Perbandingan Trace elemen dan Kadar Asam Lemak Serum dan Sel Darah Merah pada Preeklamsia Berat dan Normotensi = Comparison of Trace Elements and Fatty Acids Levels in Serum and Red Blood Cells in Severe Preeclampsia and Normotensive

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Abstrak

Ketidakseimbangan trace elemen dan asam lemak berperan dalam terjadinya preeklamsia. Penelitian ini bertujuan untuk mengetahui status trace elemen serum dan eritrosit serta asam lemak pada preeklamsia berat. Desain potong lintang dilakukan pada 40 ibu hamil dalam 2 kelompok, preeklamsia berat dan normotensi. Pengukuran trace elemen dan asam lemak dalam serum dan eritrosit dilakukan dengan menggunakan Inductively Coupled Plasma and Gas Chromatography Mass Spectrometry. Receiver Operating Characteristic (ROC), analisis bivariat dan multivariat dilakukan. Trace elemen yang ditemukan berbeda nyata baik dalam serum maupun dalam eritrosit adalah selenium, besi, cadmium dan timbal (p<0,05). Hampir semua asam lemak eritrosit, ALA, EPA, DHA, omega-3, LA, GLA, DGLA, AA, omega-6 dan asam oleat ditemukan berbeda bermakna. Nilai tertinggi prediksi preeklamsia berat dengan AUC 0,77(IK95%:0,625-0,912) dan sensitifitas 90% serta spesifitas 50% terdapat pada ALA dengan cut off 0,16 amol/RBC yang mewakili asam lemak omega3 dan untuk golongan omega6 terdapat pada LA dengan cut off 54,25 amol/RBC (sensitifitas 85%; spesifitas 75%). Peningkatan risiko preeklamsia tertinggi terdapat pada EPA yang rendah(OR 14,53; IK95% 2,21-95,41) dan AA yang tinggi(OR 7,37; IK95% 1,37-39,7). Pengukuran trace elemen dan asam lemak diperlukan untuk menentukan status nutrisi dan terutama sebagai prediktor preeklamsia. Pengukuran asam lemak pada eritrosit dinilai lebih baik dibandingkan serum.
.....Imbalance of trace elements and fatty acids plays a role in the occurrence of preeclampsia. The aim of the study was to determine the status of serum and erythrocyte trace elements and fatty acids in severe preeclampsia. Cross-sectional design was performed on 40 pregnant women in 2 groups, severe preeclampsia and normotensive. Measurement of trace elements and fatty acids in serum and erythrocyte was performed using Inductively Coupled Plasma and Gas Chromatography Mass Spectrometry. Receiver Operating Characteristic (ROC), bivariate and multivariate analysis were performed. Trace elements found to be significantly different both in serum and in erythrocyte were Selenium, Iron, Cadmium and Lead (p<0.05). Almost all erythrocyte fatty acids, ALA, EPA, DHA, omega-3, LA, GLA, DGLA, AA, omega-6 and oleic were found to be significantly different. The highest predictive value of severe preeclampsia with an AUC of 0.77(95% CI: 0.625-0.912); a sensitivity of 90% and specificity of 50% was found in ALA with a cut off of 0.16 amol/RBC representing omega3 fatty acids and for the omega6 group in LA with a cut off of 54.25 amol/RBC (85% sensitivity; 75% specificity). The highest increased risk of preeclampsia was found in low EPA (OR 14.53; 95% CI 2.21-95.41) and high AA (OR 7.37; 95% CI 1.37-39.7). Measurement of trace elements and fatty acids is needed to determine nutritional status especially as a predictor of preeclampsia. Erythrocyte fatty acids measurement is considered better than serum.