Discussion and conclusions - Statement on the effects of excess Vitamin A on maternal health

In this guide

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122 Vitamin A in the diet, either as pro-vitamin A carotenoids from plants or as preformed retinol from animal sources is essential for health in general and

for fetal development and vision in particular.

123 The functions of vitamin A are mediated by various isomeric forms of retinaldehyde and RA. Retinaldehyde has a central function in vision that is not specific to any section of the population. RA is involved in multiple aspects of embryogenesis but in excess, is a known teratogen.

124 There is evidence that retinol may have detrimental effects on fetal bone development. However, if anything, β-carotene may be beneficial for fetal bone development, and further work is required to clarify these relationships.

125 Teratogenicity and embryotoxicity have been observed in animals exposed to high doses of vitamin A as retinol or retinyl esters and to isotretinoin and etretinate. Oral isotretinoin exposure in human case control studies has been associated with an increased risk of spontaneous abortions and birth defects. However, in general, findings in humans, although suggestive of neural crest defects in development, have been mixed and in some cases their aetiology is uncertain. Differences in effect are likely due, at least in part, to differences in the biological potency of natural and synthetic retinoids. Despite these ambiguities, pregnant women or those considering becoming pregnant are recommended to not consume foods, such as liver, or take supplements that are rich in pre-formed vitamin A.

126 Intake of vitamin A in developed countries may in some cases exceed the intake deemed acceptable by the EVM and the UL as set by EFSA.

127 Topical application of retinoids for the treatment of acne does not appear to contribute markedly to overall plasma levels but women are advised that such treatment should not be used during pregnancy to avoid the risk of birth defects.

128 Oral supplements of vitamin A or synthetic analogues may lead to RA levels that could exert teratogenic or other effects in humans, although dietary levels generally do not.

129 Recent reviews of the data suggest that reported links between the use of oral isotretinoin for the treatment of acne and clinical depression, including increased risk of suicide in patients, may be complicated by pre-existing socioeconomic and psychological factors. Acne itself may lead to depression but some studies have found that relief of skin symptoms by treatment may ameliorate rather than exacerbate this effect.

130 Excess intake of b-carotene does not lead to increased plasma retinol concentrations because of its low conversion rate but may, for example in heavy smokers, increase the risk of cancer in specific circumstances. However, the Committee considers that the risks posed by smoking in pregnancy are in themselves unacceptable to mother and fetus, irrespective of any increase caused by concurrent consumption of β-carotene. Therefore, the smoking habit should continue to be discouraged since that in itself is a major health risk.

131 The current UK Government advice for pregnant women and those planning pregnancy to limit their consumption of preformed vitamin A remains appropriate to help avoid adverse effects from excess intake.

Statement

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