Vitamin C, E and A levels in maternal and fetal blood for Czech and Gypsy ethnic groups in the Czech Republic.

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OBJECTIVE AND METHODS: Vitamin C, E and A levels in maternal and cord blood sera were examined at delivery in two districts of the Czech Republic. Information on personal and social characteristics, health, ethnicity, and lifestyle was also collected.

RESULTS: A highly significant correlation between ascorbate levels in maternal and cord blood was found. Vitamin C levels in cord blood were about 1.7 times those in maternal blood. This ratio was much higher for mothers deficient in vitamin C: it was about 3 for deficient nonsmokers and as high as 5 for deficient mothers who smoked cigarettes \((p < 0.01)\). This finding may suggest a compensatory mechanism in fetuses that are endangered by oxidative stress. The mean maternal blood levels of vitamin A and E were higher than in fetal blood \((both \ p < 0.001)\). The mean fetal/maternal ratios were 0.7 for vitamin A and 0.2 for vitamin E levels; these ratios were considerably higher for mothers deficient in a particular vitamin as compared with those for well-nourished mothers.

CONCLUSIONS: Ascorbate levels were associated with maternal education and smoking. Significantly decreased vitamin C levels were observed in Gypsy mothers and their babies; this may be attributed to unfavorable diet and smoking habits: about 78% of Gypsy mothers admitted smoking as compared with 31% of Czech mothers.

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