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Atypical presentations of older adults at the emergency department and associated factors

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ABSTRACT

Objectives: The objectives were to determine the prevalence of atypical presentations among older adults at the Emergency Department (ED) of a tertiary care hospital and to identify factors associated with these presentations.
Material and methods: A retrospective medical record audit was randomly reviewed in 633 patients who were aged ≥65 years who attended the ED of Srinagarind Medical School Hospital in 2013. Demographic data were collected and were analyzed using descriptive statistics. Regression analysis was used to analyze the variables associated with the outcomes.
Results: The prevalence of an atypical presentation was 28.6% (181/633 cases). The failure to develop fever with a disease known to cause fever was the most common atypical presentation of illness (34.42%). Independent factors associated with atypical presentations were complicated urinary tract infection (UTI) (odds ratios (OR) 4.66, 95% confidence interval (CI) 2.0, 10.84, $p = 0.00$) and a background of dementia (OR 3.48, 95% CI 1.38, 8.77, $p = 0.008$).
Conclusions: The prevalence of atypical presentations of older adults at the ED was about a third. The absence of fever with a disease known to cause fever was the most common atypical presentation. Complicated UTI and demented patients were the independent risk factors associated with the atypical presentations. Early awareness of non-specific presentations and applying comprehensive geriatric assessments among older patients at the ED is recommended.

1. Introduction

The proportion of older adults at the Emergency Department (ED) is about 12–24% and it tends to increase as a result of population ageing (Rutschmann et al., 2005; Samaras, Chevalley, Samaras, & Gold, 2010). Age-related physiologic changes can lead to diverse pathophysiologic responses to foreign stimuli. Reduced body reserves and underreporting of symptoms may result in atypical presenting of disease patterns. Additionally, older adults often have multiple morbidities coexisting that can contribute to non-specific presenting symptoms and signs of medical illnesses (Emmett, 1998; Rehman & Qazi, 2013; Rutschmann et al., 2005). One report shows that about a third of persons aged 65–79 years and 70% at the age of 80 years had at least 2 chronic conditions (Fried, Ferrucci, Darer, Williamson, & Anderson, 2004). These characteristics of older adults cause them more delayed and missed diagnoses and consequently lead to increased adverse outcomes including frequent hospitalizations, increased health-care costs and increased short-term mortality (Rutschmann et al., 2005; Salvi et al., 2007; Samaras et al., 2010). Physicians also feel uncomfortable when assessing older adults compared to the younger ones. This feeling can affect the quality of care (Rutschmann et al., 2005).

Presently, no explicit gold standard definition exists as to what characteristics constitute an atypical presentation for every disease. Common classical signs and symptoms include altered mental level, failure to eat and drink e.g., anorexia, failure to develop temperature or fever or lack of pain in a disease known to cause those conditions, functional decline, reduced mobility, falling, fatigue and urinary incontinence (Emmett, 1998; Gray-Miceli, 2007; Salvi et al., 2007; Samaras et al., 2010). These symptoms are sometimes known as geriatric syndromes which are

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prevalent in up to a quarter of older adults at the ED, particularly in institutionalized patients (Chou et al., 2009; Rutschmann et al., 2005). Apart from presenting as geriatric syndromes, variant symptoms of specific diseases often occur such as mild or absent chest pain, dyspnea and no electrocardiogram evidence of acute myocardial infarction, unexplained atrial fibrillation, weakness

Table 1
Demographic data and univariate analysis between atypical and typical presentation of older adults at the ED.

Factors	Atypical ($N=181$)	Typical ($N=452$)	Unadjusted OR (95% CI)	p-value
Age (med, IQR1, 3)	75 (71,80)	73 (68, 78)	1.04 (1.01, 1.06)	0.004
Male (%)	89 (49.17)	219 (48.23)	1.04 (0.74, 1.47)	0.83
Condition (%)				
Non-injury	171 (29.9)	401 (70.1)	Reference	
Injury-related	10 (16.39)	51 (83.61)	0.46 (0.23, 0.93)	0.03
Common diagnosis (%)				
Pneumonia/bronchitis	20 (36.36)	35 (63.64)	1.48 (0.83, 2.65)	0.18
Acute diarrhea/food poisoning	7 (14.89)	40 (85.11)	0.42 (0.18, 0.95)	0.04
Soft tissue injury	5 (12.5)	35 (87.5)	0.34 (0.13, 0.88)	0.03
Peripheral vertigo	2 (6.06)	31 (93.94)	0.15 (0.04, 0.64)	0.01
Complicated UTI	20 (68.97)	9 (31.03)	6.13 (2.73, 13.74)	0.00
Acute abdomen	7 (28)	18 (72)	0.97 (0.4, 2.37)	0.95
CVA	9 (17.38)	19 (82.61)	0.52 (0.17, 1.54)	0.24
Hypertensive crisis	(39.13)	14 (60.87)	1.64 (0.7, 3.86)	0.25
Malignancy	8 (38.1)	13 (61.9)	1.57 (0.64, 3.84)	0.33
Skin and soft tissue infection	3 (16.67)	15 (85.33)	0.49 (0.14, 1.72)	0.27
Co-morbid (%)				
HTN	100 (30.4)	229 (69.6)	1.2 (0.85, 1.7)	0.3
DM	57 (30.32)	131 (69.68)	1.13 (0.78, 1.64)	0.53
Musculoskeletal diseases	30 (26.55)	83 (73.45)	0.88 (0.56, 1.4)	0.6
DLD	28 (24.78)	85 (74.22)	0.79 (0.5, 1.26)	0.32
CKD	35 (32.71)	72 (67.29)	1.27 (0.81, 1.98)	0.3
Cancer	30 (30.3)	69 (69.7)	1.1 (0.69, 1.76)	0.68
CVD	22 (34.92)	41 (65.08)	1.39 (0.8, 2.4)	0.24
CAD	21 (37.5)	34 (62.5)	1.61 (0.91, 2.86)	0.1
Dementia	14 (53.85)	12 (46.15)	3.07 (1.39, 6.78)	0.005
Cirrhosis	2 (25)	9 (75)	0.55 (0.12, 2.57)	0.45
Multimorbidity (%)	115 (30.67)	260 (69.33)	1.29 (0.9, 1.84)	0.17
Numbers of medications (med, IQR1, 3)	4 (0,7)	3 (0,6)	1 (0.96, 1.04)	0.92
Vital signs				
Body temperature (Celsius)	37.1 (36.7, 37.8)	37 (36.6, 37.5)	1.25 (1.03, 1.53)	0.02
PR (bpm)	86 (72, 100)	82 (72, 95)	1.01 (0.99, 1.02)	0.07
RR (rpm)	20 (20, 24)	20 (20, 24)	1 (0.97, 1.04)	0.86
SBP (mmHg)	135 (112.5, 151.5)	136 (119, 157)	1 (0.99, 1)	0.3
DBP (mmHg)	75 (66.5, 85)	76 (68, 86)	1 (0.99, 1.01)	0.73

Note: OR; odds ratio, CI; confidence interval, p-value was significant at $p < 0.05$, med; median, IQR; inter-quartile ranges, acute abdomen represents a rapid onset of severe symptoms that may indicate life-threatening intra-abdominal pathology included acute appendicitis, acute cholecystitis, acute cholangitis, acute colonic diverticulitis, acute pancreatitis, hollow viscus organ perforation and gut obstruction, UTI; urinary tract infection; HTN; hypertension, DM; diabetes mellitus, DLD; dyslipidemia, CKD; chronic kidney disease, CVA: cerebrovascular accident, CAD; coronary artery disease, multimorbidity; the co-occurrence of two or more medical or psychiatric conditions(Uijen & van de Lisdonk, 2008); PR; pulse rates, bpm; beats per minute, RR; respiratory rate, rpm; rates per minute, SBP; systolic blood pressure, DBP; diastolic blood pressure, available numbers of patients in atypical group for temperature were 175, PR, RR, SBP, DBP were 180, and for typical group, temperature were 420, PR, RR and SBP were 451, and DBP were 450.

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