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Minor injuries in older adults have different characteristics, injury patterns, and outcomes when compared with younger adults: An Emergency Department correlation study

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ABSTRACT

Aim: To examine the injury patterns, characteristics, and outcomes of older adults presenting with minor injuries compared with younger adults.
Background: Sustaining a minor injury is one of the most common reasons people present to an Emergency Department. Many presentations involve older Australians and greater than 50% of older adults are discharged from the Emergency Department. However, little is known about the characteristics, injury patterns, and outcomes of minor injuries in older adults compared to younger adults.
Methods: A 12-month exploratory correlational study was conducted using Emergency Department electronic medical record data from a single metropolitan hospital located in Sydney, Australia. Older adults were defined as ≥65 years with younger adults defined as 18–64 years. Minor injuries were classified by diagnoses as fractures/dislocations, sprains/strains, wounds/burns/infections, minor head injuries, eye/ear/nose/oral injuries. Exclusion criteria included: triage category 1 or 2, major trauma, critical care admission, or injuries and fractures to the hip or neck of femur.
Results: There were 36,671 Emergency Department presentations of which 7582 (21%) were for older adults and 19,234 (52%) were younger adults (aged 18–64). Injuries represented 21% ($n = 7754$) of all Emergency Department presentations with 1294 (17%) occurring in those aged 65 years and older and 3937 (20%) in younger adults. Of the minor injuries ($n = 3594$; 10%), the most common presentation in younger adults was sprains/strains ($n = 1045$; 36%) but in older adults it was fractures ($n = 229$; 32%). There was a statistical (Pearson's χ^2 test 63.4, df = 4, $P < 0.001$) difference with injury pattern when comparing age groups. Older adults were allocated proportionately higher triage categories when compared with younger adults (Pearson's χ^2 test 26.3, df = 2, $P < 0.001$). Older adults with minor injuries had a longer mean stay (315 min; SD 238.9 min; younger adults 198 min, SD 132.3 min) and this difference was statistically ($P \leq 0.001$) and clinically significant. Fewer older adults were discharged home ($n = 531$, 73%; $n = 2648$, 92%; $P < 0.001$) and more were admitted for minor injuries ($n = 179$, 25%; $n = 156$, 5%; $P < 0.001$) when compared with younger adults.
Conclusion: Older adults with minor injuries have different injury patterns, higher acuity, longer length of stay, and lower discharge rates compared with younger adults. Clinicians may need to modify their approach and differential diagnoses when treating older adults with minor injuries. Further research is needed to explore the reasons for these differences and whether older adults have different service needs compared with younger adults with minor injuries.

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1. Introduction

For many people, sustaining a minor injury is one of the most common reasons to present to an Emergency Department (ED) (Bezzina et al., 2005; Booz Allen Hamilton, 2007; Bureau of Health Information, 2012). Data from the United States of America (USA) identified injuries account for 39.4 million (33.7%) of ED presentations (Niska et al., 2010). A systematic review (Lowthian et al., 2011a) identified convenience, reduced primary care access, and an ageing population, as increasing ED demand by up to 7% per annum.

One of the drivers for increasing ED demand is for management of minor injuries and conditions (Booz Allen Hamilton, 2007). Minor injuries are best defined as requiring simple medical intervention, quickly managed, likely to be discharged home, and amenable to being referred for primary care management (Fry, 2009; NSW Department of Health, 2006). Typically, people with minor injuries will be allocated a low urgency triage category (triage code 4, or 5) as they are unlikely to have abnormalities in their vital signs which would mandate greater urgency (Commonwealth of Australia, 2009). Whilst a significant proportion of adults with minor injuries are admitted to the hospital for definitive management, the majority of adults and older adults are discharged home after an ED visit (Russell et al., 2006).

Older adults are a particular group who are prone to minor injuries and frequently present to ED (Lord et al., 2011; Milat et al., 2011). Many minor injury presentations are managed through nurse-led rapid ED assessment models of care to expedite the patient's journey (Fry, 2009; NSW Department of Health, 2006). There is evidence that between 36% and 48% of presentations may be managed through rapid assessment models of care (Australian Institute of Health and Welfare, 2012). However, for older persons with potentially reduced cognitive and functional capacity this may not be an appropriate pathway for their management (Ong et al., 2014).

There is evidence that older persons suffer higher mortality rates after trauma than younger patients. The increased mortality is attributable to age, preexisting disease, and complications as well as injury severity (Perdue et al., 1998).

However, much of the literature regarding traumatic injuries in older adults focuses on major injuries and the differences the older adult presents in the admitted context, rather than minor injuries that are discharged home (Chen et al., 2000; Ferrera et al., 2000; Perdue et al., 1998; Vanpee et al., 2001; Wright and Schurr, 2001). There is very little evidence suggesting how to best treat and manage older adults with minor injuries presenting to the ED (Ferrera et al., 1999).

Therefore the primary aim of our study was to explore the characteristics, injury patterns, and outcomes of older adults presenting with minor injuries compared with younger adults.

2. Background/literature review

Over the last 50 years the number of people aged 65 years or more has doubled and the number of people over 85 years has increased sevenfold in Australia (Australian Institute of Health and Welfare, 2011). A systematic review found that the older person is more likely to use the ED than the general population, be referred by their GP, or attend via Ambulance (Aminzadeh and Dalziel, 2002). Older adults (aged 65 years and over) now represent the majority of people accessing healthcare (Australian Institute of Health and Welfare, 2009; Fealy et al., 2012; Lowthian et al., 2011b; Mion et al., 2003). An Australian report (Booz Allen Hamilton, 2007) identified that 24% of older adults attended ED for minor injuries whereby they utilise diagnostic services, access specialist care and are frequently discharged home (Booz Allen Hamilton, 2007; Fry, 2009; Lowthian et al., 2011a; Milat et al., 2011).

Older people (aged 65 and older) experience minor injuries that are usually sustained after a fall (Australian Institute of Health and Welfare, 2014; Lord et al., 2011; Milat et al., 2011). US data note that older adults (aged 75 and older) are the most likely to present to ED with injuries (19.1 visits per 100) and that hand, finger, and wrist injuries are most commonly sustained (11.6%) (Niska et al., 2010). Three Australian studies (Milat et al., 2011; Russell et al., 2006, 2010) demonstrated that between 31% and 90% of older adults (65 years and older) were discharged from ED. Similarly in the USA, between 50% and 66% of older adult ED presentations were discharged home (Aminzadeh and Dalziel, 2002). Despite many older adults being treated and discharged with minor injuries very little research has examined the characteristics, injury patterns, and outcomes of older adults compared with younger adult presentations. This knowledge is required to provide a foundation for developing appropriate systems of care.

3. Methods

An exploratory correlational study design was used.

3.1. Site

The study was conducted in a single metropolitan district ED located in Sydney, NSW, Australia. The hospital is a 215 bed district metropolitan hospital, serving a population of approximately 220,000 with an annual ED presentation rate of 34,000 (75% adult, 25% paediatric) and admits approximately 16,000 patients per year (Commonwealth of Australia, 2014).

3.2. Sample

A 12 month audit (1 January–31 December 2012) was conducted comparing older adults (65 years and older) with younger adults (18–64 years). Exclusion criteria included: triage category 1 or 2, major trauma, critical care admission, or injuries and fractures to the hip or neck of femur.

ED patient data were extracted from FirstNet™ (emergency department computer software program). Data retrieved included patient demographic (age, gender) and clinical information (time of arrival to the ED, mode of arrival, triage code, family carer present, referred from, diagnostic code, injury code, referred to on discharge, length of stay, and disposition). 'Did Not Wait' or 'Left at Own Risk' and re-presentation (planned or unplanned) patients within 48 hours of ED presentations were also examined. For the study, minor injuries were classified by diagnoses identified as fractures/dislocations, sprains/strains/contusions, wounds/burns/infections, minor head injuries, eye /ear/ nose/oral injuries. Presenting complaint was not used to stratify data.

3.3. Data analysis

Statistical analyses of data were conducted using IBM SPSS v. 21. Descriptive statistics were calculated, followed by comparisons of patient groups by injury, triage category, referral, disposition, length of stay using Pearson's χ^2 test. Linear and multivariate logistic regression model was used to adjust for possible confounders in the association between older and younger adults. Statistical significance was considered met at $P = 0.05$ and 95% confidence intervals where appropriate.

The data were analysed according to chart review principles outlined by Gilbert et al. (1996) to improve validity, reliability, generalisability, and the overall quality of the data.