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Session: 155. CNS Infections
Friday, October 4, 2019: 12:15 PM

Background. Brain abscess is a fatal neurological infection, despite reduction of mortality rate on account of medical improvement. Therefore, we investigated to identify risk factors for poor clinical outcomes of patients with brain abscess and subdural empyema in Korea.

Methods. A retrospective analysis was conducted among patients treated for brain abscess or subdural empyema over a period of 11 years between May 2005 and July 2016 in a tertiary hospital, Seoul, South Korea. Based on medical records, we reviewed the clinical findings, therapeutic modalities and prognostic factors of brain abscess or subdural empyema. A multivariate analysis was performed to evaluate the independent risk factors of poor clinical outcomes. Unfavorable clinical outcomes were defined as death or neurologic deficit.

Results. In total, 121 patients were enrolled in this study. 79 (65.2%) were males and the mean age was 55.3 years. The common symptoms at presentation included a focal neurological deficit (52.8%), a reduced Glasgow coma scale (47%), headache (49.5%) and fever (22.3%). Gram-positive cocci were most frequently isolated as the causative microorganism. The most common location of brain abscess was the frontal lobe (32.5%), followed by parietal (18.7%) and temporal lobe (11.38%) and a sub-dural empyema (8.2%). 28-day mortality was 2.47% (3/121) and 43.8% (53/121) had long-term disability. In multivariate analysis, reduced GCS, headache at presentation and high blood urea nitrogen were independently associated with unfavorable clinical outcomes.

Conclusion. In this study, reduced GCS, headache at presentation and high blood urea nitrogen were significant risk factors for unfavorable clinical outcomes in patients with brain abscess and subdural empyema.

Table 1: Risk factors associated with unfavorable clinical outcomes among patients hospitalized with brain abscess and age-, sex-, and resident-unrelated population control subjects.

| Variable | OR (95% CI) |
|----------|-------------|
| Primary immunodeficiency | 20 (1.02 – 1.00) |
| Solid tumor | 1.15 (2.38 – 5.50) |
| Hematological cancer | 1.5 (1.0 – 1.4) |
| Traumatic injuries | 2.2 (1.6 – 2.8) |
| HIV | 1.4 (1.1 – 1.8) |
| Vascular | 1.4 (1.0 – 1.7) |
| Invasive medical treatment | 5.7 (2.7 – 3.7) |
| Cytomegalovirus | 4.6 (1.2 – 1.4) |
| Astrovirus | 2.0 (0.5 – 1.4) |
| Adenovirus | 1.6 (1.0 – 2.4) |
| Respiratory syncytial virus | 1.2 (1.0 – 1.4) |
| Other viral infections | 1.9 (0.7 – 1.5) |
| Pneumococci | 1.5 (1.4 – 2.6) |
| Other bacteria | 1.4 (1.0 – 1.7) |
| Enterovirus | 1.2 (1.0 – 1.4) |

Disclosures. All authors: No reported disclosures.