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Studi Longitudinal Pengaruh Asupan PUFA, Konsumsi Makanan Kaya Omega-3 dari Ikan laut/ Seafood dan DHA Sel Darah Merah Bayi terhadap Perkembangan Kognitif Bayi Usia 4 Bulan = A Longitudinal study : The Influence of PUFA, Consumption of foods rich in Omega-3 from marine fish/ seafood and DHA-Red Blood Cell of Infants, on The Cognitive Development of Infants at 4 Months

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Abstrak

Asam lemak DHA merupakan salah satu asam lemak omega-3 PUFA yang berperan dalam perkembangan kognitif. Ikan laut dan seafood merupakan sumber utama DHA. Namun DHA dan prekusornya juga ditemukan pada bahan pangan lain seperti telur, daging, ayam kacang-kacngan maupun biji-bijian. Selain asupan DHA, perkembangan kognitif juga dipengaruhi oleh asupan zat gizi lain dan dukungan lingkungan. Tujuan dari penelitian ini adalah mengetahui pengaruh asupan PUFA, konsumsi omega-3 dari ikan laut/ seafood selama kehamilan trimester 3, menyusui hingga usia bayi 4 bulan dan DHA RBC bayi terhadap perkembangan kognitif bayi usia 4 bulan. Disain studi adalah kohor prospektif dengan jumlah sampel 102 pasang ibu dengan bayinya yang melakukan pemeriksaan ke puskesmas/posyandu di Kecamatan Panimbang dan Majasari Kabupaten Pandeglang. Sampel diteliti sejak kehamilan trimester 3 hingga melahirkan dan bayi berusia 4 bulan. Sampel ASI dan Perkembangan kognitif bayi diukur pada saat bayi berusia 4 bulan. Hasil penelitian menunjukkan bahwa asupan asupan PUFA ibu selama kehamilan dan menyusui adalah 549,45 (95% CI 491,48-607,42) mg dan 240,86 (95% CI 228,06- 253,67) mg. Selama kehamilan 30% ibu jarang mengonsumsi makanan kaya omega-3 dari ikan laut, sementara selama masa menyusui meningkat menjadi 70%. Sebagian besar responden bayi memiliki perkembangan kognitif sesuai atau lebih dari usia kronologis (85,3%) dan hanya 14,5% dari responden bayi memiliki perkembangan kognitif kurang dari usia kronologis. Hasil analisis multivariat terhadap pengaruh asupan PUFA dan makanan kaya omega-3 dari ikan laut/ seafood ibu hamil trimester 3 dan Ibu menyusui terhadap perkembangan kognitif bayi usia 4 bulan setelah dikontrol oleh variabel karakteristik responden ibu dan bayi, konsumsi ibu dan dukungan lingkungan (varibel kovariat) menunjukkan bahwa variabel-variabel yang dapat memprediksi perkembangan kognitif bayi adalah konsumsi makanan kaya omega-3 dari ikan laut/ seafood (OR=5,647 95% CI 1,45-21,986), asupan PUFA (OR= 1,862, 95% CI 0,5-6,935) dan dikendalikan oleh aspek responsivitas emosi dan verbal (OR=7,52, 95% CI: 1,804-31,346) dan asupan lemak (OR=0,204 CI 0,051-0,810). Ibu-ibu yang sering mengonsumsi makanan kaya omega-3 dari ikan laut mempunyai kesempatan 5,647 kali mendapatkan bayi dengan perkembangan kognitif yang lebih baik. Pemberian stimulasi berupa pelukan, ciuman, perhatian, kasih sayang, dan kesensitifan serta responsivitas ibu terhadap kebutuhan bayi memberikan kesempatan meningkatkan perkembangan kognitif bayi sebesar 7,52 kali. Sering mengonsumsi makanan kaya omega-3 dari ikan laut/ seafood adalah mengonsumsi cumi-cumi atau ikan laut pipih seperti ikan raja gantang, teri, ikan bawal, ikan banyar, ikan kerapu, ikan layang, ikan ekor kuning, ikan kembung, ikan kakap sebanyak 3-4 porsi per minggu, atau mengonsumsi 1-2 porsi per minggu kerang, atau udang, atau kepiting atau ikan berlemak seperti ikan tongkol, ikan sardin, ikan bandeng dan ikan kue. Asupan DHA bayi diukur berdasarkan asam lemak DHA pada ASI sebesar 0,997 (95% CI: 0,515-1,479)% total asam lemak. Rata-rata

DHA pada sel darah merah (RBC) bayi adalah 6,845 (95% CI: 6,16-7,52)% total asam lemak. Konsumsi DHA ASI dapat meningkatkan kecukupan DHA-EBC bayi sebesar 0,349

.....The fatty acid DHA is one of the omega-3 fatty acids PUFA that plays a role in cognitive development. Sea fish and seafood is the main source of DHA. However, DHA and the prekusor is also found in other foodstuffs such as eggs, chicken meat, nuts or seeds. In addition to intake of DHA, cognitive development is also influenced by the intake of other nutrients and support environment. The purpose of this research is to get influence of PUFA and consumption of foods rich in omega-3 from marine fish/ seafood during pregnancy in third trimester, breastfeeding, Docosahexanoic acid (DHA)-Red Blood Cell of infants and its relation to cognitive development of infant at 4 months. Design study is prospective cohort study by the number of sample is 102 pairs of mothers with their newborn who checks into public health center (puskesmas)/ maternal and child health center (posyandu) in Panimbang and Majasari. The sample examined since the third trimester of pregnancy to childbirth and infants aged 4 months. Samples of breast milk and baby's cognitive development was measured at the time of a baby aged 4 months. The results showed that the intake of PUFA mothers during pregnancy and lactation is 549.45 (95% CI 491,48-607,42) mg and 240.86 (95% CI 228,06-103.02) mg. Most respondents baby has cognitive development of the appropriate chronological age or above (85,3%) and only 14.5% of the respondents have less cognitive development of infants age from chronological. Multivariate analysis of the effects of intake of PUFA and foods rich in omega-3 from marine fish / seafood in third tremester pregnant women and mother breastfeeding on cognitive development of infants aged 4 months after being controlled by the variable characteristics of respondents mothers and infants, mother consumption and environmental support (covariate variable) showed that the variables that could predict infant cognitive development is the consumption of foods rich in omega-3 from marine fish / seafood (OR=5,647 95% CI 1,45-21,986), intake of PUFA (OR= 1,862, 95% CI 0,5-6,935), aspects of emotional and verbal responsiveness (OR=7,52, 95% CI: 1,804-31,346) and fat intake (OR=0,204 CI 0,051-0,810). Mothers frequently consuming foods rich in omega-3 from fish has a chance 5,6 times get a baby with better cognitive development. Granting of stimulation in the form of hugs, kisses, attention, affection, and sensitive as well as the mother's responsiveness to the needs of the infant cognitive development increase gives the opportunity of baby 7.52 times.

Based on the value measurement of the cut off point from consumption of foods rich in omega-3 from fish demonstrates that to get a baby with good cognitive development of pregnant and breastfeeding women should eat squid or fish the sea flat fish such as raja gantang fish, anchovy, pomfret fish, banyar fish, grouper fish, swallow fish, yellow tail fish, long jawed mackerel, snapper fish as much as 3-4 servings per week, or eating 1-2 servings per week of mussels crab, or shrimp, or crab or fatty fish such as mackerel, sardines, milk fish and fish cake. DHA intake is measured based on the baby's DHA fatty acids in breastmilk of 0.997 (95% CI: 0.515-1,479)% total fatty acids. The average DHA on red blood cell (RBC) baby was 6.845 (95% CI: 6.16-7,52)% total fatty acids. Keywords: DHA, PUFA, omega 3, fish/seafood, breast milk (ASI) , RBC, cognitive development of infants