Korelasi asupan asam lemak trans ibu menyusui terhadap kadar docosahexaenoic acid (Dha) air susu ibu = Correlation between maternal trans fatty acid intake and docosahexaemnoic acid (DHA) content of mothers' breast milk

Raphael Kosasih, author

Abstrak

Penelitian sebelumnya telah membuktikan adanya korelasi negatif antara kadar asam lemak trans (TFA) dan DHA ASI. Penelitian pada fibroblas manusia menunjukkan bahwa TFA dapat menurunkan availabilitas DHA dengan menghambat proses biosintesis DHA dari alpha-linolenic acid dan inkorporasinya pada lemak membran, termasuk ASI. Penelitian ini dirancang untuk mengetahui korelasi asupan TFA ibu menyusui terhadap kadar DHA ASI. Studi potong lintang dilakukan dengan menggunakan consecutive sampling yang melibatkan 80 orang subjek ibu menyusui sehat pada 1-6 bulan postpartum berusia 20-35 tahun di Puskesmas Cilincing, Jakarta Utara, dan Puskesmas Grogol Petamburan, Jakarta Barat, pada bulan Februari-April 2019 Asupan asam trans, DHA, asam lemak jenuh, dan asam lemak omega-3 dinilai dengan menggunakan food frequency questionnaire semi kuantitatif dan dihitung rasio asupan TFA-DHA. Spesimen ASI diambil secara post-feed pada pagi hari. Kadar DHA ASI diukur dengan menggunakan gas kromatografi tandem spektrometri massa. Korelasi TFA terhadap kadar DHA ASI dianalisis dengan uji korelasi Spearman. Hasil penelitian menunjukkan median asupan TFA adalah 167 (29-849) mg/hari atau >0,08 (0,01-0,38)% total energi. Asupan TFA seluruh subjek masih memenuhi rekomendasi American Heart Association (< 1% total energi). Median asupan DHA adalah 158,5 (13,9-719,7) mg/hari, 67,5% subjek berada dibawah rekomendasi Food and Agriculture Organization (200 mg/hari). Median rasio asupan TFA-DHA adalah 1,08 (0,17-18,06) dan median kadar DHA ASI subjek penelitian adalah >242 (89-865) µmol/l. Tidak didapatkan korelasi antara asupan TFA terhadap kadar DHA ASI (r=0,056, p=0,309), asupan DHA didapatkan memiliki korelasi positif sedang bermakna terhadap kadar DHA ASI (r=0,479, p <0,001), dan terdapat korelasi negatif lemah bermakna rasio asupan TFA-DHA terhadap kadar DHA ASI (r=-0,396, p <0,001). Penelitian ini menyimpulkan bahwa kadar DHA ASI tidak berkorelasi dengan asupan TFA, namun terdapat korelasi negatif lemah antara rasio asupan TFA-DHA terhadap kadar DHA ASI.
.....Previous research has shown an inverse correlation between TFA and DHA in breast milk. Experimental data on human fibroblast showed that TFA could decrease the availability of DHA by inhibiting its biosynthesis from alpha-linolenic acid and incorporation to lipid membrane, including human milk. This study was designed to determine the correlation between maternal TFA intake and DHA content of mother's breast milk. This cross-sectional study was conducted at Cilincing Public Health Centre, North Jakarta, and Grogol Petamburan Public Health Centre, West Jakarta, from February to April 2019. Consecutive sampling method was used, 80 healthy lactating mothers at 1-6 postpartum ranging from >20-35 years old, participated in this study. Maternal TFA, DHA, saturated fat, and omega-3 intake was assessed using a semiquantitative food frequency questionnaire, and TFA-DHA intake ratio was calculated. Breast milk specimens were collected post-feed in the morning then breast milk DHA content was analyzed by Gas Chromatography with Mass Spectrometry. Correlation between maternal TFA intake and breast milk's DHA content was assessed using Spearman's test. Data showed the median value of TFA intake was 167 (29-849)

mg/day, all subjects TFA intake still below the recommendation of AHA (<1% total energy) Median value of DHA intake was 158.5 (13.9-719.7) mg/day, 67,5% of subject was below Food and Agriculture Organization recommendation (200mg/day). The median value of TFA-DHA ratio was 1.08 (0.17-18.06), and a median value of breast milk's DHA content was 242 (89-865) µmol/l. This study showed no correlation between maternal TFA intake and breast milk's DHA content >($r=0.056$, $p=0.309$), Maternal DHA intake showed a moderate positive correlation with breast milk DHA ($r=0.479$, $p<0.001$). There was a weak negative correlation between TFA-DHA intake ratio and breast milk DHA ($r=-0.396$, $p<0.001$). This study concluded that the DHA content of the mother's breastmilk was not correlated with maternal TFA intake alone, but it was negatively correlated with TFA-DHA intake ratio.