

The Association of High Sensitive C-reactive Protein and Microalbuminuria with HbA1c Level among Type 2 Diabetes Patients in National Hospital of Sri Lanka

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Diabetic nephropathy is a long-term outcome of diabetes, which eventually leads to End-Stage Renal Disease. Inflammatory marker C-reactive protein may play a role as an indicator of low-grade inflammation in the development of diabetic nephropathy. The aim of this study was to evaluate the association between high-sensitive C - reactive protein (hs-CRP) and microalbuminuria with hemoglobin A1c (HbA1c) value among long-standing (≥ 5 years of 1st diagnosis) type 2 diabetes (T2DM) patients that have not yet been well reported in Sri Lanka. This descriptive cross-sectional study was conducted in the Diabetes and Endocrinology clinic at the National Hospital of Sri Lanka. Forty-nine T2DM subjects were enrolled in the study based on the HbA1c levels and investigator-administered questionnaire form. The hs-CRP, urine albumin, and urine creatinine were measured in all subjects, and the Albumin to creatinine ratio (ACR) was calculated. In an independent sample T-test, both urine microalbumin ($p < 0.05$) and hs-CRP ($p < 0.01$) were significantly associated with HbA1c level, while hs-CRP ($p < 0.05$) also showed a significant association with the onset of diabetes. The variance of hs-CRP was high in both the poor control HbA1c group and the long-standing T2DM group. The Pearson correlation showed a significant positive correlation between the hs-CRP and ACR ($p < 0.1$, $r = 0.246$). This study concludes that low-grade inflammation is associated with poor control among long-standing T2DM subjects. Further, the hs-CRP level may be a useful biomarker for identifying the risk of development of diabetic nephropathy along with ACR among well-established T2DM subjects with uncontrolled glycemic levels.

Keywords: *diabetes mellitus, albumin to creatinine ratio, high-sensitive CRP, HbA1c, diabetes nephropathy*