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COLLEGE OF CHEMICAL PATHOLOGISTS OF SRI LANKA

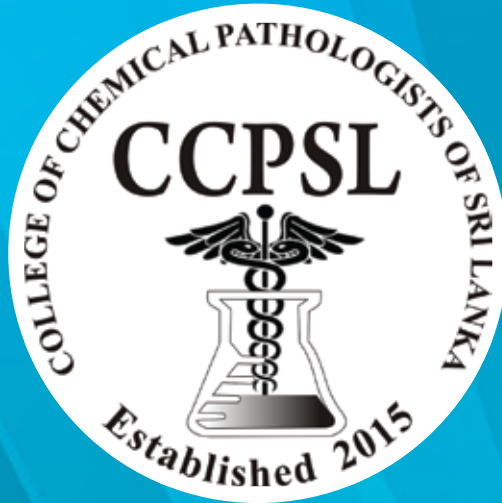## 10th ANNUAL ACADEMIC SESSIONS 2025

UNRAVELING CHALLENGES: QUALITY SAGA FOR EXCELLENCE

11th and 12th July 2025

Monarch Imperial Hotel, Kotte

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ABSTRACTS OF E-POSTERS
RESEARCH AND AUDITS CONTD.

RP 12

Longitudinal Changes in Triglyceride-Glucose-Index as a Predictive Indicator of Albuminuria Progression in Type 2 Diabetes Mellitus Patients

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Introduction and objectives

Insulin resistance is a central factor in the development of diabetic complications, including albuminuria. The Triglyceride-Glucose (TyG) -Index, a surrogate marker for insulin resistance, has been linked to metabolic dysfunction. However, its association with the progression of albuminuria remains unclear. This study aimed to evaluate the predictive value of the TyG-Index in assessing the risk of albuminuria development in Type 2 diabetic patients.

Methods

This retrospective cohort study included both newly diagnosed and pre-existed Type 2 diabetic non-albuminuric patients (674 nos.) attending the Diabetic Centre, Teaching Hospital, Jaffna. The TyG-Index was calculated as Ln [Fasting Triglycerides (mg/dL) × Fasting Glucose (mg/dL)/2] at baseline (2021) and during the follow-up in 2022 and 2023. Patients were categorized based on clinical cutoffs of Albumin to Creatinine ratio. Statistical analysis included independent sample t-tests, paired t-tests, and Receiver Operating Characteristic (ROC) curve analysis.

Results

After two years, 102 patients developed albuminuria. Mean TyG-Index values at baseline and first & second years were 9.17 (±0.31), 8.50 (±0.45) and 9.26 (±0.34), respectively. Significant differences in TyG-Index were observed between the albuminuria and non-albuminuria patients in the first ($p = 0.016$) and second years ($p < 0.001$), while those who were selected at the baseline period (who did not have albuminuria) showed no significant variation in TyG-Index ($p = 0.935$). Both groups showed significant longitudinal increases ($p < 0.001$). The Area Under the Curve (AUC) for TyG-Index was 0.506 at baseline, 0.830 in the first year, and 0.687 in the second year. The optimal cutoff value to predict albuminuria was 8.85.

Conclusions

The TyG-Index demonstrated significant longitudinal changes and differences in between the patients those who developed and did not develop albuminuria during the selected period. Highlighting the discriminatory power of TyG-Index to predict the development of albuminuria in type 2 diabetic patients.

Keywords

Triglyceride-Glucose Index, Type 2 Diabetes Mellitus, Albuminuria