Perbandingan Kadar Phosphorybosil Pyrophosphate (PRPP) Leukosit Pasien Preeklamsia dengan Kehamilan Normal dan Korelasinya dengan Diet Fruktosa dan Jumlah Leukosit = Comparison of Leukocyte's Phosphorybosyl Pyrophosphate (PRPP) Levels of Preeclampsia Patients with Normal Pregnancy and Their Correlation with Fructose Diet and Leukocyte Count

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Abstrak

Latar Belakang: Preeklamsia merupakan gangguan hipertensi dalam kehamilan yang disebabkan oleh plasentasi abnormal dengan penyebab pasti yang belum diketahui. Perubahan pola makan dan pola makanan berubah drastis selama dekade terakhir baik di negara maju maupun berkembang terutama peningkatan konsumsi gula tambahan diantaranya fruktosa. Fruktosa memegang peranan penting pertumbuhan janin pada trimester pertama. Namun, konsumsi berlebih fruktosa dapat menyebabkan disfungsi endotel yang dapat mengakibatkan hipoksia plasenta sehingga terjadi preeklamsia. PRPP sebagai metabolit antara pada metabolisme fruktosa diduga meningkat pada kondisi preeklamsia yang diakibatkan oleh konsumsi fruktosa berlebih. Penelitian ini bertujuan untuk mengetahui peningkatan kadar PRPP pada kondisi preeklamsia dan korelasinya dengan konsumsi fruktosa meternal serta jumlah leukosit. Metode: Penelitian potong lintang pada 60 perempuan hamil yang dibagi menjadi dua kelompok. Kelompok preeklamsia dan hamil normal, masing-masing sebanyak 30 subjek yang dilakukan pemeriksaan kadar PRPP pada leukosit dan jumlah leukosit dari darah vena. Seluruh subjek dilakukan wawancara sFFQ (semiquantitative Food Frequent Questionnaire)konsumsi gula maternal. Hasil: Kadar PRPP leukosit pasien preeklamsia lebih tinggi bermakna pada kelompok preeklamsia (7.015,67 vs 5.577,63, p=0,003). Jumlah leukosit pada kelompok preeklamsia lebih tinggi dibandingkan kelompok normal (15.905 (5.014,10) vs 8.078,33 (1.141,74) /mm³, p=0,000). Konsumsi fruktosa kelompok preeklamsia lebih tinggi dibandingkan kelompok normal namun tidak bermakna secara statistik (6,25 (0,6 – 10,54) vs 4,65(0,60 – 19,4) g/hari, p=0,32). Korelasi positif lemah kadar PRPP dengan jumlah leukosit (r=0,327, p=0,035). Tidak ada korelasi kadar PRPP dengan konsumsi fruktosa maternal (r=-0.013, p=0.923). Tidak ada korelasi jumlah leukosit dengan konsumsi fruktosa maternal (r=0.122, p=0.352). Kesimpulan: Terdapat perbedaan bermakna kadar PRPP leukosit kelompok preeklamsia dibandingkan kelompok normal. Terdapat korelasi positif lemah kadar PRPP leukosit dengan jumlah leukosit. Tidak terdapat korelasi kadar PRPP leukosit dengan konsumsi fruktosa maternal dan jumlah leukosit dengan konsumsi fruktosa maternal.
..... Preeclampsia is a hypertensive disorder in pregnancy caused by abnormal placentation with an unknown exact cause. Changes in diet pattern and diet composition have changed dramatically over the past decade, in both developed and developing countries, especially the increase in consumption of added sugars including fructose. Fructose plays an important role in fetal growth in the first trimester. However, excessive consumption of fructose can cause endothelial dysfunction which can result in placental hypoxia resulting in preeclampsia. PRPP as an intermediate metabolite in fructose metabolism is thought to increase in

preeclampsia conditions caused by excess fructose consumption. This study aims to determine the increase in PRPP levels in preeclampsia conditions and its correlation with meternal fructose consumption and leukocyte count. Method: Cross-sectional observational study on 60 pregnant women divided into two groups. The preeclampsia and normal pregnancy groups, each as many as 30 subjects were examined for PRPP levels in leukocyte and leukocyte counts from venous blood. All subjects were interviewed with sFFQ (semiquantitative Food Frequent Questionnaire) on maternal sugar consumption. Results: Leukocyte's PRPP levels in preeclampsia patients were significantly higher in the preeclampsia group (7,015.67 vs 5,577.63, p=0.003). The number of leukocyte in the preeclampsia group was higher than in the normal group (15,905 (5,014.10) vs 8,078.33 (1,141.74) /mm3, p=0.000). The fructose consumption of the preeclampsia group was higher than in the normal group but not statistically significant (6.25 (0.6 - 10.54) vs 4.65 (0.60 - 19.4) g / day, p=0.32). Weak positive correlation of PRPP levels with leukocyte count (r=0.327, p=0.035). There was no correlation between PRPP levels and maternal fructose consumption (r =-0.013, p=0.923). There was no correlation between leukocyte count and maternal fructose consumption (r=0.122, p=0.352). Conclusion: There was a significant difference in PRPP leukocyte levels in the preeclampsia group compared to the normal group. There is a weak positive correlation of leukocyte PRPP levels with leukocyte count. There was no correlation between leukocyte PRPP levels with maternal fructose consumption and leukocyte counts with maternal fructose consumption.