Letter to the Editor: Genetics and Vitamin D Supplementation in Pregnancy

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We read with interest the article "Response to Antenatal Cholecalciferol Supplementation Is Associated With Common Vitamin D–Related Genetic Variants" by Moon *et al.* (1) recently published in the *Journal of Clinical Endocrinology and Metabolism*. The researchers studied 682 women of white race and investigated whether specific genetic variants are associated with the response to vitamin D supplementation during pregnancy. They concluded that variants in the 7-dehydrocholesterol reductase (DHCR7) gene, involved in the epidermal vitamin D biosynthesis pathway, modify maternal baseline 25-hydroxyvitamin D [25(OH)D] concentrations, whereas the response to supplementation is associated with variants in genes encoding 25-hydroxylase and vitamin D binding protein (1).

This study, the first of such design to be conducted in pregnancy, has many potential clinical implications, some of which are not discussed in the article. First, genetic variations in *DHCR7* could explain, at least in part, the paradoxically high percentages of maternal hypovitaminosis D in sunny areas, such as the Mediterranean region (60% to 80%) (2, 3). Second, the association of *DHCR7* variations with baseline 25(OH)D concentrations only and not with the response to supplementation highlights the significance of the dietary vitamin D intake component during pregnancy. Third, genetic variations in 25-hydroxylase and vitamin D binding protein could explain the inadequate response to supplementation noticed in a proportion of pregnant women. Fourth, future vitamin D studies should consider the results of the current study, regarding both population inclusion criteria and interpretation of the findings. Fifth, these variants may serve in future as genetic markers to identify pregnant women who need higher doses or even other forms rather than cholecalciferol to achieve adequate concentrations. Until then, incorporation of vitamin D screening in the laboratory workup of pregnancy and adequate supplementation to raise 25(OH)D concentrations substantially above 20 ng/mL, even to 40 ng/mL (4), should constitute routine clinical practice for optimal outcomes of both mother and fetus, according to strong evidence available.

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