Perbedaan kadar asam lemak tidak jenuh rantai panjang pada serum darah ibu hamil yang mengalami kelahiran preterm dan aterm = Differences in levels of polyunsaturated fatty acids in maternal blood serum of pregnant women with preterm and term births

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Abstrak

Latar Belakang: Kelahiran preterm adalah kelahiran sebelum usia kehamilan 37 minggu lengkap. Secara global, kelahiran preterm menyebabkan morbiditas dan mortalitas bayi yang tinggi. Laporan World Health Organization (WHO) tahun 2010, Indonesia saat ini termasuk dalam 10 besar negara dengan jumlah kelahiran preterm terbanyak yaitu 15,5 per 100 kelahiran hidup. Berbagai faktor dihubungkan dengan penyebab terjadinya kelahiran preterm, termasuk salah satunya adanya defisiensi asam lemak tidak jenuh rantai panjang selama kehamilan.
Tujuan: Mengetahui kadar asam lemak tidak jenuh rantai panjang (ALA, EPA, DHA, LA dan AA) pada ibu hamil dengan kelahiran preterm dan aterm.
Metode: Penelitian dilakukan dengan uji potong-lintang dengan subjek penelitian
ibu hamil preterm dan aterm yang melakukan persalinan di RSUPN Dr. Cipto Mangunkusumo dan RS Budi Kemuliaan Jakarta pada Juli hingga Desember 2019.
Hasil: Diperoleh 60 subjek penelitian dengan 30 subjek pada masing-masing kelompok. Hasil dengan kategori rendah didapatkan pada kelompok preterm dengan median kadar ALA 47 mol/L, AA 491 mol/L dengan perbedaan yang bermakna dengan kelompok aterm (p=0,03 dan p=0,01). Indeks omega-3 pada masing-masing kelompok juga rendah yaitu 2,5% pada preterm dan 3% pada aterm.
Kesimpulan: Terdapat perbedaan yang bermakna antara kadar ALA dan AA pada ibu yang mengalami kelahiran preterm dan aterm. Tidak terdapat perbedaan yang bermakna kadar EPA, DHA, LA, indeks omega-3, rasio omega-6/ omega-3, dan rasio AA/EPA pada ibu yang mengalami kelahiran preterm dan aterm.
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Background: Approximately 15 million babies were born prematurely every year with one million of them dying from preterm birth complications. Indonesia was among the top 10 countries worldwide with the highest number of preterm births, which was 15.5 preterm births per 100 live births. In recent years, several studies have been investigating the role of nutrition in reducing the risk of preterm birth, one that seems promising is long-chain unsaturated fatty acids (LCPUFA). This study was conducted to determine LCPUFA status in pregnant women who undergo preterm and term births in Jakarta, Indonesia.
Objective: To determine the levels of long-chain unsaturated fatty acids (ALA, EPA, DHA, LA dan AA) in pregnant women undergoing preterm and term birth.
Method: A descriptive study was conducted on 30 pregnant women in each group who experienced preterm and term births at Cipto Mangunkusumo and Budi Kemuliaan Hospital Jakarta between July and December 2019. Maternal blood plasma was examined by measuring the concentration of alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), linoleic acid (LA), arachidonic acid (AA), omega-3 index, omega-6/ omega-3, and AA/ EPA ratio.

Result: The median levels of ALA and AA were low in the preterm birth group with significant differences between the two groups (p= 0,03 and p= 0,01). The median total concentrations of ALA, EPA, DHA, LA, AA, omega-3 index, omega-6/ omega-3, and AA/EPA ratio in preterm birth group were as follows: 47 mol/L, 18,5 mol/L, 262 mol/L, LA 3382 mol/L, 491 mol/L, 2,5%, 13 and 26,5. While in the term birth group were as follows 58,5 mol/L, 19 mol/L, 262 mol/L, LA 3382 mol/L, 491 mol/L, 2,5%, 13 and 26,5. The median concentration of EPA and DHA on both groups were in a normal range. Most of the subjects had a low omega-3 index, 86,7% from total subjects in preterm and 66,7% in term group.
Conclusion: There are significant differences between ALA and AA concentration in women who experienced preterm and term birth. There were no significant differences in levels of EPA, DHA, LA, omega-3 index, omega-6/ omega-3 ratio, and AA/EPA ratio between the two groups.