Antibiotic treatment delay and outcome in acute bacterial meningitis

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Abstract

Introduction

Acute bacterial meningitis is a serious infection of the central nervous system that occurs at all ages, especially in children under the age of 5 years. This study was conducted by considering to the mortality and morbidity of the delay of antibiotic treatment in patients with acute bacterial meningitis to be determined the starting dose of antibiotic in patients and then to be evaluated the outcome of the treatment delay so that to make better the outcomes of the disease as possible based on the results and solving problems.

Material and Methods

This study was carried out on patients who hospitalized in infection centers of the Tabriz University of Medical Science with diagnosis of acute community-acquired bacterial meningitis during 2005-2015. The patients in the study were selected based on inclusion and exclusion criteria and were evaluated based on symptoms, demographic features and laboratory findings like CSF fluid analysis with evidence of bacterial meningitis, smear results, CSF positive culture, blood culture and results of brain CT scan. Also, the start time of the first dose of antibiotics was extracted from the document of the patient with investigation of trend of the disease of the patient that has been hospitalized hours after the symptoms of meningitis and antibiotic treatment has been started. Finally, all of data were analyzed by SPSS v16 software.
Results

In this study, 78 patients were investigated with acute bacterial meningitis that 70.5% of them were men, with the average age of 35.46 ±19.20 years. 28.2% of the patients were with trauma previous history, 15.4% with history of otitis, 14.1% with meningitis previous history and 7.6% of them had previous history of the CNS surgery; also fever with 93.6%, headache with 87.2%, neck rigidity with 82.1% were the most prevalence symptoms. In investigation of the brain CT scan of patients, 50% were with abnormal findings. Also it was observed that 43.6% of patients were received first dose of antibiotic between 6-12 hours after admission. The mean duration of hospitalization was 13.82 days and the average duration of treatment was 12.94 days. In investigation of the final outcomes of patients it was observed that 16.7% died in the hospital. Analyzing data was showed that there was a significant relationship between antibiotic start time and disease outcomes(P=0.003) and treatment duration in alive patients was significantly more than died patient(P<0.001). There was no significant relation between CT scan finding of the patients and their disease outcomes. (P=0.761)

Conclusion

The results of this study showed that a high percentage of patients are treated in a long time after admission with antibiotic and this is one of important reasons of mortality in patients.

Keywords: acute bacterial meningitis, cerebrospinal fluid, Glasgow Coma Scale