



Invited Commentary

An invited commentary on “Charlson comorbidity index predicts postoperative complications in surgically treated hip fracture patients in a tertiary care hospital: retrospective cohort of 1045 patients”. (Int J Surg 2020; Epub ahead of print)

ARTICLE INFO

Keywords

Charlson comorbidity index
Hip fracture
Trauma
Complication

Osteoporotic hip fracture is a major health problem associated with increased mortality, with an estimated mortality rate of 14–58% within one year of sustained injury. As an increasing proportion of older people worldwide is now living longer, the incidence of hip fracture is expected to rise from 1.66 million in 1990 to 6.26 million in 2050 [1]. The burden of osteoporotic fractures is particularly high in developed countries in Asia, where more than 50% of the osteoporotic fractures are expected to occur by 2050. In view of the increasing burden of osteoporotic hip fractures upon the public health system, determining the predictive factors can help patients and clinicians to make informed decisions about effective management of this condition, as well as contributing to efficient allocation of public health resources. The consequences of hip fracture are generally devastating, and often include serious complications. Their occurrence is related to the high incidence rate and decreased quality of life that associates with hip fracture. In fact, there is a significant increase in all-cause mortality at thirty days and one year among hip fracture patients (the corresponding estimated rates of age-standardized mortality are 9% and 31% respectively).

In 1984, a scoring system based on the Charlson Comorbidity Index (CCI) was first introduced through reviewing hospital charts to evaluate one-year mortality among patients with breast cancer. Each of the 19 factors was assigned a weighted score, which is the sum of all the scores. Since then, the CCI score has become the most extensively utilized clinical index for various diseases. The application of CCI has also been extended to predict five-year long-term survival in patients with Type 2 diabetic nephropathy and non-small cell lung cancer [2,3]. Nevertheless, little research has been conducted on predicting the complication and mortality rates of hip fractures 30 days after operation utilizing CCI. The purpose of Hasan et al.'s study [4] was to investigate the predictive effect of CCI on surgical complications and mortality of hip fractures; they concluded that CCI was a valid tool for predicting mortality after hip fracture. However, this study had a number of limitations; although 1045 patients were included in the tertiary care hospital, this was a retrospective cohort study, which has the unavoidable risk of selection

bias. A large sample size and randomized controlled trials are required in future researches; additionally, the experience of surgeons should be taken into consideration as a potential confounding factor. Despite the limitations of the study conducted by Hasan et al., it is the first retrospective study to explore the predictive effect of CCI on surgical complications and mortality after hip fractures.

Provenance and peer review

Invited Commentary, internally reviewed.

Declaration of competing interest

No conflict of interest.

References

- [1] C. Cooper, G. Campion, L.R. Melton, Hip fractures in the elderly: a world-wide projection, *Osteoporos. Int.* 2 (6) (1992) 285–289.
- [2] O. Birim, A.P. Kappetein, A.J. Bogers, Charlson comorbidity index as a predictor of long-term outcome after surgery for non-small cell lung cancer, *Eur. J. Cardio. Thorac. Surg.* 28 (5) (2005) 759–762.
- [3] Y.Q. Huang, R. Gou, Y.S. Diao, Q.H. Yin, W.X. Fan, Y.P. Liang, Y. Chen, M. Wu, L. Zang, L. Li, et al., Charlson comorbidity index helps predict the risk of mortality for patients with type 2 diabetic nephropathy, *J. Zhejiang Univ. - Sci. B* 15 (1) (2014) 58–66.
- [4] O. Hasan, R. Barkat, A. Rabbani, U. Rabbani, F. Mahmood, S. Noordin, Charlson Comorbidity Index predicts postoperative complications in surgically treated hip fracture patients in a tertiary care hospital: retrospective cohort of 1045 patients, *Int. J. Surg.* (2020).

Naijing Li

Department of Orthopedics, Yantaishan Hospital, Yantai City, Shandong Province, 264001, China

Zhonghua Li*

DOI of original article: <https://doi.org/10.1016/j.ijss.2020.08.017>.

<https://doi.org/10.1016/j.ijss.2020.09.040>

Received 9 September 2020; Accepted 18 September 2020

Available online 25 September 2020

1743-9191/© 2020 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

*Department of Health Management, Yantai Special Care Center, The
Chinese People's Armed Police Force, Yantai City, Shandong Province,
264001, China*

* Corresponding author.
E-mail address: lizhonghua107@163.com (Z. Li).