

Gangguan fungsi eksokrin pankreas pada anak dengan diare persisten dan malnutrisi serta pengaruh suplementasi enzim pankreas terhadap diare persisten = Impaired exocrine pancreatic function in children with persistent diarrhea and malnutrition and effects of pancreatic enzyme supplementation on persistent diarrhea

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Abstrak

ABSTRAK

Diare persisten merupakan masalah kesehatan serius dan sering menyebabkan malnutrisi. Kerusakan mukosa pada diare diduga menyebabkan penurunan hormon sekretin dan kolesistokinin sehingga mengurangi stimulasi ke pankreas dan memperberat diare persisten dan malnutrisi. Penelitian ini bertujuan untuk mengetahui fungsi eksokrin pankreas pada anak diare persisten, anak malnutrisi, mendapatkan nilai referensi pemeriksaan fecal elastase-1 FE-1 anak Indonesia, dan mengetahui kehandalan analisis feses dan steatokrit dalam mendeteksi insufisiensi eksokrin pankreas. Penelitian potong lintang pada tahap pertama dilakukan untuk mendapatkan sebaran nilai FE-1 pada anak normal, membandingkan nilai FE-1 subjek diare persisten dan malnutrisi dengan anak normal, dan mengetahui sensitivitas, spesifisitas, dan kemampuan diskriminasi analisis feses dan steatokrit dalam mendeteksi insufisiensi eksokrin pankreas. Tahap kedua uji klinis dua kelompok paralel tersamar ganda dilakukan untuk menguji efek suplementasi enzim pankreas 8371 USP unit tiga kali sehari selama sebulan pada anak diare persisten. Penelitian dilakukan di 5 Rumah Sakit di Jakarta Januari 2015 minus; Juli 2016 pada anak berusia 6 ndash; 60 bulan. Sebanyak 182 anak usia 6 ndash; 60 bulan direkrut sebagai subjek yang terdiri dari 31 anak dengan diare persisten, 31 anak dengan malnutrisi, dan 120 anak normal. Nilai cut-off FE-1 yang didapatkan pada penelitian ini adalah 307 mcg/g feses. Terdapat perbedaan bermakna nilai FE-1 antara subjek diare persisten dan anak normal. Tidak ditemukan perbedaan bermakna nilai FE-1 antara subjek malnutrisi dan anak normal. Terdapat perbedaan bermakna lama diare sekitar 7 hari antara kedua kelompok. Kadar FE-1 dan prealbumin antara baseline dan endpoint pada kelompok plasebo dan perlakuan tidak berbeda bermakna. Uji kehandalan masing-masing komponen analisis feses dan steatokrit menunjukkan hasil sensitivitas dalam rentang 5 ndash; 32 , spesifisitas 73 ndash; 98 , nilai prediksi positif 1 ndash; 43 , dan nilai prediksi negatif 87 ndash; 89 . Nilai AUC analisis feses dan steatokrit masing-masing adalah 0,664 IK 95 0,539 ndash; 0,788 dan 0,501 IK 95 0,372 ndash; 0,629 sedangkan AUC gabungan sebesar 0,671. Kesimpulannya, pada penelitian ini didapatkan adanya insufisiensi eksokrin pankreas pada anak dengan diare persisten. Suplementasi enzim pankreas terbukti dapat memperpendek lama diare secara bermakna. Analisis feses dan/atau steatokrit memiliki sensitivitas yang rendah, spesifisitas yang tinggi, dan kemampuan diskriminasi kurang. Kata kunci: anak, diare persisten, fungsi eksokrin pankreas, malnutrisi, suplementasi enzim pankreas

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ABSTRACT

Persistent diarrhea is a serious health problem and is closely related to malnutrition. Prolonged mucosal injury in diarrhea is thought to cause reduced secretin and cholecystokinin CCK secretion, which decreases stimulation to the pancreas and further aggravate persistent diarrhea and malnutrition. This research aims to

study pancreatic exocrine function in children with persistent diarrhea and children with malnutrition, to obtain reference values of fecal elastase 1 FE 1 in Indonesian children, and to assess the ability of stool analysis and steatocrit in detecting exocrine pancreatic insufficiency. Cross sectional study was done to obtain FE 1 distribution in healthy children, to study FE 1 levels in children with persistent diarrhea and children with malnutrition, and to study the sensitivity, specificity, and discriminative capacity of stool analysis and steatocrit in detecting exocrine pancreatic insufficiency. A randomized, two double blind parallel group, placebo controlled clinical trial was conducted to evaluate the effects of 8371 USP units of pancreatic enzyme replacement therapy PERT 3 times daily for 1 month in children with persistent diarrhea. This study involved children age 6 ndash 60 months in 5 hospitals in Jakarta from January 2015 to July 2016. As much as 182 children 6 ndash 60 months of age consisting of 31 children with persistent diarrhea, 31 children with malnutrition, and 120 healthy children were recruited as subjects. Cut off point of FE 1 in this study was 307 mcg g faeces. Significant difference of FE 1 was found between children with persistent diarrhea and healthy children. The FE 1 difference between subjects with malnutrition and healthy children was not significant. Duration of diarrhea was 7 days significantly shorter in the PERT group. Changes of FE 1 and prealbumin values between baseline and endpoint in placebo and treatment group were found to be statistically insignificant. The diagnostic value of each stool analysis component and steatocrit test showed that the sensitivity was within range of 5 ndash 32 , specificity 73 ndash 98 , positive predictive value 1 ndash 43 and negative predictive value 87 ndash 89 . The AUC values of stool analysis and steatocrit were 0.664 95 CI 0.539 ndash 0.788 and 0.501 95 CI 0.372 ndash 0.629 , respectively, and the combined AUC 0,671. In conclusion, exocrine pancreatic insufficiency was observed in children with persistent diarrhea, and PERT has been proven to significantly shorten the duration of diarrhea by 1 week. Stool analysis and or steatocrit has low sensitivity, high specificity, and low discrimination capacity. Keywords children, exocrine pancreatic function, malnutrition, pancreatic enzyme supplementation, persistent diarrhea