

Comparison of influenza A and B infection among patients aged 65 years or older admitted to ICU

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Background/Aims: There are two main types of influenza infection (influenza A and B) in humans. Although influenza A infection has been known to be associated with more severe clinical infection than influenza B infection, there is limited data of clinical characteristics of comparing influenza A and B infection. The aim of this study was to compare influenza A and B infection among critically ill elderly patients admitted to the ICU. **Methods:** From January 1, 2013 to February 28, 2019, patients ≥ 65 years admitted to the ICU were screened and were included in the study if influenza virus infection (influenza A or B) was confirmed. Clinical data of in-hospital mortality, immunocompromised status, chronic underlying medical diseases, and presence of acute bacterial pneumonia was collected. Additional clinical data of The APACHE2 score, presence of adult respiratory distress disease (ARDS), ventilator, and septic shock was collected and analyzed. **Results:** A total of 137 patients were enrolled. Males were 47.4%. The median age was 77 years (interquartile range 72 – 83 years). Influenza A infection was detected in 105 patients (76.6%) and Influenza B infection was found in 32 patients (23.4%). Between two groups of influenza A and B infection, the rate of previous influenza and pneumococcal vaccination was similar. There were no significant differences in terms of sex, age, certain underlying medical conditions including immunocompromised status, heart disease, lung disease, liver disease, kidney disease, and diabetes mellitus. However, central nervous system disease was more prevalent in the influenza A infection group than in the influenza B infection group (25.7% vs. 9.4%, $p=0.05$). Although there were tendencies of more ARDS, ventilator placement, and presence of septic shock in the influenza A group, there were no statistical significance. There was no significant difference of the mortality rate between the two groups (21.0% vs. 31.3%, $p=0.228$). **Conclusions:** Our results indicates that there might be no significant differences in terms of clinical characteristics and outcomes between influenza A and B infection among hospitalized elderly patients admitted to the ICU.

| | Influenza A N=105 | Influenza B N=32 | P |
|---------------------------------------|----------------------|---------------------|-------|
| Sex | | | 0.941 |
| Male (%) | 50 (47.6) | 15 (46.9) | |
| Female (%) | 55 (52.4) | 17 (53.1) | |
| Age median (IQR) | 76 (71 – 83) | 78 (74 – 84) | 0.250 |
| Age ≥ 80 years (%) | 35 (33.3) | 14 (43.8) | 0.282 |
| Medical conditions | | | |
| IC (%) | 12 (11.4) | 2 (6.3) | 0.520 |
| Heart dz (%) | 37 (35.2) | 14 (43.8) | 0.383 |
| Lung dz (%) | 23 (21.9) | 7 (21.9) | 0.997 |
| Liver dz (%) | 4 (3.8) | 1 (3.1) | 1.000 |
| Kidney dz (%) | 16 (15.2) | 5 (15.6) | 1.000 |
| CNS dz (%) | 27 (25.7) | 3 (9.4) | 0.050 |
| DM (%) | 33 (31.4) | 10 (31.3) | 0.985 |
| Long-term care facility residency (%) | 15 (14.3) | 5 (15.6) | 0.783 |
| Influenza vaccination (%) | 59 (56.2) | 23 (71.9) | 0.113 |
| PPV23 vaccination (%) | 47 (44.8) | 17 (53.1) | 0.406 |
| PCV13 vaccination (%) | 2 (1.9) | 1 (3.1) | 0.553 |
| Death (%) | 22 (21.0) | 10 (31.3) | 0.228 |
| APACHE score median (IQR) | 21 (16 – 28) | 19 (15 – 28) | 0.431 |
| APACHE score ≥ 25 (%) | 36 (34.3) | 10 (31.3) | 0.750 |
| APACHE score ≥ 30 (%) | 22 (21.0) | 6 (18.8) | 0.787 |
| Acute bacterial pneumonia (%) | 46 (43.8) | 14 (43.8) | 0.995 |
| ARDS (%) | 43 (41.0) | 10 (31.3) | 0.324 |
| Ventilator (%) | 42 (40.0) | 7 (21.9) | 0.061 |
| Septic shock (%) | 39 (37.1) | 7 (21.9) | 0.109 |