

Perbandingan Seftazidim dan Sefepim sebagai terapi empiris demam neutropenia pada leukemia akut anak: tinjauan penurunan suhu dan kenaikan jumlah neutrofil absolut = Cefepime vs Ceftazidime as empirical therapy for neutropenic fever in pediatric acute Leukemia: review of temperature and absolute neutrophil

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Abstrak

Latarbelakang: Demam neutropenia merupakan komplikasi tersering pada terapi anak dengan keganasan. Terapi antibiotik empiris diketahui dapat menurunkan angka morbiditas dan mortalitas. Namun demikian, dilaporkan peningkatan kejadian resistensi terhadap seftazidim. Sefepim menurunkan demam lebih cepat dan mempersingkat lama perawatan dibandingkan seftazidim sehingga pada beberapa negara dilaporkan sebagai antibiotik monoterapi lini pertama. Penelitian ini bertujuan untuk membandingkan efektivitas pemberian seftazidim dan sefepim dalam hal lama penurunan demam dan kenaikan jumlah neutrofil absolut yang diamati selama 72 jam pertama setelah pemberian terapi empiris pada demam neutropenia anak dengan leukemia akut, serta bertujuan untuk mengetahui pola kuman dan sensitivitas antibiotik.

Metode: Uji acak terkontrol membandingkan efektivitas pemberian sefepim dan seftazidim. Pasien secara acak dibagi ke dalam dua kelompok intervensi, seftazidim dan sefepim, pada setiap kelompok terdiri atas 36 pasien. Dilakukan pemberian terapi dan hasil dicatat setelah pengamatan selama 72 jam.

Hasil: Penurunan demam didapatkan pada 28 anak (77.8%) dengan terapi seftazidim dan 33 anak (91.7%) dengan terapi sefepim. Tidak terdapat perbedaan bermakna antara kedua kelompok dalam hal lama penurunan demam ($p=0.101$). Pada kelompok seftazidim, median lama penurunan demam adalah 32 jam (8-171 jam), sedangkan pada kelompok sefepim adalah 24 jam (6-75 jam). Kenaikan jumlah neutrofil absolut didapatkan pada 1 anak (2.8%) dengan terapi seftazidim dan 10 anak (27.8%) dengan terapi sefepim dengan jumlah neutrofil absolut 1000 sel/mm^3 setelah 72 jam pertama pemberian terapi. Terdapat perbedaan bermakna antara kedua kelompok ($p=0.003$). Median kenaikan jumlah neutrofil absolut pada 72 jam pertama kelompok seftazidim adalah $315 (0-1887) \text{ sel/mm}^3$, sedangkan pada kelompok sefepim adalah $432 (0-4266) \text{ sel/mm}^3$. Tidak terdapat perbedaan bermakna antara kedua kelompok ($p=0.235$). Pada hasil kultur darah didapatkan biakan terbanyak adalah bakteri Gram negatif, ditemukan pada 8 subyek (72%) dari kedua kelompok yaitu bakteri *Escherichia coli*, *Klebsiella pneumoniae* dan *Salmonella sp*. Hasil uji sensitivitas isolat bakteri Gram negatif dari biakan darah, antibiotik sefepim mempunyai persentase terbesar, yaitu 75% dari bakteri yang tumbuh pada biakan, sedangkan seftazidim 38%.

Kesimpulan: Sefepim lebih baik dibandingkan seftazidim dalam penurunan suhu dan kenaikan jumlah neutrofil absolut lebih pada 72 jam walaupun secara statistika tidak berbeda bermakna

Introduction:

Neutropenic fever is the most frequent complication during cancer therapy in children. Empirical antibiotic therapy has been known to reduce the mortality and morbidity rate. However, resistance against ceftazidime has been reported. Cefepime reduces fever and shorten the length of hospitalization better than ceftazidime that several countries have reported using it as the first-line antibiotic therapy. This study is

aimed to compare the effectivity of ceftazidime and cefepime to reduce fever and to increase the absolute neutrophils count in the first 72 hours.

Method: A randomized controlled trial to compare cefepime and ceftazidime. Patients were randomly divided into two intervention groups, ceftazidime and cefepime, each group consist of 36 patients. Patients were treated, the results were noted after 72 hours.

Results: Fever was reduced in 28 children (77.8%) treated with ceftazidime and 33 children (91.7%) treated with cefepime. No significant difference was found between the two groups regarding the amount of time it took for the fever to drop ($p=0.101$). For ceftazidime, fever was reduced in 32 hours (8-171 hours) on average, while it took cefepime 24 hours (6-75 hours) on average to reduce the fever. The increase of absolute neutrophils in the first 72 hours was found in 1 child (2.8%) treated with ceftazidime, while there were 10 children (27.8%) treated with cefepime whose absolute neutrophils increased 1000 cells/mm^3 in the first 72 hours. A significant difference was found between the two groups ($p=0.003$). On average, the increase of absolute neutrophils in the first 72 hours for ceftazidime was $315 (0-1887) \text{ cells/mm}^3$, while the average number for cefepime was $432 (0-4266) \text{ cells/mm}^3$. No significant difference was found between the two groups ($p=0.235$). Blood culture revealed that the most common pathogen are gram-negative bacterias. Found in 8 subjects (72%) in the two groups were *Escherichia coli*, *Klebsiella pneumoniae*, and *Salmonella* sp. Sensitivity test for isolated gram-negative bacteria from the blood culture revealed that cefepime had the greatest sensitivity of 75% while ceftazidime had only 38%.

Conclusion: It was found that cefepime yielded better results compared to ceftazidime regarding fever reduction and absolute neutrophil increase in the first 72 hours, even if the results were not statistically significant.