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BRAIN DAMAGE IN INFANCY ASSOCIATED WITH DIETARY VITAMIN B_{12} DEFICIENCY

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The case of an exclusively breast-fed infant of a Vegan (vegetarian, no animal products) mother is presented. The mother ate some animal products during her pregnancy, but from the infant's birth she became a strict Vegan, and breast-fed the infant (his sole source of nutrition) until his presentation at 9 months. At this age, he was shown to have suffered gross neurological deterioration, and showed B_{12} deficiency (serum B_{12} 58 ng/l (normal range 300-1100)), with severe megaloblastic anaemia (haemoglobin 7.2 gm%). Extensive investigations were performed at the time of admission to search for evidence of an associated metabolic, neurological or nutritional disorder of infancy. These all proved to be normal.

The mother's diet was extremely deficient in vitamin B_{12}, in fact, negligible in this nutrient. All other nutrients were adequate. She had a nutritional B_{12} deficiency (serum B_{12} 212 ng/l (normal range 300-1100)) and the breast milk had a relatively low vitamin B_{12} level. After three weeks of mother taking oral B_{12} (200 ng daily) breast milk level was low at 250 ng/l. A collection of breast milk samples from a group of ten normal lactating women showed a range of 280-2100 ng/l. The infant also had a vitamin B_{12} deficiency which responded promptly to therapeutic doses of vitamin B_{12}. At 17 months of age serum B_{12} was normal. His diet had consisted, during treatment, of his mother's breast milk and vegan solids, plus oral vitamin B_{12} (35 ng daily). The progression of the infant's neurological deterioration paralleled in time the increasing severity of his vitamin B_{12} deficiency and there was a dramatic improvement in his neurological state following the institution of the vitamin B_{12} therapy.

Studies have shown that an infant's vitamin B_{12} stores will be markedly reduced if a mother is vitamin B_{12} deficient during the pregnancy. It is postulated that this infant was born with much reduced vitamin B_{12} stores as his mother's intake of animal foods during pregnancy was low. These stores would have soon been depleted, as the mother's breast milk contained only small amounts of vitamin B_{12} due to her becoming a Vegan from the time of his birth.

Therefore, it is emphasised that all persons, both adult and children, who are on a Vegan diet, should take vitamin B_{12} supplements, otherwise, the breast-fed infant is at risk of severe neurological impairment, which may result in permanent damage.

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