



Original Article

# Factors affecting mortality and hospital admissions after hip surgery among elderly patients with hip fracture in Hong Kong – Review of a three-year follow-up<sup>☆</sup>



Apple Qiao-Ling Wang<sup>a</sup>, Bobby Hin-Po Ng<sup>a,\*</sup>,  
Lydia Po-Chee Cheung<sup>b</sup>, Raymond Ping-Hong Chin<sup>c</sup>

<sup>a</sup> Occupational Therapy Dept., Kowloon Hospital, Hong Kong

<sup>b</sup> Orthopedic Rehabilitation Center in Kowloon Central Cluster, Hong Kong

<sup>c</sup> Orthopedic & Traumatic Department in Queen Elizabeth Hospital, Hong Kong

Received 6 September 2017; received in revised form 6 October 2017; accepted 17 October 2017

Available online 12 November 2017

## KEYWORDS

Geriatric hip fracture;  
Mortality;  
Hospital Re-admissions;  
Follow-up study

**Summary** *Objective:* Hip fracture is associated with excess mortalities and high rate of hospital re-admission after discharge from the indexed episode. To improve related post-discharge care, we aimed to find out characteristics that were associated with related higher rates of mortality and hospital re-admission.

*Methods:* This was a historical cohort study with following up of 273 patients recruited in a local rehabilitation hospital for 3 years. The outcome of interest was cumulative mortalities and hospital re-admissions in the 1st 3 years after their discharge from the rehabilitation hospital. These outcomes were collected in the hospital data warehouse – the Clinical Data Analysis and Reporting System (CDARS). Eighteen predictors, as proposed by similar studies and our own review, were retrieved from our standard clinical forms as well as from the CDARS. Binary logistic regression was used to test their association with the outcomes and to generate the respective odd ratios.

*Results:* The cumulative overall mortality rates at 0.5-, 1-, 2- and 3- year after hip fracture were 7.2%, 14.0%, 24.6% and 33.4% respectively, while the cumulative “1st ever hospital readmission” at 0.5-, 1-, 2- and 3- years after hip fracture were 29.4%, 41.6%, 59.4% and 71.7%

Conflict of Interest (If present, give more details): Nil.

<sup>☆</sup> Previous presentation: Organisation / Event: 2015 Kowloon Central Cluster Convention & HA Convention; Venue: Queen Elizabeth Hospital / Hong Kong Convention & Exhibition Centre; Date: 2015.

\* Corresponding author. Occupational Therapy Dept., Kowloon Hospital (Rehab. Bldg.), 147A Argyle St., Kowloon, Hong Kong.  
E-mail address: [ngbp@ha.org.hk](mailto:ngbp@ha.org.hk) (B.H.-P. Ng).

<https://doi.org/10.1016/j.hkjot.2017.10.004>

1569-1861/Copyright © 2017, Hong Kong Occupational Therapy Association. Published by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

respectively. The most significant predictors i) for mortality at 3-year were: "Being male" (OR 5.33), "Delayed surgery >48 hours" (OR 2.65), "pre-operation albumin level <3.5 g/dl" (OR 2.66), and, ii) for "1st ever hospital readmission" at 0.5-year was "Being Assisted walker or non-walker (after rehabilitation)" (OR 3.83).

**Conclusions:** Characteristics that define the groups of patients with hip fractures with higher mortality and rate of hospital re-admission were identified. This could help healthcare professionals to focus on target patient groups for closer monitoring and more intensive post-discharge care.

Copyright © 2017, Hong Kong Occupational Therapy Association. Published by Elsevier (Singapore) Pte Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

Hip fractures in the elderly are reported to be associated with excess mortality and higher risks of hospital readmissions within the first few years after the indexed episode (Man, Ho and Wong, 2016; Haentjens et al., 2010; Ottenbacher et al., 2003). This implies that, beyond the initial surgical intervention and the immediate post-operation rehabilitation, there should be rooms for further improvement especially in discharge planning and post-discharge community support in order to improve the health and quality of life of this group of elderly patients. Hopefully these improvements may also have a potential impact on saving the related health care costs. Moreover, as the volume of hip fractures is estimated to be escalating (Kung, Yates and Wong, 2007), finding out subgroups who are at even higher risks for mortality and hospital readmissions than the others may help to focus resources on the most needy patients. Many overseas studies proposed various risk factors e.g. the fracture sites, presence of comorbidities, functional impairment before the fracture, albumin level, anaemia, etc. to be associated with increased mortality and higher rate of hospital readmissions (Beloosesky, Weiss, Grinblat, Brill & HersHKovitz, 2004; French, Bass, Bradham, Campbell & Rubenstein, 2008; Giusti et al., 2008; Hu, Jiang, Shen, Tang & Wang, 2012; Meesen et al., 2014; Pimlott, Jones, Beaupre, Johnston & Majumdar, 2011; Roche, Wenn, Sahota & Moran, 2005; Shiga, Wajima and Ohe, 2008; Smith, Pelpola, Ball Ong & Myint, 2014). However, these findings cannot be directly applied to the local context due to cultural difference. This study aimed to review the cumulative mortality and rate of ever hospital re-admission in the first 3 years after the indexed fracture, and, identify factors which would be associated with the related higher rates.

## Methods

This study was a historical cohort study in design and was conducted in Kowloon Hospital (Centre B), one of the sub-acute convalescent hospitals in Hong Kong. Subjects who were transferred from Centre A – the acute hospital, Queen Elizabeth Hospital (QEH) to Centre B for rehabilitation after hip surgery during the period January–December 2010 were the potential subjects to be included. To be eligible, subjects had to be >65 years old, and, had an "International Classification of Diseases, Ninth Revision,

Clinical Modification" (ICD9-CM) diagnostic code of 820.09 to 820.9: all intracapsular & extra-capsular fractures over hip. Subjects with the following conditions were excluded: a) with hip fracture attributed to bone cancer or Paget's disease, b) with associated fractures on admission other than the index fracture, c) had received hip surgery in other hospitals before admitted to Centre A, d) only received conservative treatment for hip fracture in Centre A, and, e) transferred back to Centre A for further management due to wound infection, medical problems or other problems during their stay at Centre B.

The potential predictive factors included in this study included: age, gender, pre-morbid residence, age adjusted Charlson Co-morbidity Index (CCI), types of fracture & operation, duration from injury to surgery, albumin level before the operation, haemoglobin (Hb) level after the operation, cognitive impairment based on the Abbreviated Mental Test (AMT) on admission to Centre B, ability in activities of daily living (ADL) based on Functional Independence Measures (FIM) as on admission to KH (most of them were transferred from Centre A on post-operation day 5–14 after stabilization of medical conditions) & discharge from Centre B, walking ability before the fall accident leading to the hip fracture and at discharge from Centre B, attendance to Geriatric Day Hospital (GDH) for further rehabilitation upon discharge from Centre B, length of stays (LOS) in Centre A and Centre B respectively. These variables were chosen based on our prior work (Chin, Ng and Cheung, 2008) as well as various international reports (Beloosesky et al., 2004; French et al., 2008; Giusti et al., 2008; Hu et al., 2012; Meesen et al., 2014; Pimlott et al., 2011; Roche et al., 2005; Shiga et al., 2008; Smith et al., 2014). All these information were retrieved from two sources: i) the "HIP Form", a standardized form having been adopted by our team since 2008, for recording multidisciplinary assessment results upon admission into and rehabilitation outcomes at discharge from our rehabilitation program, and, ii) the Clinical Data Analysis & Reporting System (CDARS) – the electronic data warehouse of the Hospital Authority, Hong Kong, by an independent therapist who was blind to the study hypothesis and outcomes.

The events of interest of our follow-up were mortality and hospital admissions through emergency department for all reasons within the first 3 years after the indexed hip fracture. These events as well as their respective dates were retrieved from the CDARS. The cumulative mortality rate & the 1<sup>st</sup> ever hospital readmission rate were calculated at 0.5-, 1-, 2- and 3-year intervals after the index hip fracture.

Download English Version:

<https://daneshyari.com/en/article/8589856>

Download Persian Version:

<https://daneshyari.com/article/8589856>

[Daneshyari.com](https://daneshyari.com)