

RISK, USE AND COST OF INFECTION-RELATED HOSPITALIZATIONS OF INDIVIDUALS WITH ALZHEIMER’S DISEASE OR DEMENTIA

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OBJECTIVES

Individuals with Alzheimer’s disease or dementia require long-term and intensive care, leading to high medical expenditures and disease burden. These can be exacerbated by severe infections, while little is known about the risk of severe infections in this patient group. Therefore, this study aimed to examine their patterns of severe infections, and identify factors associated with the risk, number, and cost of the infection-related hospitalizations.

METHODS

Subjects with Alzheimer’s disease or dementia in 2019 were randomly selected from the National Health Insurance (NHI) claims data (n=10,000). Their use and costs of infection-related hospitalizations, including septicemia, bacterial infection, fungal

infection, and viral infection-related hospital admissions, were retrieved from the NHI claims data. Logistic regression model was adopted to identify factors associated with the risk of infection-related hospital admission. Generalized linear models were used to examine factors associated with number and cost of infection-related hospitalizations.

RESULTS

The majority of the sample were more than 80 years old and female (Table 1). 17% of them had infection-related hospitalization. The most common infection was bacterial infection, followed by septicemia. The average number and cost of the hospitalization were 0.27 and US\$4,359, respectively. Older age, being male, being poor, higher Charlson Comorbidity Index (CCI) score, poorer continuity of care, history of infection-related hospital admission, and chronic conditions were associated with a higher risk of infection-related hospitalization (Table 2). Being male and history of infection-related hospital admission were correlated with higher number and cost of hospitalization.

Table 1. Characteristics of the samples of Alzheimer’s disease/dementia

Alzheimer’s disease/dementia	
N	10,000
Age (%)	
64-79	36.83
80-87	37.93
≥ 88	25.24
Sex (%)	
Male	37.84
Female	62.16
Urbanization of residency (%)	
City	23.63
Township	29.77
Rural area	46.60
SES (%)	
Non-poor	97.66
Poor	2.34
CCI score (%)	
0	11.62
1	40.93
2	25.61
>2	21.84
COCI (%)	
< 4 OPD visits	8.84
< median COCI	45.10
≥ median COCI	46.06
Multiple chronic conditions (%)	
1	39.58
2	35.98
> 2	24.44
Hospitalization in the previous year (%)	
Any	44.21
Infection-related	18.68
Infection-related hospitalization	
Hospitalization (%)	17.07
Septicemia (%)	8.99
Bacterial infection (%)	16.05
Fungal infection (%)	1.02
Viral infection (%)	1.22
Number of hospitalization (mean)	0.27
Cost of hospitalization (mean)	US\$4,359

Note: CCI: Charlson Comorbidity Index; COCI: Continuity of Care Index; SES: socioeconomic status

Table 2. Factors associated with the risk, number, and costs of infection-related hospitalization in individuals with Alzheimer’s disease/dementia

	Risk of hospitalization OR	Number of hospitalization Estimate	Medical cost of hospitalization Estimate
Age (ref: age 64-79)			
80-87	1.441*	-0.021	-0.088
≥ 88	1.757*	-0.0385	-0.148*
Male (ref: female)	1.299*	0.102*	0.201*
Urbanization of residency (ref: rural area)			
City	0.966	0.054	0.280*
Township	0.998	0.015	0.030
Poor (ref: non-poor)	1.719*	-0.046	-0.229
CCI score (ref: CCI=0)			
1	1.007	0.001	-0.156
2	1.188	0.074	0.026
> 2	1.440*	0.089	0.184
COCI (ref: < median COCI)			
< 4 outpatient visits	0.658*	0.006	-0.070
≥ median COCI	0.742*	-0.027	-0.016
Infection-related hospitalization in the previous year (ref: no)	2.099*	0.241*	0.227*
Chronic conditions (ref: 1)			
2	1.229*	0.048	0.149*
>2	1.344*	0.071	0.232*

Note: CCI: Charlson Comorbidity Index; COCI: Continuity of Care Index; OR: odds ratio
*p-value<0.05

CONCLUSIONS

The findings of this study demonstrated that individuals with Alzheimer's disease or dementia were at a high risk of infection-related hospitalization, particularly bacterial infection-related hospitalization. Age, sex, socioeconomic status, comorbidities, continuity of care, and history of severe infection were associated with the risk. The information is of help to identify high-risk patients, and to plan preventive measures in the disease management of this patient group.