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Urinary Incontinence and its Relation to Depression and Functional Disability among Frail Elderly Females living in Cairo, Egypt

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Abstract

Background: Urinary incontinence (UI) is accompanied by a sense of shame and psychological problems, such as depression and low self-confidence. This can lead to a reduction in social activities, social isolation and problems in family relationships.

Aim: to study the prevalence of urinary incontinence and its relation to depression and functional disability among frail elderly females living in Cairo, Egypt.

Methods: A cross-sectional study included 130 frail elder females. Diagnosis of frailty was done using the Clinical frailty scale. All participants underwent comprehensive geriatric assessment, screening for the presence of urinary incontinence using Arabic version of International Consultation on Incontinence Questionnaire-Urinary Incontinence; Short Form (ICIQ-UI SF), assessment of mood by the geriatric depression scale (GDS), and assessment of physical function using activities of daily living (ADL) and instrumental activities of daily living (IADL).

Results: The present study showed that the prevalence of UI among the studied population was 80%. There was a significant relationship between urinary incontinence and the presence of depression (positive screening by geriatric depression scale; GDS); where 89% of depressed participants had UI. Participants with urinary incontinence, compared to those without, had higher degree of functional disability in both ADL(22% dependent and has UI)) and IADL(55%dependant and has UI).

Conclusions: UI is prevalent in frail elderly females. It is strongly associated with both depression and functional disability.

Keywords: Urinary incontinence, Frail Elderly, Depression, ADL, IADL.

Background

UI is defined by the International Continence Society as any involuntary leakage of urine. It is a common clinical problem, and its incidence increases with age. UI is a major cause of disability and dependency, significantly increasing the risk of care home placement and adversely affecting the psychological, physical and social wellbeing of older people. Normal ageing is not a cause of UI, although age-related changes in lower urinary tract function can predispose older people to UI which is then exacerbated by comorbidities. UI is a major cause of disability and dependency, significantly increasing the risk of care home placement. It also predisposes to career negativity and stress, which itself is a major factor in placement for institutional care [1].

UI reduces the quality of life of elderly patients by causing physical, psychological, and social problems. Fear and isolation have been reported in 10% of elderly patients with UI and a reduced quality of life in 16% [2].

UI is accompanied by a sense of shame and psychological problems, such as depression and low self-confidence [3].

Urinary incontinence (UI) is frequently associated with a negative impact on quality of life (QOL) of the patient; despite not being a life-threatening condition, UI has many physical and psychological effects on the

patients, while at the same time it is associated with an additional financial burden[4].

UI is a common symptom in older people, and some reports suggest that UI is associated with frailty, whereby the ability of the body to cope with stress and physiological functions decreases [5].

There is a strict correlation between UI and frailty, suggesting that UI is correlated to the homeostatic and physiological decline leading to frailty ***[6].***

Since incontinence is associated with an increased risk of a global functional impairment, in persons who become incontinent after the age of 65 years [7]; this parameter may be an important early marker for signaling the onset of frailty, and the 4th International Consultation on Incontinence has urged researchers to better understand the correlation between UI and frailty ***[8].***

The management of UI requires a multidisciplinary approach. This is of particular importance in the frail elderly patients. Some guidelines (such as the NICE guidelines) for the management of UI tend to focus on younger fitter patients; although recommendations are now included for frailer adults. NICE clinical guidelines on UI in neurological diseases focus on incontinence in patients with multiple sclerosis, Parkinson's disease, dementia and stroke which may be applicable to some of the frail elderly patients [1].

The primary purpose of this study was to study the relationship of urinary incontinence and both depression and functional disability among frail elderly females living in Cairo, Egypt.

Methods

A Cross sectional study of 53 elderly diabetics 60 years Through a cross sectional study; the patients surveyed in our study were 300 elderly females who attended our Geriatrics Hospital (outpatient clinics and inpatient department) at Ain Shams University Hospitals. Diagnosis of frailty was done using the Clinical frailty scale [9]. Among this surveyed population we found 170 non frail elder females who didn't fit inclusion and exclusion criteria and 130 frail elder females, who were included in our study.

Inclusion criteria were: frail females aged 60 years or more. We excluded patients with dementia, subjects who were unwilling to participate in the study and catheterized patients.

Every participant was subjected to the following:

(a) Comprehensive geriatric assessment, including thorough medical history, detailed inquiry about current urinary symptoms, and assessment of cognitive function by the Mini Mental State Examination [10]; using its Arabic version [11].

(b) Assessment of urinary incontinence: using the Arabic version of International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF) .The higher the score the greater the severity: mild (1-5), moderate (6-12), severe (13-18), very severe (19-21) [12].

(c) Assessment of mood by the geriatric depression scale (GDS) [13]; using its Arabic version [14].

(d) Assessment of physical function using activities of daily living (ADL) [15], and instrumental activities of daily living (IADL) [16].

Statistical Methods

The collected data were coded, tabulated, and statistically analyzed using IBM SPSS statistics (Statistical Package for Social Sciences) software version 22.0, IBM Corp., Chicago, USA, 2013. The level of significance was taken at P value < 0.05 is significant, otherwise is non-significant.

Results

In current study participants had a mean age of 70.6 years, 16.9% were smokers, and 29% were obese. Most of them (73%) were multipara. The prevalence of UI among the studied population was 80% (104 out of 130 frail elderly females) this is shown in table [1].There is a significant relationship between urinary incontinence and the presence of depression (positive screening by Geriatric Depression Scale; GDS) as shown in table [2]. Table [3] and table [4] shows that participants with urinary incontinence, compared to those without, had higher degree of functional disability in both ADL and IADL.

Table 1: **Characteristics of the Studied Population**

Age (years)	**Range**	**60-91**	
	Mean ±SD	**70.654±8.261**	
		N	**%**
Smoking	**Yes**	**22**	**16.92**
	No	**108**	**83.08**
Obesity	**Yes**	**38**	**29.23**
	No	**92**	**70.77**
Delivery	**Nullipara**	**12**	**9.23**
	Multipara	**95**	**73.08**
	Cesarean section	**12**	**9.23**
	CS and Vaginal	**11**	**8.46**
Urinary incontinence	**Yes**	**104**	**80.00**
	No	**26**	**20.00**

Table 2: Relationship between Urinary Incontinence and Depression:

UI	**GDS**				**Chi-Square**	
	Depressed		**Not depressed**			
	N	**%**	**N**	**%**	**X2**	**P-value**
Yes	**49**	**89.09**	**55**	**73.33**	**4.92**	**0.026***
No	**6**	**10.91**	**20**	**26.67**		
Total	**55**	**100.00**	**75**	**100.00**		

Table 3: Relationship between Urinary Incontinence and Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL):

ADL	Yes	No	
	N %	N %	P-value
Independent	45 43.27%	19 73.08%	0.015*
Assisted	36 34.62%	6 23.08%	
Dependent	23 22.12%	1 3.85%	
IADL			
Independent	0 0.00%	0 0.00%	
Assisted	46 44.23%	20 76.92%	0.003*
Dependent	58 55.77%	6 23.08%	

Discussion

Urinary incontinence (UI) is an important and a highly prevalent health problem in older adults that has a high rate of negative health related outcomes [17].

The primary purpose of this study was to study the relationship of urinary incontinence and both depression and functional disability among frail elderly females living in Cairo, Egypt.

The present study showed that prevalence of UI among the studied population was 80% (104 out of 130 frail elderly females).

Previous studies reported different prevalence rates of UI among elderly people. This heterogeneity can be explained by differences in participants' characteristics (e.g., sex, mean age, frailty status, co-morbidities, etc.), study setting (community, care homes, etc.) and methodological differences. For example, it was reported that 15-30% of community-dwelling older people has UI. Many studies reported a higher prevalence of UI among care home residents, which ranged between 50-80%; because UI is associated with older age, frailty, cognitive impairment and limited mobility leading to a greater level of dependency [1].

(Chong et al.,2018) showed that UI was present in 47.6%, with a higher prevalence among frail individuals (64.8% vs 30.5%, P < 0.001) among 210 participants (mean age 89.4 ± 4.6 years; 69.5% female; 50.0% frail). Incident UI was more common in frail participants (at discharge: 24.3% vs 9.6%, P = 0.038; 6 months: 43.2% vs 21.7%, P = 0.020; and 12 months: 56.8% vs 33.3%, P = 0.020) [5].

Incontinent subjects were 6.5 times more likely to be in the "frail" group (P value =0.004) and 2.3 times more likely to be in the "pre frail" group (P value =0.021) in comparison to continent subjects [8].

There are several co-morbidities associated with UI; an important one is depression. Depression in older persons with UI may be underdiagnosed and undertreated, leading to an increased burden by decreasing life satisfaction and self-rated health [18].

The current study showed a significant relationship between UI and the presence of depressive symptoms (positive screening by geriatric depression scale; GDS); where 89% of depressed participants had UI (P value =0.026).

Many cross-sectional studies reported the association between UI and depression. These include a large US population-based cross-sectional study [19] and another smaller Japanese study [20].

This also agrees with the cross-sectional study done by (**Wang et al.,2017)** in which authors concluded that subjects with UI had more depressive symptoms (GDS-5, P value =0.02).[21]

In contrast, insignificant results were reported in a Korean study [22]. Another study [23] didn't find an association between UI and self-reported sadness. These negative findings may reflect differences in definition of depression and patient selection criteria.

Depression in older persons with UI may be under-diagnosed and under-treated: in one study of homebound adults with UI and severe depression, only 35% carried a previous diagnosis of depression and only 34% had been prescribed an antidepressant [24].

As regards functional limitation, participants with UI, compared to those without, had higher degree of functional disability in both activities of daily living (ADL) and instrumental activities of daily living (IADL).

Many studies reported a strong association between functional disability and UI. In agreement with our results, the cross-sectional study done by [21] showed that subjects with UI had poorer physical function.

Impaired mobility due to a variety of conditions was found to interfere with the ability to toilet independently and precipitate UI [25].

Conclusion:

UI is prevalent in frail elderly females. It is strongly associated with both depression and functional disability.

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