



■ Editorial

Effectiveness of Maternal Vitamin D Supplementation in Preventing Respiratory Tract Infections in Children

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Vitamin D exhibits a hormone-like action in our body and the deficiency or insufficiency of vitamin D is known to be related to the occurrence or prognosis of various diseases. In the *Korean Journal of Family Medicine*, papers on the relationship between vitamin D levels and colon polyps,¹⁾ autoimmune thyroid disease,²⁾ lung function,³⁾ dry eyes,⁴⁾ cardiovascular disease risk,⁵⁾ and quality of life⁶⁾ were published. Among these effects, vitamin D is known to play an important role in bone growth and immune function. Although it is known that the administration of vitamin D reduces respiratory infections, there has been an interest in whether vitamin D administration during pregnancy reduces respiratory tract infections (RTIs) in newborns.

In the present issue, Sulaiman et al.⁷⁾ investigated the effect of maternal vitamin D supplementation in preventing RTIs in children. This systematic review selected three randomized controlled trials with a total of 3,224 participants (mother-infant pairs). It was found that maternal vitamin D supplements had no effects on RTIs among children (n=1,486 offspring; risk ratio, 0.95; 95% confidence interval, 0.82-1.11; random effects; I² statistics, 0%).

A systematic review on a topic similar to this study was published twice, but the conclusions of the two reviews were different. The systematic review by Christensen et al.⁸⁾ showed results supporting a preventive role of vitamin D during pregnancy on the risk of RTIs in offspring, whereas the systematic review by Tareke et al.⁹⁾ showed that there is no significant evidence to promote vitamin D supplementation. However,

based on these results, it can be said that maternal vitamin D supplementation had no effect on RTIs in children.

Moreover, these results do not mean that pregnant women have no need for vitamin D supplementation. A study found that 4,000 IU of vitamin D daily had the greatest benefits in preventing preterm labor/births and infections,¹⁰⁾ and most institutions recommend vitamin D supplementation during pregnancy. Therefore, vitamin D supplementation should be continued. However, supplementation is not necessary to reduce RTIs in children since its effect is insignificant.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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REFERENCES

1. Yoo MY, Lee J, Chung JI, Yeo Y, Cho IY. The association between serum vitamin D concentration and colon polyp: a cross-sectional study using health care screening database in a tertiary hospital in Korea. *Korean J Fam Med* 2021;42:303-9.
2. Kim CY, Lee YJ, Choi JH, Lee SY, Lee HY, Jeong DH, et al. The association between low vitamin D status and autoimmune thyroid disease in Korean premenopausal women: the 6th Korea National Health and Nutrition Examination Survey, 2013-2014. *Korean J Fam Med* 2019;40:323-8.

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3. Kim MS, Choi CJ, Kwon KM, Kim KS, Choi WS, Oh YJ. Association of lung function with serum 25-hydroxyvitamin D level according to the presence of past pulmonary tuberculosis in Korean adults. *Korean J Fam Med* 2019;40:93-9.
4. Kim MH, Kim YS, Oh HJ, Kwon YR, Kim HW. The association between 10-year atherosclerotic cardiovascular diseases risk score calculated using 2013 American College of Cardiology/American Heart Association guidelines and serum 25-hydroxyvitamin D level among aged 40-79 years in Korea: the sixth Korea National Health and Nutrition Examination Surveys. *Korean J Fam Med* 2018;39:174-9.
5. Kim MJ, Hwang HR, Kim YJ, Lee SY, Lee JG, Jeong DW, et al. Association between serum 25-hydroxyvitamin D levels and dry eye in Korean adults: a study based on Korean National Health and Nutrition Examination Survey, 2010-2011. *Korean J Fam Med* 2017;38:81-5.
6. Kim JS, Choi YE, Baek JK, Cho HJ, Kim YS. The association between vitamin D and health-related quality of life in Korean adults. *Korean J Fam Med* 2016;37:221-7.
7. Sulaiman Z, Noor NM, Ismail SB, Lukman AS, Irfan M, Hussain NH. Maternal vitamin D supplementation for the prevention of respiratory tract infections in offspring: a meta-analysis. *Korean J Fam Med* 2022;43:174-82.
8. Christensen N, Sondergaard J, Fisker N, Christesen HT. Infant respiratory tract infections or wheeze and maternal vitamin D in pregnancy: a systematic review. *Pediatr Infect Dis J* 2017;36:384-91.
9. Tareke AA, Hadgu AA, Ayana AM, Zerfu TA. Prenatal vitamin D supplementation and child respiratory health: a systematic review and meta-analysis of randomized controlled trials. *World Allergy Organ J* 2020;13:100486.
10. Wagner CL, McNeil R, Hamilton SA, Winkler J, Rodriguez Cook C, Warner G, et al. A randomized trial of vitamin D supplementation in 2 community health center networks in South Carolina. *Am J Obstet Gynecol* 2013;208:137.