Introduction

Alzheimer’s dementia patients have a higher incidence of hip fractures than other older adults. Dementia and hip fractures are associated with significant morbidity and mortality. Hip fractures occur in Alzheimer’s dementia (AD) patients through several mechanisms including falls, osteoporosis or side effects of AD medications. Previous studies suggest that patients with AD are more likely to be hospitalized and have a higher mortality when compared to those without dementia.

We set out to compare length of hospital stay, inpatient mortality and costs among Hip fracture patients’ older adults >65years with or without Alzheimer’s Dementia.

Methodology

From the 2018 National Inpatient Sample (NIS) data, we identified hospitalizations in adults aged >65 years. Using ICD10 codes, we selected adults >65 years of age who had a hip fracture with and without Alzheimer’s Dementia. Multivariate logistic and linear regression analyses were used to adjust for possible confounders for the primary and secondary outcomes, respectively. The multivariate logistic regression was used to estimate the odds ratio of in-hospital mortality after adjusting for patient demographics, hospital type, hospital region, hospital teaching status, median household income, and medical comorbidities. In addition, the multivariate linear regression was used to estimate the average change in length of stay and hospital charges after adjusting the same covariates. All statistical analysis were performed by using SAS Survey Procedures (SAS 9.4, SAS Institute Inc, Cary, NC, USA).

Results

There were 59,630 hospitalizations for older adult patients age >65years who had either a principal or secondary ICD-10 code for Hip fracture, and 4,550 (7.6%) of these Hip fracture hospitalizations had Alzheimer’s Dementia. Compared to patients without Alzheimer’s dementia, patients with Alzheimer’s dementia were older (Mean age 85.0 vs 81.9), more females (77.0% vs 71.6%), have more comorbidities (Charleston comorbidity index>3, 26% vs 19.8%), more underweight (6.8% vs 4.4%), and more Osteoporosis (23.3% vs 19.1%). Hospitalizations for hip fracture with Alzheimer’s Dementia had higher inpatient mortality (3.3% vs. 2.4%; adjusted OR: 1.30; 95% CI: 1.09-1.54; p=0.003) compared to those without AD. Hip fracture with Alzheimer’s Dementia hospitalizations has lower adjusted mean LOS of -0.64 days (95% CI: -0.64; p<0.0001) compared to those without AD. Hip fracture with Alzheimer’s Dementia hospitalizations has a lower adjusted total hospital charge of $-3,240 (95% CI: -3,240; p=0.0001) compared to those without Alzheimer’s Dementia.

Discussion & Conclusion

Hip fractures in older adults with Alzheimer’s Dementia is associated with a statistically significant higher inpatient mortality rate. After adjusting for other covariates, the In-hospital mortality rate is 1.30 higher (95% CI: 1.09-1.54) among the patients with Alzheimer’s dementia versus those without Alzheimer’s dementia. The length of stay is 0.64 days shorter among the patients who had hip fractures with Alzheimer’s dementia compared to those without AD. This is probably due to the higher In-hospital mortality rate among the patients with Alzheimer’s dementia. There is no statistical difference for Hospital total charges between these two groups.

References