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Correlation between serum calcium and glycated haemoglobin (HbA1c) levels among type 2 diabetes mellitus patients attending the Diabetic Centre, Teaching Hospital, Jaffna, Sri Lanka

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Background: Diabetes mellitus is one of the most common non-communicable diseases. Calcium plays an important role in glycemic control by affecting the bio synthesis and release of insulin from the beta cells of pancreas.

Objective: To find the correlation between serum calcium level and glycosylated hemoglobin level in type 2 diabetic patients.

Methods & Materials: A total of 103 blood samples were collected from diabetic patients attending diabetic center, Teaching Hospital Jaffna. In this study population diabetic patient with heart disease, parathyroid gland issues, renal impairment and who are on calcium supplementation were excluded. Serum calcium and albumin were measured by spectrophotometry method and then corrected calcium level was calculated. Test report values of glycated hemoglobin (HbA1c) were obtained from chemical pathology laboratory, Teaching Hospital, Jaffna. Pearson`s correlation coefficient test was used to assess correlation between two variants. $p < 0.05$ was considered statistically significant.

Results: Out of 103 diabetic patients 43 were males and 60 were females. The mean (\pm SD) of serum corrected calcium was $2.1(\pm 0.31)$ mmol/L. The mean (\pm SD) serum corrected calcium was $2.1(\pm 0.33)$ mmol/L and $2.1(\pm 0.29)$ mmol/L in males and females respectively. The mean (\pm SD) HbA1c was $8.27(\pm 2.08)$ %. The Pearson correlation coefficient was calculated between serum calcium and HbA1c and it was statistically significant [$r = -0.557$, $p=0.01$] with the moderate linearity of 0.3013 ($R^2=0.3013$).

Conclusion: The study revealed a statistically significant negative correlation between serum calcium and HbA1c. Serum calcium level decrease significantly with T2DM.

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