

POSTER PRESENTATION

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Association of Vitamin D₃ levels with Glycemic Control in Type 2 Diabetes Subjects from Gujarati population-India

Avisek Majumder^{1*}, Bhavik Doshi¹, Frenny Sheth¹, Manan Patel¹, Navneet Shah², Thakor Premal³, Rama Vaidya⁴, Jayesh Sheth¹

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Background

Considering the active role of Vitamin D₃ in the functional regulation of pancreatic β -cells, present study was carried out to know the occurrence of Vitamin D₃ deficiency in Type 2 diabetic [T2D] and non-diabetic subjects and demonstrate its influence on glycaemic control.

Materials and Methods

This prospective study comprises of 508 individuals (including 210 T2D & 298 controls). All subjects were categorized into 3 groups according to Vitamin D₃ levels. Group-I: included 171 individuals (61 T2D out of 171) with normal Vitamin D₃ concentration (≥ 25 nmol/l), group-II: included 264 subjects (118 T2D out of 264) with mild to moderately Vitamin D₃ deficiency (15-24.9 nmol/l) and group-III included 73 subjects (31 T2D out of 73) having severe Vitamin D₃ deficiency (≤ 14.9 nmol/l). Vitamin D₃ and glycosylated hemoglobin [HbA1C] level was analyzed for all the subjects.

Results

Overall 66.34% subjects (both T2D & Controls) were found to have Vitamin D₃ deficiency. This was more common in T2D patients (71%) (mean \pm SD Vitamin D₃ level was 17.77 ± 7.19 nmol/L) as compared to controls (63%) (mean \pm SD Vitamin D₃ level was 24.38 ± 9.30 nmol/L) ($p < 0.05$). Female subjects were more prone for Vitamin D₃ deficiency as compared to male (71.09% vs 61.09%, $p < 0.03$) subjects. Moreover, a gradual increase in mean

HbA1C level was observed as Vitamin D₃ level when reduced from its normal level in T2D subjects (7.95-9.08% in group-I through group-III) [β HbA1C, Vit. D₃ = -0.07, $r = -0.28$, $p < 2.73 \times 10^{-5}$]. No such changes in mean HbA1C level were observed in controls.

Conclusion

Present study demonstrates the high prevalence (66.34%) of Vitamin D₃ deficiency in Gujarati population from India, more so for subjects with T2D. It is likely that Vitamin D₃ has a role in regulating insulin sensitization; resulting in poor glycaemic control in subjects with low Vitamin D₃ levels. This study also indicates that females are likely to be at a higher risk for Vitamin D₃ deficiency compared to male in T2D and control subjects.

Authors' details

¹FRIGE's Institute of Human Genetics, FRIGE House, Jodhpur Gam Road, Satellite, Ahmedabad-380015, India. ²Department of Diabetes and Endocrinology, Sterling Hospital, Ahmedabad- 380052, India. ³Gujarat Diabetic Association, Ahmedabad-380007, India. ⁴Kasturba Health Society, Medical Research Centre, Mumbai-400056, India.

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* Correspondence: avi.biocv@gmail.com

¹FRIGE's Institute of Human Genetics, FRIGE House, Jodhpur Gam Road, Satellite, Ahmedabad-380015, India

Full list of author information is available at the end of the article