

Vitamin A, beta carotene pregnancy supplements do not appear to reduce maternal, infant death risk

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Although some evidence suggests that prevention of vitamin A deficiency among women in developing countries may improve maternal and infant survival, pregnant women in rural Bangladesh who received vitamin A or beta carotene supplementation in a randomized trial did not have a lower rate of all-cause maternal, fetal, or infant death, compared to women who received placebo, according to a study in the May 18 issue of *JAMA*.

Maternal [vitamin A deficiency](#) appears to be widespread in low-income countries, with the World Health Organization estimating that nearly 20 million pregnant women are [vitamin A](#) deficient. This deficiency is linked to gestational night blindness, which during pregnancy is associated with increased risks of maternal anemia, illness and death, suggesting that preventing vitamin A deficiency could improve maternal survival, according to background information in the article.

Keith P. West Jr., Dr.P.H., of Johns Hopkins University, Baltimore, and colleagues assessed the effect on pregnancy-related maternal, fetal, and early infant mortality of supplementation with vitamin A or [beta carotene](#). The randomized trial included pregnant women (n = 125,257), 13 to 45 years of age, and their live-born infants to 12 weeks (84 days) postpartum in rural northern Bangladesh between 2001 and 2007. Five hundred ninety-six community clusters (study sectors) were randomized for pregnant women to receive weekly, from the [first trimester](#) through

12 weeks postpartum, 7,000 micrograms of retinol equivalents as retinyl palmitate, 42 mg of all-trans beta carotene, or placebo. The women underwent 5-week surveillance for pregnancy, ascertained by a history of amenorrhea (absence of a [menstrual period](#)) and confirmed by [urine test](#). [Blood samples](#) were obtained from a subsample of participants in 32 sectors (5 percent) for biochemical studies.

First trimester maternal characteristics were comparable across supplement groups, as was adherence to supplementation. The researchers found that there were 138 maternal deaths from all causes, with 41, 47, and 50 in the placebo, vitamin A, and beta carotene groups, respectively, yielding mortality rates of 206, 237, and 250 deaths per 100,000 pregnancies. There were 703 stillbirths in the placebo group, 665 in the vitamin A group, and 766 in the beta carotene group, yielding rates of 47.9, 45.6, and 51.8 per 1,000 births, respectively. Among 2,834 infant deaths, 951 occurred in the placebo group, 904 in the vitamin A group, and 979 in the beta carotene group, yielding mortality rates of 68.1, 65.0, and 69.8 deaths per 1,000 live births, respectively. None of these rates were significantly different.

Vitamin A compared with either placebo or beta carotene supplementation increased plasma retinol concentrations by end of study and reduced, but did not eliminate, gestational night blindness.

"In conclusion, vitamin A deficiency is widespread in undernourished societies and may pose health consequences such as night blindness and increased risks of infectious morbidity and mortality to the mother. The effects of vitamin A on maternal survival may vary by severity of deficiency, mortality risk (by cause), general malnutrition, access to health services, and likely other factors. In this study, weekly supplementation of vitamin A and beta carotene in [pregnant women](#) in Bangladesh did not reduce all-cause maternal, fetal, or infant mortality. Irrespective of mortality effects, achieving maternal adequacy in vitamin

A through diet, supplementation, or fortification is an important public health goal, especially in populations in which night blindness commonly occurs during pregnancy," the authors write.

More information: *JAMA*. 2011;305[19]1986-1995.

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