

## ABSTRACT

### EVALUATION OF AMPICILLIN-GENTAMYCIN AND CEFTRIAXONE EFFECTIVITY COMPARISON ON CLINICAL IMPROVEMENT OF PEDIATRIC PNEUMONIA PATIENTS

**Background:** Pneumonia is a pulmonary inflammation due to microorganism infection that leads to pulmonary tissue consolidation and local gas exchange disruption. In 2016, 5.7 million children under five years died due to pneumonia. To manage pneumonia in children, WHO and some guidelines recommended ampicillin-gentamycin as the first-line therapy, while ceftriaxone acts as second-line therapy for children with severe pneumonia when the first-line therapy had failed.

**Objective:** This study aimed to evaluate the effectivity of ampicillin-gentamycin and ceftriaxone on the clinical improvement of pediatric pneumonia patients based on clinical parameters (temperature, heart rate, respiratory rate, cough, dyspnea, and length of stay) and laboratory parameters (white blood cell/WBC, C-reactive protein/CRP).

**Method:** This study was a prospective cohort using a time-limited method from June-August 2019 in Pediatric Inpatient Installation in RSUD Haji and had been approved by the Ethical Committee of RSUD Haji Surabaya. 18 samples met the inclusion criteria. The sampling and its analysis were held twice, at day-0 and day-5 in Clinical Pathology Laboratory RSUD Haji Surabaya. CRP and WBC level profile was measured with Cobas 6000 analyser and Sysmex XT-1800 i.

**Result:** From 18 subjects, they were divided into 2 groups, 12 pediatric patients in the ampicillin-gentamycin therapy group and 6 children in the ceftriaxone group. For laboratory parameters in the ampicillin-gentamycin group there was a decrease in CRP on day 0 and day 5 by 93% and WBC by 41.62%. Whereas in the ceftriaxone group there was a decrease in CRP on day 0 and day 5 by 91% and WBC by 62.46%. The results of the statistical analysis of each test group show ceftriaxone group showed a significant difference in WBC ( $p=0.013$ ) but no significant difference of CRP ( $p=0.065$ ). On ampicillin-gentamycin group, CRP and WBC parameter showed significant differences ( $p=0.002$ ). Clinical parameters including temperature, heart rate, respiratory rate, cough, and dyspnea in both groups that initially abnormal on admission gradually decreased until back within normal range before discharged and didn't recur. The maximum length of stay in the ampicillin-gentamycin group was 8 days while in ceftriaxone group was 6 days. While the results of the statistical analysis of the comparison between the ampicillin-gentamycin group with ceftriaxone for laboratory parameters and clinical parameters showed no significant difference in Sig delta ( $p>0.05$ ). Apart from this based on the results obtained from clinical parameters and laboratory parameters showed that the ceftriaxone group was better than the gentamicin ampicillin group.

**Conclusion:** Based on this study we concluded that either ampicillin-gentamycin or ceftriaxone therapy can reduce both laboratory and clinical parameters in pediatric pneumonia patients.

**Keyword:** Pneumonia, Pediatrics, Ampicillin-Gentamycin, Ceftriaxone, Clinical Improvement, C-reactive protein, White blood cell.