

## ABSTRACT

**Background** : Given the growing phenomenon of bacterial resistance to antibiotics, efforts need to be made to optimize antibiotic therapy. Meropenem exhibits a time-dependent effect on combating bacteria, therefore it is suggested that a prolonged exposure via intravenous administration could be a feasible strategy to maximize its bactericidal effect.

**Objectives** : This research aims to compare the clinical outcomes of intermittent infusion vs 4 hours extended infusion of meropenem for patients with pneumonia, evaluating the rate of treatment success in alleviating pneumonia related symptoms, time to achieve said improvements, and its safety profiles.

**Method** : This was an observational prospective cohort study, conducted at UGM Academic Hospital. Subjects were inpatients who were diagnosed with pneumonia, infected by meropenem susceptible pathogens. Subjects were divided into two groups of treatment : The Intermittent Infusion (II) group, who were given the standard infusion in less 60 minutes infusion time; and The 4-hours Extended Infusion (EI) group, who were administered with meropenem infusion in 4-hours long infusion time. The clinical outcomes of (1) Rate of treatment success; (2) Time to infection resolution (days); and (3) Adverse Drug Reaction (ADR) prevalence, would be evaluated from 72-hours after the first meropenem dose until the end of meropenem therapy.

**Results** : In total, there were 41 subjects being included for the analysis, consisted of 17 patients from II group and 24 patients from EI group. There was no significant difference in treatment success rate between II group and EI group ( II: 70.59% vs EI: 79.17%, p-value = 0.714 ). We also found that there was no significant difference in time to infection resolution between groups ( II : median [IPR] = 7 [5.50-14.00] days vs EI : median [IPR] = 7 [5.00-10.75] days, p-value = 0.638 ). Regarding safety, there was no incidence of Adverse Drug Reaction (ADR) in both treatment groups.

**Keywords** : meropenem, intermittent infusion, extended infusion, pneumonia