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Development of protein interaction network with vitamin d deficiency in children's and its correlation with dental caries: A bioinformatics approach

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Dental caries in children's remains a significant chronic disease which is affecting up to 41% of 5-year-old children's in India. There is a known association between dental caries and vitamin D deficiency, but this has not been investigated in details. Vitamin D deficiency is the major public health concern, despite being preventable with providing the supplementation. Molecular level understanding of differential protein expression and their interactions in vitamin D deficiency children's reported by scientists will be very beneficial for understanding the role of vitamin D and the problem of dental caries. An interdisciplinary approach is needed to integrate the complex web of molecular information with clinical information, particularly for diseases where the diagnosis is based primarily on clinical findings. Recently, bioinformatics has made it possible to make specialized databases and apply the information for better research. In the present study we have taken the proteins which were upregulated or downregulated in the children's with vitamin D deficiencies and have constructed the network using string software and have observed that active vitamin D3 (1 α ,25-dihydroxy vitamin D3) interacts with three proteins: vitamin D binding protein (DBP), vitamin D receptor (VDR), and CYP24A1. These results exhibit the positive correlation of vitamin D deficiency and dental caries in children's, further research is underway.

Biography

Kushagra Pande is pursuing Bachelor of Dental Surgery (BDS) from Hitkarni Dental College, Jabalpur, India. He has the keen interest in understanding the role of vitamin D deficiency in children's and the possible correlation with dental caries, as the incidence of dental caries are rising in India & world.

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