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Editorial

Dr Abdul Abyad
Chief Editor

In this issue of the journal a number of papers deal with important topics for the field of Ageing.

A retrospective study from Iraq analyzed falls and factors associated with them over a 12 month period. The author stressed that Falls are increasing worldwide in an ageing population. Commonly multi-factorial, falls in the elderly need multidisciplinary teams to help their prevention and recurrence. The results demonstrated well established factors contributing to falls such as age, female sex with multiple co-morbidities and medications. More specifically to the Kurdistan population the results related falls closer to morning and prayer time or when washing. In addition, those affected by falls are commonly living with other family members. These results and studies similar to this will allow the development of specific interventions and services to help address risk factors unique to a developing, Middle Eastern population.

A prospective observational study in Egypt was conducted to determine the predictors of outcomes of community acquired pneumonia (CAP) in Egyptian older adults. 170 elderly patients; 72 males and 98 females were recruited from the geriatric outpatient clinic at Ain Shams University Hospitals, diagnosed with CAP and required admission to the hospital for treatment. Tools applied were: Comprehensive Geriatric Assessment, Pneumonia Specific Risk Index (PSI), CURB65, The Charlson Comorbidity Index, Barthel Index (BI). The authors concluded that evaluation of the severity of pneumonia, functional status, and comorbidity of the elderly patients suffering from CAP could guide the physicians about the appropriate management and reduce both cost and adverse functional consequences of hospitalization, ICU admission and ventilation of the elderly patients.

A second paper from Egypt was conducted in two phases: phase I, in which reliability and validity of the Arabic version of SLUMS Examination was assessed; then phase II, in which the prevalence of cognitive impairment among community dwelling Egyptian older adults was estimated using the Arabic version of SLUMS Examination tool. The aim of the authors was to assess the reliability and validity of Saint-Louis-University-Mental-Status(SLUMS)Examination Arabic version for cognitive impairment. And to determine the prevalence of cognitive impairment among community dwelling Egyptian older adults. The authors concluded that the Arabic version of SLUMS-Examination is a valid and reliable screening tool for cognitive impairment. Mild neuro-cognitive disorder and dementia are prevalent in community dwelling older adult is increasing with increase age, less education, unemployment and presence of depression. The Arabic version of SLUMS-Examination should be included in any assessment of Egyptian older adult.

Original Contribution/Clinical Investigation

Predictors of Outcomes of Community Acquired Pneumonia in Egyptian Older Adults

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ABSTRACT

Background: Community-acquired pneumonia (CAP) is an acute disease that causes high mortality in the elderly, and is a common cause of medical admission. Poor prognostic factors of CAP include advancing age, multiple co morbid illnesses, poor premorbid functional status and severity of pneumonia.

Objectives: A prospective observational study was conducted to determine the predictors of outcomes of (CAP) in Egyptian older adults.

Subjects and Methods: 170 elderly patients; 72 males and 98 females were recruited from Ain Shams University Hospitals, diagnosed with CAP and required admission to the hospital for treatment. Tools applied were: Comprehensive Geriatric Assessment, Pneumonia Specific Risk Index (PSI), CURB-65, The Charlson Comorbidity Index (CCI), and Barthel Index (BI).

Results: CURB 65 and PSI showed significant differences for all the outcomes (length of stay, ICU admission, ventilation and mortality). Using the logistic regression analysis, BI was found to be a significant predictor for the length of hospital stay (P: .009, odd ratio: 1.043, CI: 1.010 - 1.076) and ICU admission (P: .003, odd ratio: .957, CI: .930 -.985). Regarding the use of ventilator, age, functional condition assessed by BI were significant predictors: (P: .049, odd ratio: .932, CI: .869 - 1.000), (P: .001, odd ratio: .950, CI: .921 - .980) respectively. Regarding mortality, the three variables were significant predictors for mortality; age: (P: .001, odd ratio: 1.110, CI: 1.046 - 1.179), BI: (P: .042, odd ratio: .968, CI: .939 -.999) and CCI: (P: .019, odd ratio: .963, CI: .934 -.994).

Conclusion: PSI, CURB 65, BI and CCI were significant predictors for the outcomes of CAP. So inclusion of these assessment tools in the evaluation of elderly patients suffering from CAP can guide the physicians for the appropriate management and levels of care needed for these critical patients.

Key words: Predictors of outcomes, elderly patients, pneumonia.

Introduction

There are three types of pneumonia in the elderly: community-acquired, nursing home-acquired, and nosocomial pneumonia. Community-acquired pneumonia refers to patients who live in their home; these pneumonia patients present more commonly than nursing home-acquired patients because most elderly live in their own homes. However, nursing home patients are a population deserving of special review as they have different characteristics and tend to be sicker than community pneumonia patients. [1]

Community-acquired pneumonia (CAP) is an acute disease that causes high mortality in the elderly; in-hospital mortality as high as 10% is reported in patients aged 65 and older admitted to the hospital with CAP, and many more die within a month of discharge. Approximately 12% of survivors require placement in a long-term care facility or rehabilitation centre, and when long-term effects of CAP in elderly patients have been investigated, there is a high risk of subsequent mortality for several years. Additionally, pneumonia is among the six-most-frequent discharge diagnoses in patients with severe disability developed in the previous year. Although short-term functional decline has not been well studied in CAP, it has been well documented in nursing-home residents. [2]

Community-acquired pneumonia (CAP) is a common cause of medical admission. There have been many studies on the association between pneumonia and short-term mortality in older patients. Some may use in-hospital mortality as the primary outcome, whereas some may use 30-day mortality. Those in Europe showed a wide range of in-hospital mortality from 6 to 26% due to different inclusion and exclusion criteria. [3]

There are several international guidelines on the prognostic indicators and management of CAP. Poor prognostic factors included advancing age, multiple co morbid illnesses and severity of pneumonia. It was observed that premorbid functional status had a strong bearing on the clinical outcomes of pneumonia. Previous studies agreed that those with better premorbid functional status had a shorter length of stay in hospital and lower short-term and long-term case-fatality rates. Poor functional status was also a risk factor for CAP in immunocompetent old persons. [4], [5]

Old people with lower body weight and recent weight loss had a greater risk of acquiring CAP. It was logical to postulate that poor nutritional status was associated with worse clinical outcomes. [5]

The objective of this study was to prospectively evaluate the effect of the severity of the illness, the multiplicity of comorbidity and functional status on the outcome of elderly patients with CAP. It was hypothesized that these factors would be important factors for the prognosis of CAP in the elderly.

Subjects and Methods

Design of study: Prospective observational study.

Sample:

The study included 170 patients aged 60 or more; 72 males and 98 females diagnosed with CAP and were recruited from Ain Shams University Hospitals over a period of 6 months. The subjects included in the study were diagnosed with CAP and required admission to the hospital for treatment.

Inclusion criteria:

- Patients aged 60 or more.
- Diagnosed with new onset of abnormal infiltrates on chest radiographs (interstitial shadowing, consolidative changes or pleural effusion) and two of three clinical features: fever (temperature ≥ 37.8°C), chest symptoms (shortness of breath, cough and increase in sputum production or purulence) and abnormal chest signs on physical examination (crepitations, bronchial breathing or pleural effusion).

Exclusion criteria:

- Acute-care hospitalization for 72 hours or more within the previous 15 days.
- Nursing-home residence.
- Non-oral feeding (nasogastric tube or percutaneous gastrostomy).
- Final diagnosis other than pneumonia (acute heart failure, pulmonary fibrosis, mesothelioma, bronchiolitis obliterans, pleural effusion, patients with urinary tract infection and patients with pulmonary infiltrates due to pulmonary metastasis).

Clinical data recorded:

1. Informed oral consent.
2. Comprehensive Geriatric Assessment including medical history and physical examination.
3. Laboratory and radiological data were collected from patients' files to evaluate the severity of pneumonia and to confirm their co morbidities.

All cases were treated with the same plan of management according to the British Thoracic Society Guidelines for the management of community acquired pneumonia in adults: 2009 update [6]

Analyses:

From these data, four indices were calculated for studying each patient in a complete and standardized way.

1. A validated Pneumonia Specific Risk Index (PSI):

This index assigns a score based on 20 items that include demographic factors, coexisting illnesses, physical examination findings, and laboratory and radiographic findings. Elderly patients are classified into four risk classes; Class I (no predictor for mortality) was not used in this analysis, outpatient care is recommended for Class II patients (< 71 points), brief inpatient observation for patients in Class III (71-90 points), and traditional inpatient care for patients in Classes IV (91-130 points) and V (>130 points). [7]

2. CURB-65:

Is a modification of the original British Thoracic Society (BTS) rule and is designed to predict mortality in hospitalized patients. [8]

The score is an acronym for each of the risk factors measured. Each risk factor scores one point, for a maximum score of 5

• Confusion of new onset
• Urea greater than 7 mmol/l (19 mg/dL)
• Respiratory rate of 30 breaths per minute or greater
• Blood pressure less than 90 mmHg systolic or diastolic blood pressure 60 mmHg or less
• Age 65 or older

The risk of death at 30 days increases as the score increases:

0-0.7%	1-3.2%
2-13.0%	3-17.0%
4-41.5%	5-57.0%

The CURB-65 is used as a means of deciding the action that is needed to be taken for that patient.
• 0-1: Treat as an outpatient.
• 2-3: Consider a short stay in hospital or watch very closely as an outpatient.
• 4-5: Requires hospitalization with consideration as to whether they need to be in the intensive care unit.

3. The Charlson Comorbidity Index (CCI): [9]
The CCI predicts the ten-year mortality for a patient who may have a range of comorbid conditions, such as heart disease, AIDS, or cancer (a total of 22 conditions). Each condition is assigned a score of 1, 2, 3, or 6, depending on the risk of dying associated with each one. Scores are summed to provide a total score to predict mortality. Clinical conditions and associated scores are as follows:

• **1 each:** Myocardial infarct, congestive heart failure, peripheral vascular disease, dementia, cerebrovascular disease, chronic lung disease, connective tissue disease, ulcer, chronic liver disease, diabetes.
• **2 each:** Hemiplegia, moderate or severe kidney disease, diabetes with end organ damage, tumor, leukemia, lymphoma.
• **3 each:** Moderate or severe liver disease.
• **6 each:** Malignant tumor, metastasis, AIDS.

It scores from 1 to 6 for each of 18 specific medical diagnoses, representing increasing levels of illness. It has been shown to correlate with long-term survival after acute medical illness.

The CCI can be used for prediction of 1-year survival, prediction of 10-year survival and estimation of relative risk of death.

In this study we used the predicted 1-year survival rate that was calculated for all subjects through these links:
http://tools.farmacologiaclinica.info/index.php?sid=37148&lang=en&loadsecurity=88
http://tools.farmacologiaclinica.info/index.php

4. Barthel Index (BI): [10]
Dependence in Activities of Daily Living (ADLs) 15 days before the onset of illness was scored using the BI which measures the capacity to perform 10 ADLs and obtains a quantitative estimation of the patient's level of dependence, scoring from 0 (totally dependent) to 100 (totally independent). This index has been proposed as the standard for clinical and research purposes.

Clinical outcomes:
The patients were followed-up throughout their hospital stay; several clinical outcomes were recorded including:
• Improvement and discharge.
• Length of stay in hospital.
• Admission to intensive care unit.
• Use of mechanical ventilation.
• In-hospital mortality.

Statistical Analysis:
All data were entered into the 21st version of SPSS (Statistical Package of Social Science), and analyzed using frequency and descriptive statistics to analyze the study population. Frequency, percentage for all qualitative variables and description of quantitative variables in the form of mean (M) and standard deviation (SD) were performed. Comparison of qualitative variables was done using Chi-square test; it is a test that determines the extent that a single observed series of proportions differs from a theoretical or expected distribution of proportions, or the extent that two or more series proportions or frequencies differ from one another based on the chi-square distribution. Multivariate logistic regression analyses were used to adjust the influence of the analyzed indices on outcomes. The regression analysis included an examination of co-linearity by using variance inflation factor. [11] Logistic regression analysis was performed using the conditional forward elimination procedure. Tests were two-tailed, and statistical significance was determined at the 5% level.

Results

The study was conducted on 170 older patients. Table 1 shows the demographic and the clinical characteristics of the participants: The mean age of the patients was 68.08 ± 5.8 (range: 60 - 88), 72 (42.4%) were males and 98 (57.6 %) were females; the minimum for CCI that predicts 1-year survival rate was 11% and maximum was 92%, the minimum for BI was 10/100 and maximum was 85/100; (mean 53.6, ±16.9), the mean duration of stay in hospital was 6.3 ± 3.2, (range: 1 - 18 days), 131 patients (77.1%) were CURB 65 II - III, while 39 patients (22.9%) were CURB 65 IV - V. We found that 35 patients (20.6%) were PSI II, 83 patients (48.8%) were PSI III, 33 patients (19.4%) were PSI IV and 19 patients (11.2%) were PSI V. 71 patients (41.8%) were admitted in ICU, 62 patients (36.5%) were ventilated and 50 patients (29.4%) died. Table 2 shows that regarding sex, there was no significant difference between males and females in relation to the outcomes except for mortality where sex was a significant factor as mortality among females was 35 and males 15 (P: 0.035). While both indices that were used to determine the severity of pneumonia (CURB 65 and PSI) showed significant differences for all the outcomes (length of stay, ICU admission, ventilation and mortality). Table 3 shows the logistic regression analysis and the patients' variables used to predict the outcomes were; age, functional condition assessed by BI and the severity of comorbidities assessed by CCI. The table reveals that BI was a significant predictor for the length of hospital stay (P: .009, odd ratio: 1.043, CI: 1.010 - 1.076) and ICU admission (P: .003, odd ratio: .957, CI: .930 -.985). Regarding the use of ventilator, age, functional condition assessed by BI were significant predictors: (P: .049, odd ratio: .932, CI: .869 - 1.000), (P: .001, odd ratio: .950, CI: .921 - .980) respectively, Regarding mortality, the three variables

were significant predictors for mortality; age: (P: .001, odd ratio: 1.110, CI: 1.046 - 1.179), BI: (P: .042, odd ratio: .968, CI: .939 -.999) and CCI: (P: .019, odd ratio: .963, CI: .934 -.994).

Table 1: Demography and characteristics of the study sample:

Sample characteristics:	*Mini.*	*Max.*	*Mean*	*SD*
Age:	60	88	68.08	± 5.8
CCI	11%	92%	59.4	± 17.8
Barthel Index:	10	85	53.9	± 16.9
Duration of stay (days):	1	18	6.3	± 3.2
Sample characteristics	*Number of patients (Total 170)*		*Percentage (Total 100%)*	
Sex :	Males:	72	42.4%	
	Females:	98	57.6 %	
CURB 65	II – III:	131	77.1 %	
	IV – V:	39	22.9 %	
PSI risk class	II:	35	20.6 %	
	III:	83	48.8 %	
	IV:	33	19.4 %	
	V:	19	11.2 %	
Length of stay	1 – 3 days:	27	15.9 %	
	4 – 7 days:	89	52.4 %	
	8 ≥ days :	54	31.8 %	
Ventilator	Ventilated:	62	36.5 %	
	Not ventilated:	108	63.5 %	
ICU	Admitted:	71	41.8 %	
	Not admitted:	99	58.2 %	
Mortality	Died:	50	29.4%	
	Improved:	120	70.6 %	
Total		85	100%	

Table 2: Predictors of outcomes: analysis of patients' qualitative variables:

Outcomes:	Patients' variables	Sex		CURB65		PSI risk class			
		Male	Female	II – III	IV – V	II	III	IV	V
		N = 72	98	N = 131	39	N=35	83	33	19
Length of stay: 1 – 3 days:		12	15	24	3	14	8	3	2
4 – 7 days:		40	49	78	11	16	55	11	7
8 ≥ days :		20	34	29	25	5	20	19	10
		X^2: 0.91	P: 0.63	X^2: 24.4	P: 0.000	X^2: 37.1		P: 0.000	
ICU admission:									
Admitted:		30	41	40	31	9	20	25	17
Not admitted		42	57	91	8	26	63	8	2
		X^2: 0.00	P: 0.89	X^2: 29.6	P: 0.000	X^2: 47.8		P: 0.000	
Ventilation:									
Ventilated:		27	35	31	31	8	16	24	14
Not ventilated:		45	63	100	8	27	67	9	5
		X^2: 0.05	P: 0.81	X^2: 40.4	P: 0.000	X^2: 43.4		P: 0.000	
Mortality									
Improved:		57	63	100	20	28	67	18	7
Died:		15	35	31	19	7	16	15	12
		X^2: 4.4	P: 0.035	X^2: 9.08	P: .003	X^2: 20.1		P: 0.000	

Table 3: Predictors of outcomes: analysis of patients' quantitative variables: Results of the Logistic Regression Analyses

Outcomes	Predictors	B	Wald Statistics	Std Error	P– value	Odds Ratio	95% Confidence Interval
Length of stay	Age	.046	1.835	.034	.175	1.047	.980 - 1.119
	Barthel I	.042	6.904	.016	.009	1.043	1.010 - 1.076
	CCI	-.001-	.004	.015	.948	.999	.970 - 1.029
ICU admission	Age	-.002-	.004	.033	.949	.998	.935 - 1.065
	Barthel I	-.044-	8.936	.015	.003	.957	.930 - .985
	CCI	-.018-	1.592	.014	.207	.982	.956 - 1.010
Ventilation	Age	-.070-	3.882	.036	.049	.932	.869 - 1.000
	Barthel I	-.051-	10.777	.016	.001	.950	.921 - .980
	CCI	-.040-	2.213	.031	.121	1.007	.978 - 1.018
Mortality	Age	.104	11.671	.031	.001	1.110	1.046 - 1.179
	Barthel I	-.032-	4.141	.016	.042	.968	.939 - .999
	CCI	-.037-	5.459	.016	.019	.963	.934 - .994

Discussion

Our result showed that the mortality rate among the participants was 29.4% and that advanced age was a significant predictor for the use of ventilator and mortality and female gender was a significant predictor for mortality only while high scores in both indices that were used to determine the severity of pneumonia (CURB 65 and PSI) were predictors for all the outcomes (length of stay, ICU admission, ventilation and mortality). Also functional impairment was a predictor for all the outcomes (length of stay, ICU admission, ventilation and mortality), while severity of co morbidities was a predictor for mortality only.

This was agreed with by El-Solh et al., 2001 [12] who reported that the mortality rate for older patients in hospital-based studies of community-acquired pneumonia (CAP) were as high as 30%.

Also Kaplan et al., 2002 [13] who studied 623,718 hospital admissions for community-acquired pneumonia found that the overall mortality was 66,045 (10.6%) and added that mortality had doubled with age from 7.8% in those aged 65-69 years to 15.4% in those aged 90 and older.

The elevated rate of mortality among elderly patients with CAP can be explained on a physiological basis as the maximum function of the respiratory system is reached at approximately the age of 20-25 years. Thereafter, ageing is associated with a progressive decrease in lung performance; however, unless affected by disease, the respiratory system remains capable of maintaining adequate gas exchange during the entire life span. Physiological changes associated with ageing have important consequences on the functional reserve of older people, and their ability to cope with the decrease in lung compliance and increase in airway resistance associated with lower-respiratory-tract infection (LRTI). Lower sensitivity of respiratory centres to hypoxia or hypercapnia in older patients results in a diminished ventilatory response in cases of acute disease such as heart failure, infection, or aggravated airway obstruction, and thus delays important clinical symptoms and signs such as dyspnoea and tachypnoea, which are important for diagnosis of pneumonia and appreciation of the severity of the associated respiratory impairment. [14]

Regarding the gender it was found that female gender was a significant predictor for mortality. While this was disagreed with Hon Ming et al., 2011 [15], yet the higher number of females than males in our study can explain this finding.

Our study revealed that the severity of pneumonia assessed by CURB 65 and PSI showed significant differences for all the outcomes (length of stay, ICU admission, ventilation and mortality).

This was supported by Hon Ming et al., 2011 [15] who studied 488 older patients aged 65 or above; mean age was 81.0 years (±7.9); they were admitted for community-acquired pneumonia. They found that CURB score and co morbidities were the

most powerful predictive factors of mortality of pneumonia.

Also Fine et al., 1997 [16] stated that the PSI was a validated prediction rule for prognosis that identified patients with pneumonia at low risk for 30-day mortality and other adverse medical outcomes. They added that the PSI was a good prognostic score for CAP in adults.

According to Lim et al., 2003 [17] there were two clinical prediction rules often used to determine the prognosis; PSI and the CURB-65. They stated that patients who were assessed to have moderate and high risks of death were admitted to the general ward and the intensive care unit (ICU), respectively, therefore such prediction rules assisted in the appropriate utilisation of limited hospital and ICU resources.

In the current study we found that functional impairment was a predictor for all the outcomes, and that the severity of co morbidities was a significant predictor for mortality.
This was agreed with Kaplan et al., 2002 [13] who studied 623,718 hospital admissions for community-acquired pneumonia; they found that mortality was higher in those with an underlying illness defined by the Charlson-Deyo comorbidity index (11.9% versus 7.6%, $P < 0.006$) using a univariate analysis.

Also regarding functional status, Mody et al., 2006 [18] agreed that those with better premorbid functional status had a shorter length of stay in hospital and also Jackson et al., 2009 [19] found that poor functional status was a risk factor for CAP in immunocompetent old persons.

And Torres et al., 2004 [20] looked at the importance of functional assessment in determining the outcome of CAP. Although they conducted a small study of 99 patients aged 65 or older who had community-acquired pneumonia, it showed that functional status (using the BI) was an independent predictor for short- and long-term mortality.

Also El-Solh et al., 2001 [21] conducted studies used ADL in the construction of a classification tree model for predicting outcome of older patients with CAP requiring mechanical ventilation. These studies suggest the importance of ADL ability in predicting CAP outcome in other settings. Of the analyzed indices, the only independent predictor for short-term mortality was the BI. They found that functional status measures had been shown to be important predictors of hospital outcomes, and ADL dependence had repeatedly appeared as an important predictor in nursing home pneumonia studies.

Such information can be used to assess the severity of pneumonia, particularly on presentation and to be used to guide treatment and the level of care, as well as allow predictions about prognosis. In the elderly, decisions regarding the extent of investigations, treatment (ie, intravenous versus oral antibiotics), and whether intensive care management is appropriate, need to be considered from the outset.

Implementation of these tools for CAP patient's assessment leads to improved ability to predict outcomes in elderly people with CAP, helping clinicians with decisions such as whether to admit to the hospital or to the ICU, and in-hospital interventions for diminishing functional decline.

Conclusion

PSI, CURB 65, BI and CCI were significant predictors for the outcomes of CAP. So evaluation of the severity of pneumonia, functional status, and co morbidity of the elderly patients suffering from CAP using these tools can guide the physicians about the appropriate management and levels of care needed for these critical patients, accordingly. If patients are identified early as being at high risk for complications, then they can receive appropriate treatment in a timely manner, such as hospitalization, ICU admission or ventilator support if necessary.

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Original Contribution/Clinical Investigation

Validation of Arabic Version of Saint-Louis-University-Mental-Status (SLUMS) - Examination and Prevalence of Cognitive Impairment in Community Dwelling Egyptian Older Adults

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ABSTRACT

Background: Cognitive impairment should be accurately assessed in the elderly. The presence of a valid Arabic version of the SLUMS Examination would allow better diagnosis of cognitive impairment as it considers different educational levels prevalent in the Egyptian community.

Aim: To assess the reliability and validity of the Arabic version of Saint-Louis-University-Mental-Status (SLUMS) Examination for cognitive impairment and to estimate the prevalence of cognitive impairment among community dwelling Egyptian older adults.

Materials and methods: This study was conducted in two phases: phase I, during which reliability and validity of the Arabic version of SLUMS Examination was assessed; then phase II, where the prevalence of cognitive impairment among community dwelling Egyptian elders was estimated using the Arabic version of SLUMS Examination .

Results: The phase I of the study was conducted on 90 elderly group for testing validity and reliability of the SLUMS tool. A statistically significant agreement was evident between SLUMS Examination and Mini Mental State Examination MMSE (Kappa 0. 826, P <0.001). Sensitivity of SLUMS Examination was 94% (31/33) while Specificity was 96% (55/57). SLUMS Examination was also found to be reliable by test-retest. (McNemar P>0.05, Kappa 0.806 P<0.001). The internal consistency of the Arabic version of SLUMS Examination on the main items of cognitive function showed a Cronbach's alpha of 0.723 with a significant item-to-item and item-to-total correlation. The phase II of the study was conducted on 284 elderly. 51.4% of them demonstrated mild neuro-cognitive disorder and 5.6% were demented. Age showed a significant relationship with cognitive function level (P<0.001). Education level, employment and depression showed significant differences between elders with normal cognitive function and the demented (P<0.001, P=0.003 and P <0.001 respectively).

Conclusion: The Arabic version of SLUMS-Examination was found to be a valid and reliable screening tool for cognitive impairment in elderly. Almost half of the community dwelling Egyptian elderly showed mild neuro-cognitive disorder and a minority were demented. Older age, less education, unemployment and evidence of depression were found to be significantly associated with cognitive impairment. The Arabic version of SLUMS-Examination should be included in the routine assessment of cognitive impairment in Egyptian elders.

Key words: Cognitive impairment, Egyptian older adults, Arabic version of SLUMS-Examination

Introduction

Cognition is the process of thinking, learning, and remembering. Cognitive impairment is not uncommon in late life and may be due to the normal process of ageing or associated with physical or mental disorders. [1] It is characterized by memory disturbances, which occur frequently among the elderly. [2]

The most common disease causing cognitive impairment in the elderly is dementia. There are many causes of dementia. Primary dementia like Alzheimer's disease (AD) is the commonest cause of dementia. Secondary causes of dementia include thyroid disorders and deficiency of vitamin B12. Early detection of dementia (primary or secondary) is of extreme importance as treatment at an early stage yields encouraging results. [1]

The prevalence of degenerative dementias and other conditions associated with AD is increasing due to the rapid ageing of the population. The prevalence is below 1% among people aged 60-64 years, but it shows an almost exponential increase with age. In western countries, the prevalence ranges from 24%-33% for people aged 85 years or older. It has been reported that Chinese dementia patients make up 40% of all dementia patients in the Asia-Pacific region and 25% of dementia patients globally. [3] There are 6-7 million Chinese people with dementia, with an incidence of 5-7% among people over 65 years of age. Dementia patients experience not only a serious decline in individual quality of life but also impose a heavy economic burden on their families and society. [4]

Dementia increases in prevalence with age, with a doubling of prevalence every 5 years. It is a progressive disease process affecting families, caregivers, health and social care providers. Cognitive impairment is an important part of the diagnostic criteria for dementia. [5]

The discovery of the long preclinical phase of AD of up to 7 years [6] led to enhanced interest and research efforts in order to establish early diagnostic indices of dementia. [7] In providing potential treatment options for delaying or, ideally, preventing further cognitive decline, the definition of high-risk populations is of utmost importance. [8]

Mild cognitive impairment (MCI) is associated with an increased risk of developing dementia: patients develop dementia at a rate of 10-15% ? year compared with healthy controls who develop dementia at a rate of 1-2% ? year. [9]

However, data on the prevalence and incidence of MCI as well as the conversion rate to dementia varies greatly according to the different definitional criteria applied. The rates of conversion to dementia reported in the literature for example vary from 1 to 25% / year. [10]

The prevalence of MCI increases with age. The prevalence is 10% in those aged 70-79 years and 25% in those aged 80-89 years. [11]

Cognitive impairment is costly. People with cognitive impairment report more than three times as many hospital stays as individuals who are hospitalized for some other condition. In 2009, AD and related dementias alone were estimated to be the third most expensive disease to treat in the United States. The average Medicaid nursing facility expenditure per state in 2010 for individuals with AD is estimated at $647 millions, not including home- and community-based care or prescription drug costs. [12]

More than 16 million people in the United States are living with cognitive impairment. [13] But the impact of cognitive impairment at the state level is not well understood. Five states addressed this shortcoming by assessing the impact of cognitive impairment on their residents. This knowledge is vital to developing or maintaining effective policies and programs to address the needs of people living with cognitive impairment in a state. Age is the greatest risk factor for cognitive impairment, and as the Baby Boomer generation passes age 65, the number of people living with cognitive impairment is expected to jump dramatically. An estimated 5.1 million Americans aged 65 years or older may currently have AD, the most well-known form of cognitive impairment; this number may rise to 13.2 million by 2050. [14]

The Mini Mental State Examination (MMSE) [15] is widely used in practice as a screening tool for dementia. The MMSE has limitations, however, especially with regard to its use in more educated patients and as a screen for mild neuro-cognitive disorder. [16] The Saint Louis University Mental Status Examination (SLUMS) was developed to address this limitation. The SLUMS is a 30-point, 11-item, clinician-administered scale that is similar in format to the MMSE. [17] The SLUMS, however, supplements the MMSE with enhanced tasks corresponding to attention, numeric calculation, immediate and delayed recall, animal naming, digit span, clock drawing, figure recognition/size differentiation, and immediate recall of facts from a paragraph. In particular, the clock drawing test is designed to assess impairment in executive function, one of the earliest forms of cognition affected in mild neuro-cognitive disorder and dementia. The SLUMS also eliminates some tasks that appear on the MMSE, including repetition and construction. By enhancing the SLUMS relative to the MMSE, it was predicted that the SLUMS would be more sensitive and specific than the MMSE, particularly for diagnosis of mild neuro-cognitive disorder. [18]

Tariq et al., 2006 [19] found that the SLUMS and MMSE both could be used as screening tools to detect dementia. SLUMS also recognized a group of patients with mild neuro-cognitive disorder, which the MMSE failed to recognize as defined by DSM IV criteria. The sensitivity and specificity appeared similar for both SLUMS and MMSE in detecting dementia, but the SLUMS appeared to be possibly better than the MMSE for differentiating mild neuro-cognitive disorder from normal cognitive functioning.

So the aim of this study was to assess the reliability and validity of the Arabic version of SLUMS Examination for cognitive impairment screening, as it adjusts for different levels of education frequently encountered among the Egyptian population, and to estimate the prevalence of cognitive impairment among community dwelling Egyptian older adults using this validated tool.

Participants and Methods

This study was conducted in two phases: Phase I; in which reliability and validity of the Arabic version of SLUMS Examination was assessed, then Phase II; in which the prevalence of cognitive impairment among community dwelling Egyptian older adults was estimated using the Arabic version of SLUMS Examination tool.

Phase I: Testing validity and reliability of SLUMS:

Study setting and sample:
A cross-sectional study was conducted on 90 elder participants (60 years old and above) (37 males and 53 females). Elders were recruited from Egyptian social clubs in Cairo city.

Data collection:
Socio-demographic data, namely age, gender, marital status and education status were recorded for all participants and an oral informed consent was obtained.

SLUMS Examination. [19]
Translation:
The SLUMS Examination was translated into Arabic language and back translated into the original language, with no significant difference between the original and the back translated forms, but a few words were changed to more convenient Arabic words adapted to the Egyptian culture.

The SLUMS is a 30-point, 11-items, clinician-administered scale that is similar in format to the MMSE. [17] The SLUMS, however, supplements the MMSE with enhanced tasks corresponding to attention, numeric calculation, immediate and delayed recall, animal naming, digit span, clock drawing, figure recognition/size differentiation, and immediate recall of facts from a paragraph. In particular, the clock drawing test is designed to assess impairment in executive function, one of the earliest forms of cognition affected in mild neuro-cognitive disorder and dementia. [18]

The SLUMS is a one-page screening test administered in 10 minutes to identify elderly people with cognitive impairment. The total possible score is 30. Interpretation of the score depends on the level of education; High school education: Normal: 27-30; Mild neuro-cognitive disorder: 21-26; Dementia: 1-20. Less than high school education: Normal: 25-30; Mild neuro-cognitive disorder: 20-24; Dementia: 1-19. [19]

Mild neuro-cognitive disorder is equivalent to MCI. MCI has been recently added as the diagnosis of mild neuro-cognitive disorder in the 5th edition of The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [20]

Validation:
All subjects were screened for the presence of cognitive impairment by using the Arabic version of MMSE previously validated. [21]

The Arabic version of SLUMS Examination was validated in our study in reference to the MMSE that was administered to all the participants to assess their cognitive function. [15]

The MMSE comprises 30 questions with 10 devoted to orientation (five for time and five for place). Three items required registration of new information (repeating three words). Five questions addressed attention and calculation. Mental control questions required the patient to make five serial subtractions of 7 from 100 or spell a word backwards and three recall items (remembering the three registration items). Eight items assessed language skills (two naming items, repeating phrase, following a three-step command, reading and following a written command and writing a sentence), and one construction question (copying a figure consisting of two overlapping pentagons).

According to the score of MMSE, the subjects were classified into normal cognitive function, MCI and dementia (mild to moderate and severe).

Reliability Testing
Test-retest reliability data were collected after an average of 15 days as all 90 older adults were evaluated again using the Arabic version of SLUMS Examination.

Phase II: Determination of the prevalence of impaired cognitive function using the Arabic SLUMS:

A cross-sectional study was conducted to estimate the prevalence of cognitive impairment in community dwelling Egyptian elder subjects.

Two hundred and 84 (284) old elders (60 years old and above) 135 males and 149 females were recruited from four Egyptian social clubs in Cairo city, over a period of 3 months.

Data collection:
Socio-demographic data including age, gender, marital status, living arrangement, employment and education status were recorded for all participants and informed consent was obtained. Geriatric Depression Scale 15 items (GDS 15) was administered to all participating elders. [22] as well as the Arabic version of SLUMS-Examination.

Statistical Analysis:
Data collected was revised and introduced to a PC for statistical management and analysis. Categorical data is described as using frequency distribution (number and percentage) while quantitative data is described as using mean and standard deviation. One way ANOVA was used to test differences in the tool categories for continuous variables. Cronbach alpha was used to test internal consistency of the Saint Louis items as well as inter-items correlation. Paired t test was used to test reliability and changes in the different items of the Saint Louis instrument. McNemar Bowker and Kappa statistics were used to test agreement between Saint Louis and MMSE tools of cognitive impairment assessment. Kendall tau-b was used to test correlation between ordinal data. All p values were set at 0.05 and all statistical manipulation and analyses were performed using the 15th version of SPSS.

Results

The phase I of the study was conducted on 90 older adults for testing validity and reliability of the SLUMS tool. Table 1 shows the demographic characteristics of the tested elders: their mean age was 67.3 ± 5.02 (range: 60 - 80). The sample included 37 (41.1%) males and 53 (58.9%) females. Among the 90 elder participants; 42 (46.7%) were married, 38 (42.2%) widowed, 6 (6.7%) divorced and 4 (4.4%) were single.

29 (32.2%) did not complete their high school education while 61(67.8%) terminated their high school education and some achieved higher education.

Table 2 shows significant agreement between the yield of Saint-Louis-University-Mental-Status-SLUMS Examination and Mini Mental State Examination MMSE (Kappa 0. 826, P <0.001).

Compared to MMSE as a gold standard, sensitivity of Saint-Louis-University-Mental-Status-SLUMS Examination was 94% (31/33) while specificity was 96% (55/57).

Table 3 shows significant reliability (Test-retest) of Saint-Louis-University-Mental-Status-SLUMS Examination (McNemar P>0.05, Kappa 0.806 P<0.001).

The internal consistency of the Arabic version of Saint-Louis-University-Mental-Status-SLUMS Examination on the main items of cognitive function showed a Cronbach's alpha of 0.723 with a significant item-to-items and item-to-total correlation.

The phase II of the study was conducted on 284 elders. 51.4 % of elders demonstrated mild neuro-cognitive disorder and 5.6% were demented. Table 4 shows their demographic characteristics: the mean age was 66.19 ± 4.56 (range: 60 - 82). The sample included 135 (47.5%) males and 149 (52.5%) females. Among the investigated elders 144 (50.7%) were married, 111 (39.1%) widowed, 21 (7.4%) divorced and 8 (2.8%) single. Thirty (30 = 10.6%) of the interviewed elder were illiterates, 81 (28.5%) had less than high school education and 173 (60.9%) achieved a high school education and more.

Figure 1 illustrates the prevalence of cognitive impairment in the older adults sample; 122 (43%) demonstrated normal cognitive function, 146 (51.4%) showed mild neuro-cognitive disorder and 16 (5.6%) had dementia.

Table 5 shows the relationship between patients' demographics and cognitive function. Mean age of the normal cognitive function older adults was 63.5 ± 3.07, while in demented cases was 72.9 ± 4.5, (P: <0.001). None of sex, marital status and living arrangement showed a significant relationship with cognitive function level, (P: 0. 146, P: 0.186, P: 0.10), while education level, employment and depression showed significant differences between older adults with normal cognitive function and demented cases, (P values: <0.001, 0.003 and <0.001 respectively).

Table 1: Patients' demographic characteristics in Phase I

Variables	Statistics
Number	90
Age	
Mean ± SD	67.3 ± 5.02
Min- Max	60 - 80
Sex: *N (%)*	
Male	37 (41.1)
Female	53 (58.9)
Marital status: *N (%)*	
Married	42 (46.7)
Widow	38 (42.2)
Divorced	6 (6.7)
Single	4 (4.4)
Education: *N (%)*	
Less than High school education	29 (32.2)
High school education and more	61 (67.8)

Table 2: Correlation between SLUMS and MMSE

		MMSE		
		Normal	MCI	Dementia
SLUMS-Examination	Normal	55	2	0
	Mild neuro-cognitive disorder	2	22	3
	Dementia	0	1	5
McNemar-Bowker Test		P value 0.607 NS		
Measure of Agreement Kappa		0.826 P value <0.001		

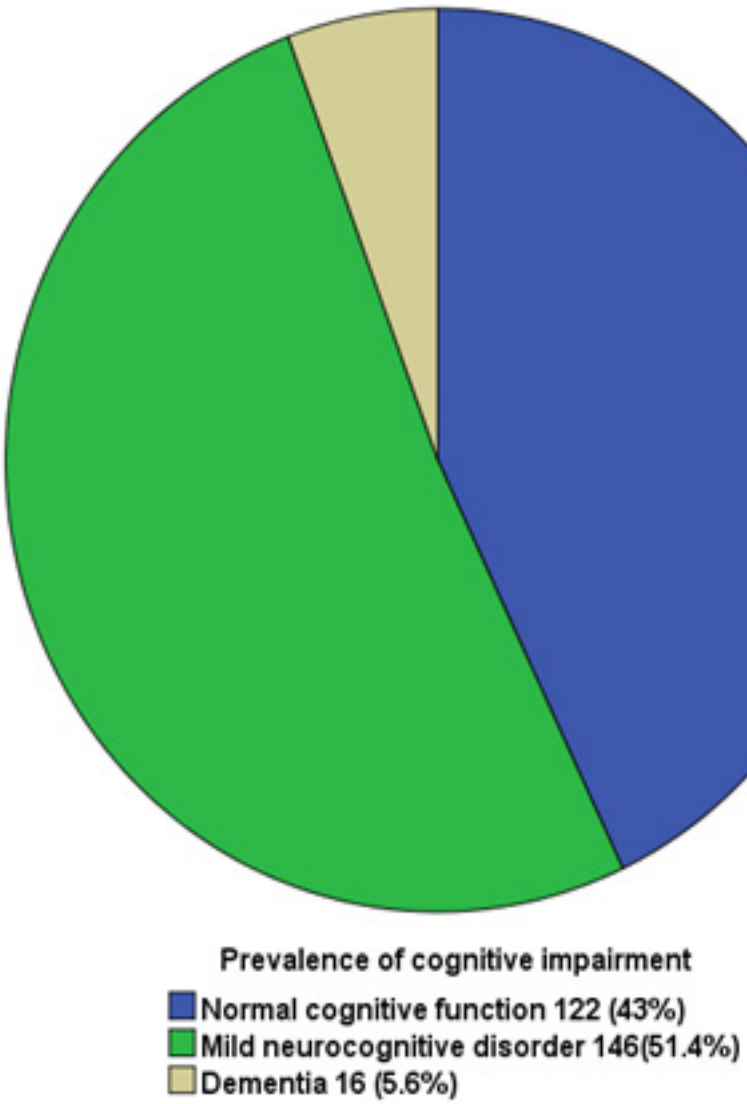
Table 3: Reliability (Test-retest) of Saint-Louis-University-Mental-Status-SLUMS-Examination

		SLUMS (Retest)		
		Normal	Mild neuro-cognitive disorder	Dementia
SLUMS (Test)	Normal	53	4	0
	Mild neuro-cognitive disorder	0	25	2
	Dementia	0	3	3
McNemar-Bowker Test			P value 0.122	
Measure of Agreement Kappa			0. 806 P value <0.001	

Table 4: Patients' demographic characteristics in Phase II

Variables	Statistics
Number	284
Age	
Mean & SD	66.19 ± 4.56
Min - Max	60 - 82
Sex: N (%)	
Male	135 (47.5)
Female	149 (52.5)
Marital status: N (%)	
Married	144 (50.7)
Widow	111 (39.1)
Divorced	21 (7.4)
Single	8 (2.8)
Education: N (%)	
Illiterate	30 (10.6)
Less than High school education	81 (28.5)
High school education and more	173 (60.9)
Living arrangement: N (%)	
Living with family members	151(53.2)
Living non family members	46(16.2)
Living alone	87(30.6)
Occupation : N (%)	
Employed	108(38)
Unemployed	176(62)
GDS 15: N (%)	
Not depressed	143(50.4)
Depressed	141(49.4)

Figure 1



Discussion

In the present study, the Arabic version of SLUMS Examination demonstrated significant agreement with MMSE with high sensitivity (94%) and specificity (96%), adequate test-retest reliability and internal consistency.

The prevalence of mild neuro-cognitive disorder in community dwelling Egyptian older adults of the current study was 51.4% and dementia was 5.6%.

The prevalence of cognitive impairment in community dwelling older adults varied in different studies depending on characteristics of sample (e.g. rural versus urban areas) and the tool used for screening of cognitive impairment. For example the study conducted by Lee and Shinkai, 2005 [23] in which they used the MMSE to estimate the prevalence of cognitive impairment among Korean people > 65 years of age, they found that the prevalence was 17.0%.

A cross-sectional study was carried out by Deepak et al., 2013 [24] between January 2010 and July 2010, in urban and rural areas of Shimla district of Himachal Pradesh in India. Four hundred elderly people were included in the study. The prevalence of cognitive impairment was found to be 3.5%. It was higher in rural (2.3%) than in the urban population (1.3%).

Also Unverzagt et al., 2001 [25] conducted a study on 2212 community-dwelling African American residents of Indianapolis, aged 65 and older and found that the overall rate of cognitive impairment among community-dwelling elderly was 23.4%.

Janice and Graham, 1997 [26] performed the Canadian Study of Health and Aging that gathered population representation information about elderly Canadians aged 65 and over from 36 cities and surrounding areas in five regions. In each region, the sample size was 1800 people in the community and 250 people in institutions. Patients in the community were screened for cognitive impairment by means of the modified mini-mental state examination. The prevalence of cognitive impairment no dementia [CIND] was 16.8%, which was more than all types of dementia combined (8.0%). They reported that the prevalence of all types of cognitive impairment, including dementias, increased with age.

Also we found that cognitive impairment increased significantly with increasing age. This finding is in agreement with Hardy and Higgins, 1992 [27] who examined the causes of cognitive impairment and found that aging was the predominant risk factor for MCI.

Table 5: Relationship between Patients demographic characteristics with Cognitive function

	Normal	Mild neuro-cognitive disorder	Dementia	
Age				F 82.7
Mean ± SD	63.5 ± 3.07	67.6 ± 4.22	72.9 ± 4.5	P <0.001
Sex: *N (%)*				
Male	65 (48.1)	65 (48.1)	5 (3.7)	X^2 3.847
Female	57 (38.3)	81 (54.4)	11 (7.4)	P 0.146
Marital status: *N (%)*				
Married	59 (41.0)	78 (54.2)	7 (4.9)	
Widow	48 (43.2)	56 (50.5)	7 (6.3)	X^2 8.78
Divorced	11 (52.4)	10 (47.6)	0 (0.0)	P 0.186
Single	4 (50.0)	2 (25.0)	2 (25.0)	
Education: *N (%)* Illiterate				
Less than High school education	2 (6.7)	25 (83.3)	3 (10.0)	X^2 42.06
High school education and more	25 (30.9)	45 (55.6)	11 (13.6)	P <0.001
	95 (54.9)	76 (43.9)	2 (1.2)	
Living arrangement: *N (%)*				
Living with family members				
Living non family members				
Living alone	72(47.6)	75(49.6)	4(0.02)	
	15(32.6)	27(58.6)	4(0.08)	X^2 7.77 P 0.10
	35(40.2)	44(50.5)	8(0.09)	
Employment: *N (%)*				
Employed	71(65.7)	37 (34.25)	0 (0)	X^2 40.84
Unemployed	51(28.97)	109 (61.9)	16 (0.09)	P <0.001
GDS 15: *N (%)*				
Not depressed	75(52.4)	63(44)	5(0.34)	X^2 40.84
Depressed	47(33.3)	83(58.8)	11(0.78)	P 0.003

Again, Huang et al.,2008 [28] stated that previous studies showed the prevalence of MCI to be higher in people 75 years of age and older than among those who were younger than 75 years.

The age-cognitive function relationship is consistent in both rural and urban areas as mentioned by Park et al., 2013 [29] who stated that the mean score of MMSE in both the urban and rural strata decreased with increasing age.

Controversially, other results revealed no significant relationship between age and MCI. [30] Differences could be attributed to the selected population or the tool used in cognitive function assessment.

As regards gender, although 7.4% of females were demented compared to only 3.7% in males, this difference was not statistically significant. Regarding this issue we disagreed with Greta et al., 2005, [31] and with Park et al., 2013 [29] and with Constanc et al., 2010 [32] as all of them had found that female gender was significantly associated with cognitive impairment. This could be explained by our smaller sample size.

Also our study found that low education was associated with cognitive impairment. This was supported by Fratiglioni and Wang, 2007 [33] who found that education was strongly related to the risk of developing dementia. They added that this effect was prominent in the Korean population compared with that in other countries. They explained that this was due to the generally lower education level among elderly Koreans and the consequent lifelong lack of exposure to stimulating environments and accessibility to health services. Stewart et al., 2003 [34] added that lower education level could hinder the early development of brain function, and affect the absolute levels of cognitive function.

Everson-Rose et al., 2003 [35] and Fratiglioni and Wang, 2007 [33] explained this as the intellectual challenges might increase the brain reserve and delay development of dementia.

Regarding the same issue, Park et al., 2013 [29] stated that more years of schooling were associated with a decreased probability of cognitive impairment, and Bosma et al.,2003, [36] who conducted a 3-year follow-up study, found that older persons with a lower educational level experienced more decline in cognitive function; including information processing speed, memory, and general cognitive function according to the Mini-Mental State Examination, compared to persons with a higher educational level.

As regards employment we found cognitive impairment more prevalent in unemployed elders. Cognitive impairment would interfere with employment and Occupation or employment may act the same as education in improving the cognitive function of the brain. Regarding this issue we agreed with Park et al., 2013 [29] who found that employment status was associated with a decreased probability of cognitive impairment.

Regarding the relationship between cognitive impairment and depression we found that cognitive impairment was more prevalent in depressed patients. So we agreed with Gao et al., 2012 [37] who examined whether depression was a risk factor for onset of dementia including Alzheimer's disease (AD), vascular dementia (VD) and any dementia, and MCI by using a quantitative meta-analysis of longitudinal studies. The quantitative meta-analysis showed that depression was a major risk factor for incidence of dementia (including AD, VD, and any dementia) and MCI.

Again in the study of Park et al., 2013 [29] they found that high GDS-15 scores were significantly associated with increased cognitive impairment.

Conclusion

The Arabic version of SLUMS-Examination was found to be a valid and reliable screening tool for cognitive impairment assessment. Almost half of the community dwelling Egyptian elders showed mild neuro-cognitive disorder and a minority were demented and are increasing with age, less education, unemployment and presence of depression. So, application of the Arabic version of SLUMS-Examination in routine assessment of Egyptian elders is mandatory.

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Falls in Older People: A Perspective from Kurdistan of Iraq

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ABSTRACT

Falls are increasing worldwide in an ageing population. Commonly multi-factorial, falls in the elderly need multidisciplinary teams to help their prevention and recurrence. This was a retrospective study analyzing falls and factors associated with them over a 12 month period in the city of Sulaimani, Kurdistan of Iraq. The results demonstrated well established factors contributing to falls such as age, female sex with multiple co-morbidities and medications. More specifically to the Kurdistan population the results related falls closer to morning and prayer time or when washing. In addition, those affected by falls are commonly living with other family members. These results and studies similar to this will allow the development of specific interventions and services to help address risk factors unique to a developing, Middle Eastern population.

Key words: Falls, Elderly, Prevention, Kurdistan

Introduction

The global elderly population is increasing and as a consequence so is the burden of non-communicable diseases.(1) Falls in the elderly are a major cause for attending general practitioners (GP) surgeries and emergency departments. Mechanical (i.e. accidental falls) are uncommon among the elderly population.(2) Falls in the elderly can be caused by the interaction of intrinsic and extrinsic factors. Significant examples include; patients with cognitive impairment, those with foot deformities and medications, especially anti-depressants.(3,4)

Falls in the elderly in developing countries are increasing yet few studies exploring their aetiology and prevention have been published.(5) In Middle Eastern countries little is known about the prevalence and features of falls. Data from an Iranian multicentre study involving 2186 patients revealed that hip fracture occurred in 26.2%. The study also identified that over two thirds of falls occurred indoors.(6) The majority of published studies on falls are from Western societies and as a consequence the prevention strategies are based on these populations. Sulaimany is a town in a newly oil driven economically prosperous Kurdistan; an autonomous region from the Iraqi central government since 1991. The aim of this paper is to explore the risk factors for falls specific to this population group. In gaining a more detailed understanding of the causes of falls in a developing population a more relevant prevention strategy can be established instead of simply implementing a Western guideline.

Methods

This retrospective study collected data on falls presenting to hospital over a twelve month period. A proforma was used to collect information. This included patient demographics and factors associated with the fall (Appendix, Table 1). All patients admitted to the orthopedic, rheumatology and emergency departments of the Sulaimany teaching hospital who fell from at least their height level were included in the twelve month window. Certain outcomes were also measured such as severity and type of injury or fracture. Admitting medical teams were directed to fill out the pro forma.

Key points:

- Inclusion criteria; patient above the age of 60 who attended hospital due to a fall (defined as falling from at least their own height).

- Data was collected using a pro forma questionnaire (sample is attached) in the Sulaimany Accident and Emergency Department, medical and surgical wards.

Results

300 falls presented to Sulaimany hospital during the twelve month window. 197 were female compared to 103 males. The mean age of fallers was between 70 and 74. The majority occurred in the morning (72.6%) whilst the patient was indoors (72.3%). Of the 300 falls 68.3% had fallen before and 80.6% were on medications. 82% lived with a partner or family and the remaining 18% lived alone.

Social History

Smoker	Non smoker
192	108

Drinks alcohol	Does not drink alcohol
23	277

Lives alone	Does not live alone
54	246

Discussion

Falls are multifactorial and as a result so too are their prevention.(3) The risk factor for falls consequently varies between populations and different cultural groups. Identifying the risk factors for falls in elderly subpopulations will allow the design of more specific interventions. Cultural issues should be considered in falls prevention.

The daily routine, support network and approach to healthcare will differ between subpopulations. Many similarities are evident with the typical faller in Western populations. Older females with multiple medical co morbidities and medications account for the majority of fallers. The differences however are apparent. Fallers tend to live in families or with partners. In Sulaimany the elderly remain living in family homes. Notably there is an absence of residential or care homes. Morning falls are more common (218 of the 300 falls). Washing and toileting represent a major difficulty for elderly patients which is emphasised by a lack of toileting facilities. The toilet facilities are commonly a hole at ground level. This is compared to western style toilets which are raised at least two feet from the ground. Toileting therefore requires a greater level of physical effort and manoeuvrability. Facilities for washing in Sulaimany are different from the UK. Waist level basins are uncommon. Bending is required to reach for washing taps which are commonly located on or near to the floor. The majority of falls are also indoors. The reasons behind this are most likely twofold. Firstly the housebound elderly population has a higher disease burden and reduced mobility. Secondly, certain indoor areas pose added risks for falling. These areas can include the bathroom but also other areas around a family house that elderly populations in the UK do not encounter in a typical retirement dwelling.

Morning Prayer is before sunrise. Visual impairment and difficulty identifying the surroundings are proven risk factors for falls. Reduced light at this active time of day will compound these risks.(8) Kurdish dress for ladies are a multi-layered

long dress. A high level of dexterity is required to perform the activities of daily living in this traditional style of clothing. The risk of falls is also increased due to the clothing's potential interference with the environment. Covering the whole body with such dresses for warmth has proven to reduce exposure to sun light, hence reducing Vitamin D and calcium metabolisms which contributes to osteoporosis.(9)

This study has made some steps to uncovering the many factors causing people to fall in Kurdistan. Only patients who presented to hospital were included. This represents a small number of total fallers as those who fall in the community and do not present to secondary care are being missed. By only selecting patients who have sustained an injury it is impossible to calculate the prevalence for all falls. Similarly certain risk factors and characteristics are potentially being underestimated. Further studies involving community healthcare is needed to further improve the knowledge of falls and associated risk factors. Such research will also benefit Western fall prevention strategies with many populations demonstrating an increasing Muslim population.(10)

Recommendations from the paper:

- Consider falls risk specific for the Sulaimany population and may be nationally for Kurdistan.
- Occupational assistance to assess when fallers are at risk and aid implementation of prevention strategies such as; help during Morning Prayer, installing waist high basins and ensuring areas are well lit before prayer.
- Adopting a combined approach to falls management with other specialties and allied health professionals.
- Harnessing the presence of multiple family members within the faller's home. Family intervention and education will be an important tool in preventing falls in the Kurdistan community
- The local health authority has to establish occupational assessment therapy and introduce them to assess fallers' environment.

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Patients' Preference of Anaesthesia During Herniorrhaphy

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ABSTRACT

Objectives: To study the type of anaesthesia, local or general, that patients prefer for an open hernia repair procedure and the reason for their choices.

Patients and methods: This study was conducted at Royal Medical Services during the period between January 2011 and June 2013. A sample of 150 consecutive patients awaiting open hernia repair and considered suitable for day case surgery, under local or general anaesthesia were chosen according to the following criteria: age between 20 and 75 years; primary hernia repair (irreducible or complicated hernias were excluded). The patients were interviewed at the hospital. The questionnaire ascertained the patients' willingness to have day case hernia repairs under local or general anaesthesia, the reasons for their choice and any previous experience of these procedures.

Results: The mean age of patients was 58.4 years with 114 males and 36 females. Hernia types were 98 inguinal, 30 paraumbilical, 12 small incisional and 10 femoral.

87% of patients preferred day case hernia repair and these patients were younger in age in comparison to those opting for in-patient surgery. 13% of patients expressed a strong preference for general anaesthesia, all of whom also stated 'a dislike or feeling of anxiety if awake during surgery'. The reasons stated for choosing local anaesthesia included, 'dislike/fear of loss of consciousness with GA' (75%), previous adverse experiences with surgery under general anaesthesia (8%) and slower post-operative recovery with general anaesthesia (4%).

Conclusion: The majority of patients preferred local anaesthesia for their hernia repair procedure; the mean reason was dislike of loss of consciousness with general anaesthesia.

Key words: Hernia, local anaesthesia, general anaesthesia, in-patient and day case.

Introduction

In selected patients, day case herniorrhaphy has a similar clinical outcome but is more economical than in-patient care. Herniorrhaphy may be performed under local or general anaesthesia. General anaesthesia requires an anaesthetist and greater post-operative nursing care. Use of local anaesthesia compared with regional or general anaesthesia results in a shorter duration of hospital admission and less postoperative pain, as well as fewer micturition difficulties, in patients undergoing hernia repair(1).

Day case herniorrhaphy under local anaesthesia is more economical, but of similar clinical outcome compared to in-patient care(2,3). It is therefore likely to ease the current pressures on finances and in-patient beds without detrimental effects on patient care. Despite the advantages of day case surgery it is not fully exploited in many hospitals. This is in part due to a lack of enthusiasm and adequate facilities(3). In this respect, patient preference for day case hernia repair is also likely to be important. We report our findings on patient willingness to undergo day case hernia surgery under local or general anaesthesia.

Patients and Methods

This study was conducted in Royal Medical Services during the period between January 2011 and June 2013. A sample of 150 consecutive patients awaiting open hernia repair and considered suitable for day case surgery, under local or general anaesthesia were chosen according to the following criteria: age between 20 and 75 years; primary hernia repair (irreducible or complicated hernias were excluded).

The patients were interviewed at the hospital. The procedures for day case or in-patient hernia repairs were explained as follows: Provided there are no complications the patient will be discharged the same day or the following day; herniorrhaphy involves the same type of repair and overall, the post-operative discomfort, size of scar, complication and recurrence rates are similar; earlier mobilisation may be possible with local anaesthesia; the patient is awake under local anaesthesia, although they are unlikely to feel any pain, need not to see the operation itself and may choose to have light sedation. The questionnaire ascertained the patients' willingness to have day case hernia repairs under local or general anaesthesia, the reasons for their choice and any previous experience of these procedures.

Results

The mean age of patients was 58.4 years with 114 males and 36 females. Hernia types were 98 inguinal (65%), 30 paraumbilical (20%), 12 small incisional (8%) and 10 femoral (7%).

Thirty-six (24%) patients had previous hernia repairs (95% of which were under general anaesthesia). There was a negative association between previous hernia repair and preference for day case surgery. Sixty-four (43%) patients had previous experience of day case surgery and 38 (25%) knew of others who had had day case surgery. There was a tendency for a positive association between previous experience with day case surgery and a preference for day case surgery.

87% of patients preferred day case hernia repair and these patients were younger in age in comparison to those opting for in-patient surgery. 13% of patients expressed a strong preference for general anaesthesia, all of whom also stated 'a dislike or feeling of anxiety if awake during surgery'. The reasons stated for choosing local anaesthesia included, 'dislike/fear of loss of consciousness with GA' (75%), previous adverse experiences with surgery under general anaesthesia (8%) and slower post-operative recovery with general anaesthesia (4%). Fourteen (9%) and twelve (16%) patients had previous adverse experiences with surgery under local and general anaesthesia respectively. There was a positive association between previous adverse experiences with surgery under local anaesthesia and a preference for general anaesthesia. There were no other associations between the parameters studied.

Discussion

We observed that when allowed to make an informed choice, the vast majority of patients prefer day case hernia repair. This bodes well for the future of day case herniorrhaphy. A small minority of patients preferred 'in-patient surgery' and these patients were older and had previous herniorrhaphy, with adverse experiences from this in some cases.

There was a greater preference for general anaesthesia as the mode of anaesthesia, partly due to previous unfavourable experiences with local anaesthesia and an assumed feeling of anxiety if awake during the operation. A significant proportion of the patients of the local anaesthesia group experience discomfort and anxiety, although this is mild and acceptable to most patients(3). A greater preference for general anaesthesia has important resource implications, since this requires the services of an anaesthetist and increased nursing care in the immediate recovery stage. In contrast, for herniorrhaphy under local anaesthesia it is recommended that the patient be monitored intra-operatively by an anaesthetic nurse and that an anaesthetist should be available if conversion to general anaesthesia becomes necessary(2).

With a careful technique, local anaesthesia causes minimal physiological disturbance. This may be particularly useful for patients with cardiovascular or respiratory disease for whom there may be advantages in avoiding a general anaesthetic. The absence of postoperative sedation or drowsiness allows early ambulation and diminishes the requirement for recovery facilities. Local anaesthesia provides postoperative analgesia for up to four hours and may be administered by the surgeon. When adrenaline is mixed with the local anaesthetic (normally in a dilution of 1:200,000) useful vasoconstriction is produced resulting in a relatively bloodless field. On the other side, surgery on the awake patient under local anaesthesia must be carried out gently. Although pain sensation is usually blocked by the anaesthetic, traction on certain tissues, particularly the peritoneum is uncomfortable. The patient should be warned that some sensation may be experienced during the operation but that it will not be painful. Larger hernias, particularly those with incarcerated bowel may prove unsuitable for local anaesthesia. Some sedation during the operation may be required for anxious patients which loses some of the benefits of avoiding general anaesthesia. Patients who are excessively nervous may be unsuitable for surgery under local anaesthesia(4).

We are unaware of similar pre-operative studies investigating patient preference for day case hernia repair under local or general anaesthesia. Uncontrolled follow-up studies and a limited number of randomised clinical trials comparing day case herniorrhaphy under local and general have reported high rates of patient satisfaction post-operatively(5-7). However, in these studies, as in most busy surgical out-patient clinics, the patients are not routinely offered an informed choice of anaesthesia. The choice of anaesthetic is often influenced by the facilities available within the day case surgical unit and the personal preferences of the surgeon.

General anaesthesia is still the preferred mode of anaesthesia for complicated hernias and uncooperative and highly anxious patients. Local anaesthesia is desirable for those who are at high risk of morbidity from general anaesthesia. But, for a majority of patients awaiting hernia repair, day case surgery under general and local anaesthesia is feasible, although herniorrhaphy under local anaesthesia makes greater economic sense(8-12). Specific measures to create a more patient friendly atmosphere in the theatre, such as greater explanation, reassurance to the patient during the operation and music in theatre may help to counter the feelings of anxiety and enable greater acceptability of local anaesthesia.

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Guidelines for article publishing

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ABSTRACT

With papers from the journals listed above, now in several major databases and with the application of unique DOIs (Digital Object Identifiers) to all individual articles, we are publishing the following advice and revision of guidelines for our authors. This advice reflects the current status of academic online publishing.

Key words: plagiarism, duplicate publications, DOIs

Introduction

Most publishers have adopted the use of unique DOIs on papers in their online journals. This facilitates the identification and therefore citation, of papers. It also allows for a better recognition of plagiarism and readily identifies duplicate publications on online databases.

The International DOI Foundation (IDF), is a not-for-profit membership organization that is the governance and management body for the federation of Registration Agencies providing DOI services and registration, and is the registration authority for the ISO standard (ISO 26324) for the DOI system. The DOI system provides a technical and social infrastructure for the registration and use of persistent interoperable identifiers, called DOIs, for use on digital networks. (1)

Publishers pay an annual fee for the allocation of DOIs.

Such a facility provides easier access and identification of published papers but also has an imperative that each article be unique and properly indexed.

Most journals have full Author Guidelines and comply with the COPE Code of Conduct. Visit http://publicationethics.org/files/u2/New_Code.pdf for full details.

I follow with a worthy checklist to better guard against various forms of research misconduct, from an article originally published in the Middle East Journal of Family Medicine.

Research misconduct encompasses a vast array of behaviours, from very serious research misbehaviour such as data fabrication to the less serious aspects such as authorship disputes. It would be possible to categorize very serious misbehaviours as research fraud and less serious types as questionable research practices.

From one hand, evidence suggests that different research misconduct, either research fraud or questionable research practices might have substantial damaging impact on the advancement of human knowledge. On the other hand, some novice and young researchers might innocently commit such misconduct. Therefore, the aim of the present article is to overview diverse types of research misconduct.

Data fabrication and data falsification

Data fabrication means inventing fake data whilst data falsification implies distorting existing data to obtain some specific results. Both of these research misbehaviours are among the most serious research misconduct i.e. research fraud.

Plagiarism and self-plagiarism

Plagiarism implies stealing other people's ideas and self-plagiarism means stealing one's own idea both without providing proper attribution. Plagiarism and self-plagiarism could start from one sentence and might extend to one paragraph and even a full article. Plagiarism especially in larger text copying is categorized as research fraud.

Duplicate publication, redundant publication and salami publication

Duplicate publication indicates publishing two identical articles whilst redundant publication involves publication of two rather similar articles. Salami publication also denotes publishing two or more articles from a single study. It should be noted that only large epidemiological studies might permit publication of more than one article. Whilst duplicate publication can be categorized as a serious research misconduct, redundant and salami publication might be considered as less serious forms.

Failing to gain approval for the research proposal from an ethics committee for research

Failing to gain approval for the research proposal from an ethics committee for research could be regarded as a serious type of research misconduct. This gets worse when the proposal deals with interventional design in human subjects such as in clinical trials. Therefore, it is highly suggested that any research proposal should receive approval from an ethics committee for research.

Conducting research in humans and/or animals without considering ethical issues

Approval for the research proposal from an ethics committee for research is a necessary but not sufficient step for avoiding research misconduct. In addition, researchers should take into account any relevant ethical approved guidelines when dealing with humans and/or animals subjects. Failing to consider such ethical issues could be regarded as serious types of research misconduct.

Ignoring outliers, ignoring missing data, reporting post-hoc analyses without declaring them

Any wrong doings in the process of data analyses such as ignoring outliers, ignoring missing data, reporting post-hoc analyses without declaring them, could have serious impacts on the results. Therefore, it is necessary that researchers admit and declare any outliers and/or missing data. Furthermore, carrying out any type of post-hoc analyses should be declared in advance by the researchers.

Authorship disputes

Authorship disputes encompass any disagreements between researchers about the names and orders of the authors in a given paper. Unfortunately, evidence suggests that such questionable research practice is rather common in different countries around the world. Therefore, it is up to authors to consider the authorship criteria in order to name in the right order only true authors and avoiding guest or ghost authorships.

Failing to disclose a conflict of interest

Conflict of interest implies that researchers, reviewers and editors have a relationship either financial and/or non-financial to a person, school of thought, organization; etc that might cause unwanted impacts on the process of scientific publication. The most important way to avoid any research misconduct regarding conflict of interest is to disclose any possible conflicts before publishing a paper.

Failure to carry out a thorough literature review before commencing new research

Failure to carry out a thorough literature review before commencing new research is judged to be a questionable research practice. The reason for this is too obvious, since inadequate literature review might lead to flawed or repetitive research. (2)

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