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Relationship between energetic nutritional status and HUFA content in breast milk from Baja California State, México

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Highly unsaturated fatty acids (HUFA) such asarachidonic acid (20:4n-6, AA) and docosahexaenoic acid (22:6n-3, DHA) are required for neurological development in infants, who cannot synthesize HUFA and have to obtain them from breast milk, a biological fluid strongly influenced by maternal diet and reserves. To our knowledge, there are not many studies that evaluate the effect of maternal condition on breast milk. In this study, 135 human milk samples were collected from Mexican women to evaluate their HUFA composition in relation with their Energetic Nutritional Status(ENS). While 34.8% (n=47) had a normal weight, 2.2% (n=3) were underweight, 33.3% (n=45) overweight and28% (n=38)obese. Only twowomen showed morbidly obese. We found that HUFA levels in the neutral (mainly acylglycerides) and polar (mainly phospholipids) lipids in the breast milk were affected by the maternal ENS. Contrary to our expectations, no correlation was found for the ENS and the n-3/n-6 ratio, but a positive correlation was found for Body Mass Index (BMI) and the saturation index in the polar fraction ($r=0.34$; $P<0.05$). In addition, ARA levels in the polar fraction were highest in the breast milk of obese woman, followed by overweight woman, and lowest in the breast milk of underweight woman. This positive correlation might have an effect on the pattern of infant adipose tissue development that can eventually promote childhood obesity, but this effect might be overturned by the increase in n-3 fatty acids, that have an anti-adipogenic effect.

Biography

Alessandra Casanova has completed her Nutritionist Career in 2012 from Autonomous University of Nuevo León, México. At the present time, she is doing her master's degree in Natural Resources Management with special interests in public health and environmental challenges in Mexican obesity epidemiology.

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