Effectiveness of an early supplementation scheme of high-dose vitamin A versus standard WHO protocol in Gambian mothers and infants: a randomised controlled trial.


MRC International Nutrition Group, London School of Hygiene and Tropical Medicine, London, UK.

BACKGROUND: Most developing countries have adopted a standard WHO dosing schedule for vitamin A supplementation. However, in 2002 the International Vitamin A Consultative Group (IVACG) Annecy Accord recommended a new high-dose regimen for mothers and infants. Our aim was to test whether the new high-dose regimen of vitamin A supplementation would increase maternal and infant plasma vitamin A, reduce infant Helicobacter pylori infection and nasopharyngeal pneumococcal carriage, and improve infant gut epithelial integrity.

METHODS: In an area of moderate vitamin A deficiency in rural Gambia, 220 mother-infant pairs were enrolled in a randomised double-blind trial between September, 2001, and October, 2004, that compared the IVACG high dose with the WHO dose. The primary endpoints were levels of maternal and infant plasma vitamin A, H pylori infection, pneumococcal carriage, and gut epithelial integrity. The trial is registered as ISRCTN 98554309.

FINDINGS: 197 infants completed follow-up to 12 months (99 high dose and 98 WHO dose). There were no adverse events at dosing. No differences were found in the primary outcomes for high-dose versus WHO schedule: maternal vitamin A concentration at 2 months +0.02 micromol/L (95% CI -0.10 to 0.15); infant vitamin A at 5 months +0.01 micromol/L (-0.06 to 0.08); H pylori infection at 12 months -0.3% (-14.7 to 14.2); maternal pneumococcal carriage at 12 months -2.0% (-13.7 to 9.7); infant pneumococcal carriage at 12 months -4.1% (-15.8 to 7.6); infant gut mucosal damage at 12 months 5.2% (-8.7 to 19.2). There were more clinic attendances by the high-dose group in the first 6 months of life (p=0.018).

INTERPRETATION: Our results do not lend support to the proposal to increase the existing WHO standard dosing schedule for vitamin A in areas of moderate vitamin A deficiency. Caution is urged for future studies because trials have shown possible adverse effects of higher doses of vitamin A, and potential negative interactions with the expanded programme on immunisation (EPI) vaccines.

PMID: 17586304