Pengaruh Kesesuaian Antibiotika Empirik Terhadap Luaran Klinis serta Kajian Efektivitas Biayanya pada Pasien Infeksi Luka Kaki Diabetik di RS Cipto Mangunkusumo = The Appropriateness Effect of Empirical Antibiotics on Clinical Outcomes also Cost-Effectiveness Study to the Diabetic Foot Ulcer Infection Patients in Cipto Mangunkusumo Hospital

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Abstrak

Komplikasi mayor pada pasien diabetes melitus dan membutuhkan biaya perawatan yang besar adalah luka kaki diabetes (LKD). Penanganan awal untuk mengatasi infeksi adalah dengan pemberian antibiotik empirik. Kesesuaian penggunaan antibiotik empirik pada pasien LKDI berdasarkan panduan klinis menjadi permasalahan dikarenakan belum adanya terapi antibiotik yang spesifik. Penelitian ini bertujuan untuk mengetahui karakteristik pasien LKDI, pola kuman patogen, sensitivitas antibiotik, proporsi antibiotik empirik yang sesuai dan tidak sesuai PPAB, hubungan kesesuaian antibiotik yang digunakan selama 7 – 21 hari terhadap perbaikan klinis pasien LKDI, amputasi, mortalitas, lama rawat, biaya langsung medis, serta efektivitas biaya. Penelitian ini merupakan penelitian kohort retrospektif dengan sumber data berupa catatan medis dan foot registry pasien LKDI periode rawat inap 1 Januari 2019 – 31 Desember 2022. Pengambilan data dilakukan dari Januari – November 2023. Sebanyak 198 pasien LKDI memenuhi kriteria inklusi dan kriteria eksklusi. Patogen gram negatif yang banyak ditemukan adalah Escherichia coli (18,8%), Klebsiella pneumoniae (18,2%), Proteus mirabilis (9%), Pseudomonas aeruginosa (7,1%) dan Proteus vulgaris (5,1%). Sensitivitas antibiotik terhadap P. mirabilis (70,6%), P. vulgaris (81,8%), E. coli (47,5%) dan K. pneumoniae (42,4%). Sebanyak 93 pasien LKDI (46,9%) mendapatkan regimen antibiotik sesuai dan 105 pasien (53,03%) yang tidak sesuai. Faktor yang berpengaruh terhadap perbaikan klinis ($p < 0,05$) adalah kesesuaian antibiotik (RR 14,096; 95%CI (2,558 – 77,691, $p = 0,002$), Peripheral artery disease (PAD) (RR 0,051; 95% CI (0,009 – 0,307, $p = 0,001$), dan leukosit (RR 0,043; 95% CI (0,005 – 0,371, $p = 0,004$). Total biaya riil pasien LKDI kelompok antibiotik yang sesuai selama rawat sebesar IDR 5.980.599.970, (median IDR 51.623.857) sedangkan kelompok antibiotik yang tidak sesuai selama rawat sebesar IDR 7.517.565.152 (median IDR56.162.333) dengan biaya tindakan medis sebagai cost driver dalam komponen biaya pengobatan LKDI. Terdapat selisih total biaya riil pasien LKDI terhadap biaya INA-CBG’s sebesar (median IDR 26.576.140). Pengobatan LKDI membutuhkan biaya yang besar dan lama rawat yang panjang di rumah sakit.

.....The major complication in diabetes mellitus patients that require high treatment costs is diabetic foot ulcer infection (DFI). The initial treatment to treat infection is by administering empiric antibiotics. The appropriateness of empirical antibiotics of DFI patients based on clinical guidelines is a problem because there is no specific antibiotic therapy. This study aims to determine the characteristics of DFI patients, patterns of pathogenic microbes, the sensitivity of antibiotics, the proportion of empirical antibiotics that are appropriate and not appropriate due to PPAB guidelines, the relationship between the appropriateness of antibiotics used for 7 - 21 days and amputation, clinical improvement in DFI patients, in-hospital costs and cost-effectiveness. This study was a retrospective cohort research design with data sources of medical

records and foot registry of DFI patients hospitalized during period 1 January 2019 – 31 December 2022. Data collected from January to November 2023. The subjects were DM patients, with primary and secondary diagnoses being DFI. A total of 198 DFI patients met the inclusion and exclusion criteria. The most common gram-negative pathogens found were Escherichia coli (18.3%), Klebsiella pneumoniae (17.7%), Proteus mirabilis (12%), Proteus vulgaris (7.2%), and Pseudomonas aeruginosa (7.1%). Consecutively, the sensitivity of antibiotics was (70.6%), (81.8%), (47.5%) and (42.4%). A total of 93 LKDI patients (46.9%) received appropriate antibiotic regimens, while 105 patients (53.03%) received inappropriate regimens. Factors influencing clinical improvement ($p < 0.05$) include antibiotic appropriateness (RR 14.096; 95%CI (2.558 – 77.691, $p = 0.002$), peripheral artery disease (PAD) (RR 0.051; 95% CI (0.009 – 0.307, $p = 0.001$), and leukocyte count (RR 0.043; 95% CI (0.005 – 0.371, $p = 0.004$).The total real cost for LKDI patients in the appropriate antibiotic group was IDR 5,980,599,970 (median: IDR 51,623,857). In comparison, the inappropriate antibiotic group was IDR 7,517,565,152 (median: IDR 56,162,333). Medical interventions are identified as the cost driver in LKDI treatment costs. The difference between the riil costs for LKDI patients and INA-CBG’s tariff was a median of IDR 26,576,140. LKDI treatment requires significant expenses and prolonged hospital stays.