World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:18, No:09, 2024

The Effects of Vitamin D Supplementation on Anthropometric Indicators of Adiposity and Fat Distribution in Children and Adolescents: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Authors : Simin Zarea Karizi, Somaye Fatahi, Amirhossein Hosseni

Abstract : Background: There are conflicting findings regarding the effect of vitamin D supplementation on obesity-related factors. This study aimed to investigate the effect of vitamin D supplementation on changes in anthropometric indicators of adiposity and fat distribution in children and adolescents. Methods: Original databases were searched using standard keywords to identify all controlled trials investigating the effects of vitamin D supplementation on obesity-related factors in children and adolescents. Pooled weighted mean difference and 95% confidence intervals were achieved by random-effects model analysis. Results: Fourteen treatment arms were included in this systematic review and meta-analysis. The quantitative meta-analysis revealed no significant effect of vitamin D supplement on BMI (-0.01 kg/m2; 95% CI: -0.09, 0.12; p= 0.74; I2=0.0%), BMI z score (0.02; 95% CI: -0.04, 0.07; p= 0.53; I2=0.0%) and fat mass (0.07%; 95% CI: -0.09 to 0.24; p= 0.38; I2=31.2%). However, the quantitative meta-analysis displayed a significant effect of vitamin D supplementation on WC compared with the control group (WMD=-1.17 cm, 95% CI: -2.05, -0.29, p=0.009; I2=32.0 %). It seems that this effect was greater in healthy children with duration>12 weeks, dose<=400 IU and baseline less than 50 nmol/l vitamin D than others. Conclusions: Our findings suggest that vitamin D supplementation may be a protective factor of abdominal obesity and should be evaluated on an individual basis in clinical practice.

Keywords : weight loss, vitamin D, anthropometry, children, adolescent
Conference Title : ICP 2024 : International Conference on Pediatrics
Conference Location : Rome, Italy
Conference Dates : September 12-13, 2024