Korelasi kadar vitamin B12 dan methylmalonic acid terhadap derajat keparahan kanitis prematur serta perbandingan kadarnya pada kontrol sehat = Correlation between vitamin B12 and methylmalonic acid level with the severity of premature canitis and its comparioson towards healthy control

Lelania Ishak, author

Abstrak

Kanitis prematur (KP) ialah kondisi dimana individu memiliki minimal 5 helai rambut beruban pada usia kurang dari 25 tahun pada ras Asia. Etiologi KP belum dipahami sepenuhnya dan dianggap sebagai kelainan multifaktorial, salah satunya defisiensi mikronutrien. Vitamin B12 berperan pada proses melanogenesis, sehingga diperkirakan kadar vitamin B12 mencerminkan risiko KP. Pemeriksaan kadar methylmalonic acid (MMA) merupakan indikator defisiensi vitamin B12 yang spesifik. Penelitian ini bertujuan untuk menganalisis perbedaan kadar vitamin B12 dan MMA pada individu KP dibandingkan dengan kontrol dan menganalisis hubungan antara kadar vitamin B12 dan MMA dengan derajat keparahan KP. Penelitian ini adalah studi observasional analitik dengan desain potong lintang. Populasi target penelitian adalah individu KP dan individu dewasa sehat tanpa KP yang direkrut dengan metode consecutive sampling. Data identitas, awitan KP, riwayat KP dalam keluarga, pola diet, dan kebiasaan merokok didapatkan melalui anamnesis. Penilaian derajat keparahan KP dilakukan sesuai metode oleh Shin dkk. Pemeriksaan kadar vitamin B12 dan MMA dengan metode liquid chromatography-mass spectometry (LC-MS). Analisis statistik menggunakan perangkat lunak Stata v.16 (StataCorp). Dari 30 subjek penelitian (SP) kelompok KP, didapatkan 6 orang dengan KP derajat ringan, 15 orang dengan KP sedang, dan 9 orang dengan KP berat. Tidak ditemukan perbedaan karakteristik dasar lain antara kelompok KP dan kontrol. Terdapat perbedaan median kadar vitamin B12 (320 pg/mL vs 360 pg/mL; p<0,001) dan MMA (0,117 mmol/L vs 0,077mmol/L; p=0,0252) yang bermakna pada kelompok KP dibandingkan dengan kontrol. Pada penelitian ini tidak didapatkan hubungan yang bermakna secara statistik antara kadar vitamin B12 (r = 0,0703, p 0,712) dan MMA (r=0,2370, p=0,2074) dengan derajat keparahan KP. Sebagai kesimpulan, Kadar vitamin B12 dan MMA pada kelompok KP lebih rendah dan berbeda bermakna secara statistik dibandingkan kelompok kontrol. Namun tidak ditemukan hubungan yang bermakna secara statistik antara kadar vitamin B12 dan MMA dengan derajat KP.

.....Premature canities (PC) is defined as an individual (Asian) aged less than 25 years with at least 5 grey hair strands. The etiology of PC is not completely understood but is thought to be a result of multifactorial abnormalities, one of which is micronutrient deficiency. Vitamin B12 plays a role in melanogenesis, thus it is believed that vitamin B12 level correlate with the risk of developing PC. Methylmalonic acid (MMA) examination is a specific indicator of vitamin B12 deficiency. This study aims to analyze the difference of vitamin B12 and MMA levels among individual with PC and a healthy control, as well as analyzing the correlation between vitamin B12 level and MMA with PC’s degree of severity. This is an analytical observational study with a cross-sectional design. The target population were individuals with PC and healthy individuals recruited by consecutive sampling. Identity of each individual as well as the onset of PC, history of PC among family members, diet, and smoking habit was taken during history taking. The severity

of PC was measured using a method developed by Shin et al. Vitamin B12 and MMA level were measured using liquid chromatography-mass spectometry (LC-MS). Statistical analysis was done using Stata v.16 (StataCorp). Among 30 subjects from the PC group, 6 subjects had a mild PC, 15 subjects were moderate PC, and 9 subejcts had a severe PC. Differences among other parameters were found to be not statistically significant. There were statistically significant difference of median Vitamin B12 level ((320 pg/mL vs 360 pg/mL; p<0,001) and MMA level (0,117 mmol/L vs 0,077mmol/L; p=0,0252) between PC and healthy individuals. This study did not find a significant correlation between vitamin B12 (r = 0,0703, p 0,712) and MMA (r=0,2370, p=0,2074) level with the severity of PC. As a conclusion, vitamin B12 and MMA level in group with PC was significantly than the heatlhy individuals. No statistically significant correlations were found between either vitamin B12 or MMA level with the severity of PC.