



LETTER TO THE EDITOR

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Commentary on: effect of vitamin D on insulin resistance and anthropometric parameters in type 2 diabetes; a randomized double-blind clinical trial

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Dear Editor-in-Chief

I read with interest the published article in the esteemed journal by Heshmat et al., entitled “effect of vitamin D on insulin resistance and anthropometric parameters in type 2 diabetes; a randomized double-blind clinical trial” [1]. The study has focused to investigate the effect of injection of vitamin D on insulin resistance and anthropometric parameters in type 2 diabetes mellitus (T2DM) [1]. Heshmat et al. studied 42 diabetic patients with similar baseline characteristics in two groups; intervention group with single intramuscular injection of 300,000 IU of vitamin D₃ and the placebo group. They found that, 3 months after vitamin D injection, HbA_{1c}, anthropometric factors and homeostasis model assessment (HOMA) index in intervention group stayed constant, however, serum 25-OHD₃ was significantly increased. They suggested that, single injection of vitamin D was not accompanied by better diabetes control and improvement of insulin resistance [1]. Similar to this study, we conducted a double blind randomized clinical trial on 60 T2DM patients who were divided into 2 groups with 30 patients in each [2]. Group 1 were treated with oral Vitamin D, and group 2 were treated with placebo drug. After 3 months of treatment intervention, no significant difference of serum HbA_{1c} and lipids between two groups was found. We concluded that, weekly vitamin D supplementation for 12 weeks had not significant decremented effect on HbA_{1c} and lipid profiles [2].

Studies concerning the beneficial effects of vitamin D supplementation on improvement of diabetes or improvement of insulin sensitivity are limited and

revealed different results. To find, whether receiving vitamin D₃ (4000 IU/d) is associated with improved markers of insulin sensitivity and resistance, and also reduced inflammation in obese adolescents, Belenchia et al. studied participants who have supplemented with vitamin D₃ for 6 months. They found a significant increase in serum 25-hydroxyvitamin D concentrations after this period. However, there were no significant differences in body mass index, serum inflammatory markers or plasma glucose concentrations in comparison to control group. Moreover, inflammatory markers remained unchanged [3]. Meanwhile, in the study conducted by Lim et al., on 1080 non-diabetic Korean subjects, it was found that 25(OH)D baseline is associated with the incidence of T2DM in high-risk subjects for up to 5 years of follow-up, independently of obesity, baseline insulin resistance, and β cell function [4]. Furthermore, to test the association of low plasma 25-hydroxyvitamin D with increased risk of T2DM in the general population, Afzal et al. measured 25-hydroxyvitamin D level in 9841 participants from the general population, of whom 810 developed type 2 diabetes during 29 years of follow-up. They found the association of low plasma 25-hydroxyvitamin D with increased risk of T2DM [5].

Prevalence of type 2 diabetes mellitus (T2DM) is increasing worldwide [6-11] and based on increasing evidence from animal and human studies, vitamin D deficiency is now regarded as a potential T2DM risk factor [12-18]. Hence, the present data is not convincing and further studies with large sample sizes are needed to show the definite effect of vitamin D supplementation on control of diabetes and its risk.

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References

1. Heshmat R, Tabatabaei-Malazy O, Abbaszadeh-Ahranjani S, Shahbazi S, Khooshehchin G, Bandarian F, Larjani B: **Effect of vitamin D on insulin resistance and anthropometric parameters in Type 2 diabetes; a randomized double-blind clinical trial.** *Daru* 2012, **20**(1):10.
2. Behradmanesh S, Roudini K, Baradaran A: **Effect of supplementary Vitamin D on improvement of glycemic parameters in patients with Type 2 Diabetic.** *Journal of Isfahan Medical School* 2011, **29**(151):1157–1164.
3. Belenchia AM, Tosh AK, Hillman LS, Peterson CA: **Correcting vitamin D insufficiency improves insulin sensitivity in obese adolescents: a randomized controlled trial.** *Am J Clin Nutr* 2013.
4. Lim S, Kim MJ, Choi SH, Shin CS, Park KS, Jang HC, et al: **Association of vitamin D deficiency with incidence of type 2 diabetes in high-risk Asian subjects.** *Am J Clin Nutr* 2013, **97**(3):524–30.
5. Afzal S, Bojesen SE, Nordestgaard BG: **Low 25-hydroxyvitamin d and risk of type 2 diabetes: a prospective cohort study and metaanalysis.** *Clin Chem* 2013, **59**(2):381–91.
6. Assadi F: **The epidemic of pediatric chronic kidney disease :the danger of skepticism.** *J Nephrology* 2012, **1**(2):61–64.
7. Gheissari A, Hemmatzadeh S, Merrikhi A, Fadaei-Tehrani S, Madihi Y: **Chronic kidney disease in children:A report from a tertiary care center over 11 years.** *J Nephrology* 2012, **1**(3):177–82.
8. Baradaran A: **Lipoprotein(a), type 2 diabetes and nephropathy; the mystery continues.** *J Nephrology* 2012, **1**(3):126–29.
9. Tolouian R, Hernandez G: **Prediction of Diabetic Nephropathy: The need for a sweet biomarker.** *J Nephrology* 2013, **2**(1):4–5.
10. Rouhi H, Ganji F: **Effect of N-acetyl cysteine on serum Lipoprotein (a) and proteinuria in type 2 diabetic patients.** *J Nephrology* 2013, **1**(3):61–66.
11. Rahimi Z: **ACE insertion/deletion (I/D) polymorphism and diabetic nephropathy.** *J Nephrology* 2012, **1**(3):143–151.
12. Tavafi M: **Diabetic nephropathy and antioxidants.** *J Nephrology*. 2013, **2**(1):20–27.
13. Xuan Y, Zhao HY, Liu JM: **Vitamin D and Type 2 Diabetes.** *J Diabetes* 2013.
14. Solati M, Mahboobi H: **Paraoxonase enzyme activity and dyslipidemia in chronic renal failure patients.** *J Nephrology* 2012, **1**(3):123–25.
15. Sahni N, Gupta K: **Dietary antioxidants and oxidative stress in predialysis chronic kidney patients.** *J Nephrology* 2012, **1**(3):134–42.
16. de Las Heras J, Rajakumar K, Lee S, Bacha F, Holick MF, Arslanian SA: **25-Hydroxyvitamin D in obese youth across the spectrum of glucose tolerance from normal to prediabetes to type 2 diabetes.** *Diabetes Care* 2013.
17. Khajehdehi P: **Turmeric: reemerging of a neglected Asian traditional remedy.** *J Nephrology* 2012, **1**(1):17–22.
18. Gheissari A, Mehrasa P, Merrikhi A, Madihi Y: **Acute kidney injury: a pediatric experience over 10 years at a tertiary care center.** *J Nephrology* 2012, **1**(2):101–08.

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