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ASSOCIATION OF SERUM URIC ACID CONCENTRATION WITH DIABETIC RETINOPATHY IN ADULTS WITH TYPE 2 DIABETES MELLITUS

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INTRODUCTION
Recent clinical studies suggested that a high level of serum uric acid (SUA) is linked to the development of diabetic complications but has shown varying results in association with diabetic retinopathy (DR).

METHODOLOGY
A cross-sectional study of 106 adult patients with T2DM seen as outpatients at a tertiary hospital was performed. An independent t-test was used to compare the mean values of normally distributed continuous variables between high and low SUA. Crude and adjusted odds ratio and the corresponding 95% confidence interval from binary logistic regression were computed to determine the association of SUA level and other patient factors with diabetic retinopathy.

RESULTS
A total of 106 patients were analyzed. Among these patients, there were 17 (16%) patients with diabetic retinopathy, and 37 (34.9%) had high uric acid levels. Overall, the median age was 65 years, and 71.7% were female. Comparing the patients with high versus low serum uric acid, those with higher uric acid were relatively younger at 62 years old (versus 67, $p = 0.033$). They also had higher median FBS (7.4 vs 6.7, $p = 0.013$) and HbA1c (7.5 versus 6.8, $p = 0.007$) values. There were no statistically significant differences between the two groups in terms of sex, duration of DM, BMI, blood pressure, serum creatinine, and lipid profile. When compared according to diabetic retinopathy status, no statistically significant differences in the clinicodemographic profile were noted. For both groups, there were more cases of non-proliferative type of retinopathy. Patients with higher serum uric acid were more than three times as likely to have DM retinopathy (aOR 3.49, 95% CI: 1.10-11.12, $p = 0.034$). The multivariable model explained 16.42% of the variance in the DM retinopathy outcome and was significant at $p = 0.004$.

CONCLUSION
In this study, high serum uric acid (above 6 mg/dL) was found to be significantly associated with diabetic retinopathy. With the multiple physiologic mechanisms favoring the major role of SUA in the development of DR, it may be utilized as a biomarker for predicting the risk of developing diabetic retinopathy in patients with type 2 diabetes mellitus. Hence, interventions aiming to reduce uric acid synthesis may potentially help retard the development of diabetic retinopathy, but further investigations are needed.

KEYWORDS
retinopathy, type 2 diabetes, uric acid