



## Article Original

## Urinary Incontinence and Associated Factors in Older Patients in a Cameroonian Geriatric Care Unit: A Retrospective Study

### *Facteurs associés à l'incontinence urinaire chez des patients camerounais âgés hospitalisés en gériatrie: une étude rétrospective*

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**RÉSUMÉ**

**Background.** The prevalence of urinary incontinence increases with age and frailty. Despite its negative impact on quality of life, urinary incontinence remains underdiagnosed and underreported. **Objective.** To determine the prevalence and correlates of urinary incontinence in acute geriatric care. **Methods.** Records of all patients aged 65 and over consecutively admitted in the Acute Geriatric Unit of the Yaounde Central Hospital from January 2019 to December 2021 were reviewed. Sociodemographic, clinical and biological data were collected. Urinary incontinence was assessed using the Katz Activities of Daily Living scale. Other geriatric syndromes included activities of daily living disability, delirium, falls, pressure ulcers and polypharmacy. Data were analyzed using SPSS 23.0 and a logistic regression was performed to identify factors associated with urinary incontinence. A p-value less than 0.05 was statistically significant. **Results.** Three hundred and one patients were admitted during the study period of whom 62.5% (n=188) presented with urinary incontinence. The majority of patients presenting urinary incontinence were female (n=106, 56.4%) and aged 75 and above (n=131, 69.7%). About 17% (n=32) patients had transient urinary incontinence during hospitalization. A urinary tract infection was found in 12% (n=23) of patients. Factors independently associated with urinary incontinence were cerebrovascular diseases (OR 2.99 95% CI 1.03-8.7, p=0.043), delirium (OR 4.4 95% CI 2.3-8.43, p<0.001) and pressure ulcers (OR 8.6 95% CI 2.3-14.3, p=0.005). In-hospital mortality was significantly higher among patients with urinary incontinence (p<0.001). **Conclusion.** Urinary incontinence is highly prevalent among older patients in acute geriatric care in our setting. Delirium, cerebrovascular disorders and pressure ulcers represent major correlates in hospitalized older patients.

**ABSTRACT**

**Contexte.** La prévalence de l'incontinence urinaire augmente avec l'âge et la fragilité. Malgré son impact négatif sur la qualité de vie, l'incontinence urinaire reste sous-diagnostiquée et sous-déclarée. **Objectif.** Déterminer la prévalence et les facteurs associés à l'incontinence urinaire en soins gériatriques aigus. **Matériel et méthodes.** Nous avons inclus les dossiers de tous les patients âgés de 65 ans et plus admis dans le service de gériatrie de l'Hôpital Central de Yaoundé de janvier 2019 à décembre 2021. Des données sociodémographiques, cliniques et biologiques ont été recueillies. L'incontinence urinaire a été évaluée à l'aide de l'échelle Katz pour les activités de la vie quotidienne. Les autres syndromes gériatriques comprenaient la dépendance pour les activités de la vie quotidienne, la confusion, les chutes, les escarres et la polymédication. Les données ont été analysées à l'aide de SPSS 23.0 et une régression logistique a été effectuée pour identifier les facteurs associés à l'incontinence urinaire. Une valeur de p inférieure à 0,05 était statistiquement significative. **Résultats.** Trois cent et un patients ont été inclus dont 62,5 % (n = 188) présentaient une incontinence urinaire. La majorité des patients présentant une incontinence urinaire étaient des femmes (n = 106, 56,4 %) et étaient âgés de 75 ans et plus (n = 131, 69,7 %). Environ 17 % (n = 32) des patients ont eu une incontinence urinaire transitoire pendant l'hospitalisation. Une infection urinaire a été retrouvée chez 12 % (n=23) des patients. Les facteurs indépendamment associés à l'incontinence urinaire étaient les affections cérébrovasculaires (OR 2,99 IC à 95 % 1,03-8,7, p = 0,043), la confusion (OR 4,4 IC à 95 % 2,3-8,43, p<0,001) et les escarres (OR 8,6 IC à 95 % 2,3-14,3; p=0,005). La mortalité hospitalière était significativement plus élevée chez les patients ayant une incontinence urinaire (p<0,001). **Conclusion.** L'incontinence urinaire est fréquente chez les patients âgés en soins gériatriques aigus dans notre contexte. La confusion, les affections cérébrovasculaires et les escarres sont les principaux facteurs associés chez les patients âgés hospitalisés.

**HIGHLIGHTS OF THE STUDY****What is already known on this topic**

Despite its high prevalence and its negative impact on quality of life of older people, urinary incontinence (UI) remains underreported and underdiagnosed, even in high-income countries. Few data are available from Cameroon

**What question this study addressed**

Prevalence of UI and associated factors in older patients in a Cameroonian geriatric care unit.

**What this study adds to our knowledge**

UI is highly prevalent among older patients in hospitalized older Cameroonian patients. Delirium, cerebrovascular disorders and pressure ulcers represent major correlates

**How is this relevant to practice, policy or future research.**

An early detection of patients at risk must be a pillar of the care dedicated to older people to avoid permanent UI and increase survival

**INTRODUCTION**

Urinary incontinence (UI) is defined as an involuntary loss of urine in sufficient amounts or frequency as to constitute a medical, hygienic, or psychosocial problem(1,2). It can present as an occasional loss of small amounts of urine to severe forms, leading to significant functional decline, increased risk of institutionalization and death. UI is recognized as a geriatric syndrome as well as disability, falls or impaired cognition. It affects millions of older people worldwide, with substantial increase in healthcare expenditures for patients and the entire society(3).

The prevalence of UI varies greatly depending on many factors including the definition, the target population and the method of investigation. It is estimated that the prevalence of UI among older people ranges from 7 to 70% and increases with age and frailty(4–6). It is up to twice common in women than in men. Approximately 1 in 3 women and 1 in 5 men after 65 years, have a certain degree of UI sufficient to require modification of lifestyle(6,7).The prevalence can reach 40% after 80 years and more than 70% in nursing home residents(4,8).

Despite its high prevalence and its negative impact on quality of life of older people, urinary incontinence remains underreported and underdiagnosed, even in high-income countries. This can be explained by the false belief that UI is an unavoidable manifestation of ageing but also by the social stigma associated with UI. This results in inappropriate and delayed management. Few studies have assessed UI in our setting but the majority of them emphasized on women with obstetrical fistula. Thus we aim to determine the prevalence of urinary incontinence in geriatric inpatients and its correlates in a resource-limited setting.

**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 January 2019 to December 2021 and presenting with urinary incontinence were reviewed. Overall, 322 records of patients admitted during the study period were assessed for eligibility.

**Data collection**

Urinary incontinence was defined as unvoluntary loss of urine during or prior hospitalization, assessed by the Katz index for activities of daily living (*ref Katz*). Demographic data included age, sex, and place from referral. Clinical data included : diagnosis, past medical history (number of drugs and comorbidities) , length of hospitalization and outcome (discharged or dead).

**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-Withney 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, during the study period, 301 older patients were admitted in the geriatric department of whom 188 (62.5%) had urinary incontinence. As shown in table 1, the majority of patients were female (n=106, 56.4%), aged 75 and over (n=131, 69.7%) and 75% were referred from the emergency department. About 17% (n=32) patients had transient urinary incontinence during hospitalization. A urinary tract infection was found in 12% (n=23) of patients.

**Table 1 : Characteristics of the study population  
N=188**

Variables	N(%)	p value
<b>Gender</b>		
Men	82 (43.6)	0.068
Women	106(56.4)	
<b>Age groups</b>		
65 – 74	57 (30.3)	0.523
75+	131 (69.7)	
<b>Marital status</b>		
Single	121 (66.5)	/
In relationship	61 (33.5)	
<b>Place from referral</b>		
ED	141 (75)	0.189
Home	26(13.8)	
Other services	21(11.2)	

ED : emergency department ; IQR : interquartile range ; SD : standard deviation ;

## Urinary incontinence and associated factors

The multivariate analysis of factors associated with urinary incontinence is presented on table 2.

**Table 2 : Factors associated with urinary incontinence in univariate analysis**

Variable	UI n=188 (%)	No UI n=113 (%)	uOR (95% CI)	p value
<b>Gender</b>				
Female	106 (58.2)	76 (41.7)	/	0.593
Male	82 (68.9)	37 (31.1)		
<b>Age groups</b>				
65 – 74	26 (32.9)	70 (31.5)	/	0.523
75 +	31 (39.2)	94 (42.3)		
<b>Geriatric syndromes</b>				
ADL dependency	188 (69.6)	82 (30.4)	3.3 (2.8-3.9)	<0.001
Delirium	111 (83.5)	22 (16.5)	5.96 (3.4-10.3)	<0.001
Falls	30 (68.2)	14 (31.8)	/	0.408
Pressure ulcers	48 (98)	1(2)	38.4 (5.2-82.6)	<0.001
<b>Outcome</b>				
Dead	65 (82.3)	14 (17.7)	1.49 (1.3-1.7)	<0.001
Discharged	123 (55.4)	99 (44.6)		
<b>Diagnosis</b>				
Sepsis	57 (86.4)	9 (13.6)	5.03 (2.4-10.6)	<0.001
Ischemic stroke	27 (87.1)	4 (12.9)	4.6 (1.6-13.4)	0.003
UTI	23 (74.2)	8 (25.8)	/	0.175
<b>Comorbidities</b>				
CV diseases	95 (37.3)	160 (62.7)		
Cognitive disorders*	35 (83.3)	7 (16.7)	3.5 (1.5-8.1)	0.003
Prostate hypertrophy	34 (85)	6 (15)	3.9 (1.6-9.7)	0.001
	20 (76.9)	6 (23.1)	/	0.139

uOR : unadjusted Odds ratio ; CI : confidential interval ;  
IQR : interquartile range ; ADL : Activities of Daily Living ;  
UI : urinary incontinence. CV ; Cerebrovascular  
UTI: Urinary tract infection  
\*from mild cognitive impairment to dementia

Factors independently associated with urinary incontinence were cerebrovascular diseases (OR 2.99 95%CI 1.03-8.7,  $p=0.043$ ), delirium (OR 4.4 95%CI 2.3-8.43,  $p<0.001$ ) and pressure ulcers (OR 8.6 95%CI 2.3-14.3,  $p=0.005$ ) (see table 3). In-hospital mortality was significantly higher among patients with urinary incontinence ( $p<0.001$ ).

**Table 3 : Multivariate analysis of factors associated with urinary incontinence**

Variable	aOR (95% CI)	p value
Delirium	4.4(2.3-8.43)	<0.001
Pressure ulcers	8.6(2.3-14.3)	0.005
Cerebrovascular diseases	2.99(1.03-8.7)	0.043

aOR : adjusted Odds ratio ; CI : confidential interval

## DISCUSSION

This study aimed to determine the prevalence of urinary incontinence and its correlates among older patients admitted in a geriatric department. We found a high prevalence of urinary incontinence and various associated factors especially cerebrovascular diseases, delirium and pressure ulcers.

The prevalence of urinary incontinence in our study was similar to the prevalence observed in other studies(9). But our prevalence remains very high in comparison with the report of other authors(5,6,8).This difference can be explained by the fact that some other authors assessed older patients in the community. Our study population was made up of hospitalized patients with impaired general health conditions. Furthermore, the high frequency of geriatric syndromes among our patients can explain this high prevalence of UI.

Cerebrovascular diseases such as stroke were independently associated with UI in our study. Indeed the majority of our patients with a past medical history of cerebrovascular event presented with urinary incontinence. Cerebrovascular diseases are well known risk factors for both delirium and urinary incontinence (10,11).This is similar to what was observed by other authors (10,11). It remains unclear if UI is a direct or an indirect effect of those conditions, but UI following stroke is a common problem affecting patients with acute stroke and can also persist several months in stroke survivors.

Many of our patients experienced delirium during hospitalization and it was independently associated with the occurrence of UI. This finding is not really described by author authors. Delirium is known to arise from the interaction of predisposing factors such chronic medical conditions and precipitating factors, mainly acute illnesses. We think that delirium-associated UI probably results from the indirect effects of the acute impairment of the neurocognitive function, leading to urinary leakage. Furthermore many patients with UI came from the emergency department with bladder catheter that can also precipitate delirium. On the other hand, some drugs usually prescribed for UI can lead to delirium.

Pressure ulcers are a common situation in geriatric patients. It was also associated with UI in our study. Many authors have described the incontinence-associated pressure ulcers(12,13). Pressure ulcers can result from the skin irritation usually observed in patients with UI. This irritation combined with the fragile skin of older people especially those who have severe health conditions and nutritional issues can lead to a higher risk of developing pressure ulcers.

## CONCLUSION

Urinary incontinence is highly prevalent among older people admitted in acute geriatric department in our setting. It was a great marker of poor outcomes in this study. An early detection of patients at risk UI must be a pillar of the care dedicated to older people to avoid permanent UI and increase survival.

**AUTHORS CONTRIBUTIONS**

MJNE conceived the study design. MJNE and MMJ collected and analyzed the data. MJNE wrote the manuscript. MMJ, FJC, ENF, MMRM and FPJ made substantial modifications and review on the manuscript. All authors accepted the final version of the 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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