Mekanisme vitamin E dalam menekan inflamasi dan stres oksidatif pada febrile urinary tract infection = The Mechanism of vitamin E in suppressing inflammation and oxidative stress in febrile uti

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Abstrak

Pencegahan parut ginjal di kemudian hari pada tata laksana PNA belum memuaskan. Mekanisme vitamin E dalam menekan inflamasi dan sebagai antioksidan pada tata laksana anak dengan febrile UTI belum diteliti. Penelitian ini menelaah efek inhibisi vitamin E terhadap IL-6, IL-8, dan MDA urin. Efek perancu seperti usia, ASI, riwayat ibuprofen, dan infeksi E. coli, juga diteliti. Uji klinis acak tersamar ganda (n = 40) dilakukan di RS Fatmawati pada anak berusia 6?60 bulan dengan febrile UTI. Kelompok kasus diberikan 40 UI DL-α- tocopherol dan kelompok kontrol diberikan saccharum lactis selama 10 hari. Kedua kelompok mendapat terapi antibiotik yang sama. Pemantauan demam, leukosit darah, IL-6, IL-8, dan MDA urin dilakukan pada H0, H3 dan H10. Analisis IL-6 dan IL-8 dan MDA urin dilakukan di Laboratorium Biokimia FKUI. Kadar IL-6 urin lebih rendah pada kelompok vitamin E. Vitamin E menurunkan IL-8 urin namun tidak berbeda bermakna dibanding plasebo. Vitamin E tidak terbukti menurunkan demam lebih baik dibanding plasebo. Leukosit darah pada kelompok vitamin E lebih menurun dibanding kelompok plasebo, namun keduanya dalam batas normal. Perubahan MDA urin kedua kelompok tidak berbeda. Pemberian ASI menurunkan IL-6 dan IL-8 urin secara bermakna. Riwayat ibuprofen meningkatkan IL-6 dan IL-8 urin secara bermakna. Infeksi E. coli lebih meningkatkan MDA urin dibanding uropatogen lain. Manfaat penambahan vitamin E pada tata laksana febrile UTI masih perlu diteliti lebih lanjut.
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Prevention of subsequent renal scarring in APN treatment has not been encouraging. The mechanism of vitamin E in suppressing inflammation and as an anti-oxidant in pediatric febrile UTI patients has not been studied. This study aimed to examine the inhibitory effects of vitamin E on urinary IL-6, IL-8, and MDA. Confounding effects of age, breastfeeding, previous treatment with ibuprofen, and E. coli infection were studied. A randomized double blind placebo controlled clinical trial (n = 40) was conducted in Fatmawati Hospital on 6 to 60 months old subjects with febrile UTI. The intervention group received 40 IU DL-α-tocopherol while the control received saccharum lactis as placebo for 10 days. Both groups were treated with antibiotics equally. Fever monitoring as well as blood leukocyte, urinalysis, and urinary IL-6, IL-8, and MDA were performed on day 0, day 3 and day 10. Analyses of urinary IL-6, IL-8 and MDA levels were conducted at Biochemistry Laboratory of Faculty of Medicine University of Indonesia. Urinary IL-6 levels were lower in the vitamin E group. Vitamin E suppressed urinary IL-8 but this result was not statistically significant compared to that of the placebo group. Vitamin E was not proven to reduce fever better than placebo. Leukocyte was lower in the vitamin E group compared to the placebo group, but both counts were within normal limit. Changes of urinary MDA levels between the two groups was statistically insignificant. Breastfeeding significantly lowered urinary IL-6 and IL-8 levels. Ibuprofen withdrawal significantly increased urinary IL-6 and IL-8 levels. E. coli infection increased urinary MDA more than any other uropathogens. The supplementation of vitamin E in the treatment of febrile UTI in children needs to be further investigated.