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**Antibiotic utilization review among hospitalized patients with pneumonia during early Corona-19 pandemic: a multicenter study**

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**ABSTRACT**

**Introduction:** Effort to optimize the appropriate antibiotic prescriptions was considerable challenging at the time of coronavirus disease 2019 (COVID-19) pandemic especially in the setting with limited antibiotic resources. Whether antibiotics were appropriately prescribed for patients with pneumonia in East Java Province was unknown. The purpose of this study was to describe the quantity of antibiotic use and to identify the appropriateness of antibiotic prescriptions among hospitalized adult and children patients at the time COVID-19 hit Indonesia.

**Methods:** This retrospective study was conducted in three referral hospitals in East Java Province, Indonesia. Antibiotics for patients with pneumonia were recorded in a standardized case report form and were further analyzed descriptively. Data were analyzed quantitatively using the DDD/100 patient-days and 90% drug utilization (DU) indicators. In addition, the appropriateness of antibiotic prescriptions (indication, route, dose, interval, and length of administration) was analyzed against National Antibiotic Use guidelines.

**Results:** Antibiotic prescriptions from 181 patients (143 adults and 38 children) were included in this study. The total DDD/100 patient-days value found in this study were 77.89 DDD/100 patient-days and 18.97 DDD/100 patient-days, in adults and children, respectively. The most commonly prescribed antibiotics in adult patients were fluoroquinolone (moxifloxacin, levofloxacin), while beta-lactam (ceftriaxone and ampicillin-sulbactam) were commonly prescribed among children patients. Antibiotics included in the 90% DU among adult patients were moxifloxacin, ceftriaxone, azithromycin, levofloxacin, and meropenem; whereas among children patients were ceftriaxone and ampicillin sulbactam. Compared with the recommendation from the National Antibiotic Use guidelines, the appropriate dose and interval among adult patients were 45.05% and 25.27%, respectively, whilst among children patients were 18.42% and 34.21%, respectively.

**Conclusions:** The antibiotic use for pneumonia was high, more than 70% on average. The number of DDD/100 patients in children has to be interpreted carefully because DDD was counted for adults with 70kg weight.

**KEYWORDS:** antibiotic consumption; antibiotic stewardship; pneumonia; hospital; pediatric; antibiotic quality indicator