General anesthesia versus regional anesthesia in mortality and delirium of elderly hip fracture patients: A nationwide population-based study

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Introduction

The incidence of elderly hip fracture continues to increase. The predicted increases will be a serious socioeconomic burden and a challenge for public health care managements. One of the most common and adverse complication of elderly hip fracture patients is delirium. It is associated increased rate of cognitive decline, institutionalization, and mortality. The influence of mode of anesthesia on the mortality and morbidity are controversial issue.

Therefore, we evaluate the anesthetic method influence 30-day in hospital mortality in hip fracture surgery using nationwide database. Furthermore, we compared the incidence of postoperative delirium which needed pharmacological intervention.

Materials and methods

The Korean National Health Insurance System (KNHI) covers approximately 97% of Koreans, while the 3% of remaining Koreans who cannot afford national insurance are covered by the Medical Aid Program. Our database was provided by National Health Insurance Sharing Service which covers virtually all operation in Korea during the study period. The study was reviewed by institutional Review Board of Seoul Paik Hospital (IRB No 2017-07-006) and was exempted because we used de-identified administrative data.

We collected study population consisted of all patients over 65 years old who received hip fracture surgery under general (group G) or regional (group R) anesthesia with a principal diagnosis of femur fracture covered by the KNHI between January 1, 2009 and December 31, 2015.

Thirty-day mortality was defined as death in hospital from any cause within 30 days of admission. The occurrence of delirium was defined as the record of intravenous administration of haloperidol, risperidone and quetiapine. Other complications including pulmonary embolism, cerebral hemorrhage, cerebral infarction and myocardial infarction were identified through the patients’ diagnosis record.

To reduce the bias, propensity score matching (PSM) method was performed from each group in a 1:1 ratio. The propensity score was calculated by logistic regression analysis using the following covariates: age, gender, hospital type and comorbidity conditions through the elixhauser method to examine the association of anesthesia type with 30-day mortality, other complications and delirium for hip fracture surgery.

Results/Case report

Among 96289 patients, 25593 patient received general anesthesia and 70696 patients received regional anesthesia. After performing PSM, 51186 patients (25593 in each group) remained. Thirty day-mortality showed no significant difference between two groups in pre-matching (P=0.207). However, group R showed lower mortality compared to group G in post-matching (P=0.0208). The incidence of delirium showed lower in group R compared to group G in both pre-matching and post-matching result (P<0.0001, P<0.0001). Pulmonary embolism, cerebral hemorrhage and cerebral infarction showed lower incidence in group R in both pre-matching and post-matching result (P<0.0001, P<0.0001). The incidence of myocardial infarction showed higher incidence in group R compared to group G in pre-matching (P<0.0001). However, the result showed no significant difference between two groups after matching (P=0.06).

Discussion

In our study, regional anesthesia showed better outcomes of mortality and delirium compared to general anesthesia in elderly patients who received hip fracture surgery. Also, regional anesthesia showed better outcomes of complications including pulmonary embolism, cerebral...
hemorrhage and cerebral infarction.

References

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Disclosures

I declare that there are no conflicts of interest or support that may cause bias in my presentation.