitted in the Acute Geriatric Unit of the Yaoundé Central Hospital from January 2019 to December 2021 were reviewed. Sociodemographic, clinical and biological data were collected. Geriatric syndromes included activities of daily living disability, delirium, urinary incontinence, falls, pressure ulcers and polypharmacy. Data were analyzed using SPSS 23.0 and a logistic regression was performed to identify factors associated with mortality. A p-value less than 0.05 was statistically significant. **Results.** Three hundred and one patients were admitted during the study period of whom 60.5% (n=182) were female. The mean age was 79.4±8.4 years, with 68% of patients being 75 and over. The majority of patients was admitted from the emergency department (74%, n=223). The overall mortality rate was 26%. Delirium (OR 5.6 95% CI 2.7-11.5, p<0.001), pressure ulcers (OR 6.2 95% CI 1.3-30.5, p=0.025) and sepsis (OR 5.9 95% CI 2.7-12.6, p<0.001) were independently associated with in-hospital mortality. **Conclusion.** In-hospital mortality rate is high in acute geriatric care unit especially in patients presenting with delirium, pressure ulcers or sepsis. Early detection and management of older patients with those conditions can help improve survival.

RÉSUMÉ

Introduction. Les personnes âgées hospitalisées ont un risque élevé de décès en rapport avec les effets combinés des affections aiguës et des syndromes gériatriques. L'objectif de l'étude était de déterminer le taux de mortalité hospitalière et ses déterminants. **Matériel et méthodes.** Nous avons mené une étude rétrospective sur les dossiers des patients de 65 ans et plus admis dans le service de gériatrie de l'Hôpital Central de Yaoundé entre janvier 2019 et décembre 2021. En plus des caractéristiques sociodémographiques, cliniques et biologiques nous avons décrit les syndromes gériatriques tels que la dépendance, la confusion, les chutes, l'incontinence urinaire, les escarres et la polypharmacie. Les données ont été analysées avec SPSS 23.0 et une analyse multivariée a été effectuée avec un seuil de significativité statistique p<0,05. **Résultats.** Nous avons inclus 301 patients dont une majorité de femmes (60,5% ; n=182). La moyenne d'âge était de 79,4±8,4 ans avec près de 68% des patients qui avaient plus de 75 ans. La majorité des patients étaient transférés des urgences médicales (74% ; n=223) et le taux de mortalité était de 26%. Les facteurs indépendamment associés à la mortalité étaient la confusion (OR 5,6 95% CI 2,7-11,5 ; p<0,001), les escarres (OR 6,2 95% CI 1,3-30,5 ; p=0,025) et le sepsis (OR 5,9 95% CI 2,7-12,6 ; p<0,001). **Conclusion.** La mortalité des patients âgés hospitalisés en gériatrie est élevée en particulier en cas de confusion mentale, sepsis et en présence d'escarres. L'identification précoce des patients à risque permettra d'améliorer la survie.

HIGHLIGHTS OF THE STUDY

What is already known on this topic

Cameroon counts 1.2 million people aged 65 and above. Further understanding of their mortality could help to better plan policies to reduce in-hospital mortality

What question this study addressed

In-hospital mortality and associated factors in acute geriatric care in Cameroon

What this study adds to our knowledge

In-hospital mortality rate is high in acute geriatric care unit especially in patients presenting with delirium, pressure ulcers or sepsis.

How this is relevant to practice, policy or further research.

Early detection and management of older patients with those conditions can help improve survival.

INTRODUCTION

Hospitals worldwide are experiencing increasing number of older patients admissions as well as significant healthcare expenditures related to prolonged hospital stay [1,2]. Hospitalization is also considered as a risk factor for death among older patients. Frail older people have difficulties to cope with stressors such as hospitalizations, leading to poor outcomes. Several studies in Western countries have highlighted trends and risk factors of older people in-hospital mortality. These include age, risk of malnutrition, dependency, delirium, multiple comorbidities, iatrogenic conditions and frailty [3–7].

In-hospital mortality is high globally in sub-Saharan Africa (SSA), ranging from 6.8 to 44.7% [8]. Little is known about in-hospital mortality in acute geriatric units in our setting. Most studies conducted in SSA focused on mortality in emergency departments and medicine wards mainly because there is a dearth of geriatric wards as geriatric medicine is still at its beginning as a specialty in the continent [7,9–11]. Older patients are usually managed as common adult because of non availability of protocols taking into account their specificities. Furthermore, few healthcare workers are trained to manage older patients in a patient-centered approach which is known to improve their outcomes [12,13]. Predictors of mortality identified in some studies include severe frailty, cognitive impairment, several comorbidities and dependency [9,14]. As we are writing this article, there is only one geriatrics-dedicated unit in Cameroon, a country of Central Africa with about 1.2 million people aged 65 and above. Further understanding of older people mortality could help to better plan policies to efficiently allocate available resources to improve geriatric care in the country and reduce in-hospital mortality. Hence, this study aimed to determine in-hospital mortality and its correlates among older people admitted in an acute geriatric unit.

MATERIALS AND METHODS

Study setting, design and participants

This study was carried out in the acute geriatric unit of the Yaounde Central Hospital, a 650 bedded university

hospital located in the capital of Cameroon. This hospital has the lone functional geriatrics-dedicated unit of the country. Records of patients aged 65 and over admitted in the unit from 2019 to 2021 were reviewed. Overall, 322 records of patients admitted during the study period were assessed for eligibility (see figure 1).

Data collection

Demographic data included age, sex, and place from referral. Clinical data included: diagnosis, past medical history (number of drugs and comorbidities such as hypertension, diabetes mellitus, cerebrovascular diseases, cognitive disorders, psychiatric disorders, cancer, heart diseases, joints disorders, neurological disorders, cancer, gastrointestinal disorders, human immunodeficiency virus (HIV), hepatitis B and C infections), length of hospitalization and outcome (discharged or dead). Geriatric syndromes included: activities of daily living (ADL) disability assessed by the Katz's Activities of Daily Living scale [15], delirium, falls, urinary incontinence, pressure ulcers and polypharmacy. Polypharmacy was defined as taking five or more different drugs for chronic diseases.

Data analysis

Data were coded, entered and analyzed with the Statistical Package for Social Sciences (SPSS 23.0) for Windows (SPSS, Chicago, Illinois, USA). Quantitative variables were described using mean and standard deviation or median with interquartile range (IQR). Categorical variables were presented with frequencies and proportions. The Mann-Whitney U Test was performed to compare medians. Association between categorical variables were explored using Chi-square test and Fisher's test. To explore factors associated with in-hospital mortality, we performed univariate and multivariate analysis with odds ratios (OR) and 95% confidential intervals (95% CI). All variables with a p-value < 0.2 in the univariate analysis were included in the multivariate model. A p-value of < 0.05 was statistically significant.

RESULTS

Characteristics of participants

Overall, 301 patients were included of whom 60.5% (n=182) were female. The median age was 79 (IQR 73–85) and the mean was 79.4±8.4 years, with extremes of 65 and 115. The majority of patients were aged 75 and more (68%, n= 205) and admitted from the emergency department (74%, n=223) (see table1). About 85% (n= 255) of patients had at least one chronic medical condition.

As presented in table 2, the most common comorbidities were hypertension (51%, n=153), type 2 diabetes (24%, n=71) joints disorders (23%, n=69), and cerebrovascular diseases (14%, n= 42). Geriatric syndromes were present in about 91% (n= 274) of patients. ADL disability was present in 90% of patients (n=270), urinary incontinence and delirium in 63% (n=188) and 44% (n=133) respectively. Polypharmacy and falls were present in 9% and 15% of participants respectively. About 16% of patients had pressure ulcers. The main diagnosis were

sepsis(22%, n= 66), community acquired pneumonia (14%, n= 43), ischemic stroke(10 %, n= 31) and urinary tract infections (10 %, n= 31). The mean length of hospitalisation was 8.2±5.4 days.

Mortality and associated factors

Seventy nine patients died during hospitalization giving a mortality rate of 26%. The major causes of death were sepsis (53% , n=42), ischemic stroke (15%, n=13), pneumonia (10%, n=8) and decompensated heart failure (10%, n=10). Factors associated with mortality in univariate analysis were, ADL disability (OR 1.4 95%CI 1.3-1.5, p=0.00), urinary incontinence (OR 1.3 95%CI 1.2-1.5, p= 0.00), delirium (OR 1.7 95%CI 1.4-2.0, p= 0.00), pressure ulcers (OR 1.5 95%CI 1.2-2.0, p= 0.00), sepsis (OR 2.3 95%CI 1.7-3.2, p= 0.000) and ischemic stroke (OR 1.3 95%CI 1.0-1.8, p=0.05). In the multivariate model, delirium (OR 5.6 95%CI 2.7-11.5, p<0.001), pressure ulcers (OR 6.2 95%CI 1.3-30.5, p=0.025) and sepsis (OR 5.9 95%CI 2.7-12.6, p<0.001) were independently associated with mortality (see table 3).

DISCUSSION

The mortality rate was 26% in our study population. In Nigeria, the mortality rate range from 22 to 31% in hospital setting [9,11,16,17]. Our result is similar to the 25.6% mortality rate observed in two hospitals in Tanzania [14]. This is higher than the rate observed in geriatric care in South Africa where the crude mortality rate was 17% [18].The majority of patients was admitted from the emergency department. Older people represent about one third of all admissions in our emergency department with the majority of them presenting late to the hospital. Sociocultural behaviors in our setting, with people seeking healthcare late for older people to avoid expenditures can also explain this high mortality. Hospitalization is usually considered as a transition to death leading to delayed admission.

Major causes of death in our setting are sepsis, stroke and pneumonia. This was also described by Sanya et al in Nigeria where infectious diseases and stroke are the main causes of death [16]. In a systematic review conducted by Adebuyose et al the leading causes of death in older people in Africa where stroke and infectious diseases [19]. Immunosenescence, poor health conditions and low economic incomes are probably linked to the recurrence of infectious diseases in older population. It is also important to note that lifestyle changes has contributed to the increased prevalence of non communicable diseases in our country. This is known as the double burden of communicable and non communicable diseases in our setting.

Delirium was associated with higher mortality in our study population. This was also shown in other studies in Western countries [3,20]. Although the mechanism is still unclear, it is a strong predictor of poor outcome in older patients. It has been associated with longer hospital stays, increased costs, as well as cognitive and functional decline [20,21]. Delirium is highly prevalent in hospitalized older patients. It usually reflects severity of an acute condition but it remains underdiagnosed in our setting especially the

hypoactive form. On the other hand, many healthcare personnel consider delirium as part of normal aging in our setting, leading to late referral and management.

This study showed geriatric profile of older people hospitalized in an acute geriatric care unit in a resource-limited setting, emphasizing on geriatric syndromes such as ADL dependency, delirium, urinary incontinence, falls and polypharmacy. It also describes their impact on in-hospital mortality of older people. Our data should be interpreted with some limitations due to the retrospective design of our study.

CONCLUSION

This study shows evidence of a high mortality rate in acute geriatric care in our setting, with major causes being infectious and cerebrovascular conditions. Delirium, sepsis and pressure ulcers were independently associated with an increased risk of poor outcome. Early identification of older patients with those conditions may help to plan interventions to improve their survival.

AUTHORS CONTRIBUTIONS

MJNE conceive the design of the study. MJNE, RMMM and MZO performed data collection. All authors contributed to the writing of this manuscript.

ETHICAL APPROVAL

This study was approved by the board of the Yaounde Central Hospital under the reference number 11ACE/CIE/MINSANTE/SG/DHCY/PCE

COMPETING INTERESTS

The authors declare no competing interests.

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