



Service Priorities and Programmes
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Investigation of Risk Factors of Geriatric Patients with Significant Brain Injury from Ground Level Fall: A Retrospective Cohort Study in a Local A&E Setting

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Introduction

There are no doubts that the aging population is increasing worldwide and Hong Kong is no exception. Population age is expected to increase rapidly in the coming 20 years. As the number of elderly in the general population grows, the demand for geriatric emergency care rises. Thus, improved healthcare services are required for this specific group.

Trauma was the fifth leading cause of death in Hong Kong in 2013. Injuries caused by falls ranked first in traumatic brain injury (TBI) cases among older adults (51%).

Elderly trauma patients face an increased risk of adverse consequences from trauma compared with their younger counterparts, as advanced age itself is already a well-recognized risk factor for less favorable outcomes following trauma.

Moreover, elderly patients are easily under-triaged due to lack of awareness among healthcare workers of their potential major injuries. Additionally, nurses may neglect the harmful consequences of geriatric trauma as they misinterpret patient symptoms as the effect of co-morbidities. All these factors lead to increased morbidity and mortality in geriatric trauma patients when compared to the younger population.

Although there is an in-hospital trauma activation protocol in each trauma center of Hospital Authority A&E Departments in Hong Kong, the protocol is not age specific. A well-organized trauma activation pathway for TBI in the elderly has not been developed.

Due to age-related biological differences, it is always challenging to determine the severity of injuries in geriatric patients during triage in A&Es. Also, the activation criteria of trauma call for adults may not be appropriate for the elderly.

Therefore, identifying factors associated with significant brain injury in geriatric patients in A&E triage is crucial in providing timely care to these patients.

Objectives

Aim: The aim of this research is to identify risk factors for significant brain injury in geriatric patients resulting from ground level falls. Data was obtained from an Accident and Emergency Department (A&E) in Queen Mary Hospital (QMH), Hong Kong.

Methodology

Study design: This was a retrospective study with data collected from the Clinical Data Analysis and Reporting System (CDARS) of QMH from 1st January, 2013 to 31st December, 2015. A total of 1101 cases were identified.

Result

Results: There were 76% of the recruited patients with a normal computed tomography (CT) scan. However, the remaining 24% had CT scans indicative of brain injury. Severe head injuries were scored 3-8 on the Glasgow Coma Scale (GCS) and moderate head injuries were scored 9-12. Respectively, these were 20 times ($p=0.005$) and 5 times ($p=0.002$) more likely to have positive CT findings than patients with a GCS score from 13-15. Patients with loss of consciousness (LOC) were 2 times more likely to have a positive CT result than those without LOC ($p=0.001$). Although warfarin use is a well-established risk factor for intracranial hemorrhage after head injury, in our dataset the result was not statistically significant. However, the use of new oral anti-coagulants (NOAC) was associated with positive CT findings with patients taking NOAC 2.3 times more likely to have positive CT findings compared with those with no anti-coagulant use ($p=0.033$). Conclusion: Early detection of patients with significant brain injury and aggressive management may prevent secondary injury from the complications of brain injury, hence improving patient mortality and morbidity, and reducing hospital stay and health care costs.