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Abstract

Background and aim: Diabetes mellitus is one of the major non-communicable and metabolic disorder recognized as chronic hyperglycemia associated with cardiovascular and renal complications if uncontrolled. Uric acid and HbA1c are used as an independent risk factor in diabetes. HbA1c is used for monitoring tool for measuring glycemic control in diabetic patients. It has shown that a 0.2% decrease of HbA1c level can lower the risk of CVD development by 10%. Serum uric acid is an indicator of glycol-metabolic disorder due to its relationship with the metabolism of glucose and have involved in atherosclerotic. Uric acid serves as an early indicator of renal complications in diabetes mellitus patients and cause a cardiovascular disease.

Similarly, various study demonstrated that baseline SUA/Cr ratio was independently and significantly associated with future renal function decline among diabetic patients. So this study is focused to find the correlation between glycated hemoglobin, Serum Uric acid to Creatinine ratio and estimated glomerular filtration rate (eGFR) among the diabetes patients to know the kidney. Methods: It is an observational, descriptive hospital-based, cross-sectional study. Patients with a diagnosis of diabetes were selected. This study designed to correlate Glycated hemoglobin (HbA1c), serum Uric acid to creatinine ratio (SUA: Sr Cr) with eGFR and its relationship with other biochemical parameters. The data were analyzed by SPSS version 20. Mean values of different variables, standard deviations and p-values were calculated. Results: The mean age in the study subjects was 54.16 ± 10.36 years predominated by age group of 41 – 50 years (35%). Similarly, the mean HbA1c was 9.73 ± 1.98 and were increased in 77.5% (HbA1c > 8%) and 22.5% had less than 8%. There was strong positive correlation between HbA1c with Fasting blood sugar ($r = 0.644$, $p = 0.000$) and Post prandial blood sugar ($r = 0.669$, $p = 0.000$). Mean serum uric acid: Serum Creatinine ratio (SUA/S. Cr) was 6.09 ± 1.71 and elevated among 49.1%. Mean blood urea and serum creatinine levels were 28.0 ± 10.72 and 1.01 ± 0.18 , respectively. There was a significant positive correlation between eGFR with HbA1c ($r = 0.223$, $p = 0.015$) and SUA /S. Cr ($r = 0.246$, $p = 0.007$) in this study. Conclusions: In this study, HbA1c and serum uric acid are significantly correlated with eGFR, thus can be considered as an independent risk factor. Similarly, SUA/S. Cr ratio was positively correlated with eGFR. Hence high HbA1c and SUA/S. Cr can be used as the predictor of early identification of kidney diseases in diabetes patient with preserved renal function.

Keywords: Creatinine, Glomerular Filtration Rate, glycated hemoglobin, Serum Uric Acid

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0021

Improving Glycemic Control in Patients With COVID-19 : A Quality Improvement Project

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Abstract

Background Diabetes has emerged as an important risk factor for severe illness and death from COVID-19. Reports have shown that diabetes is common among patients hospitalized in the United Kingdom with COVID-19 illness. Despite a preponderance of evidence that diabetes is associated with poor COVID-19 outcomes, there is a paucity of information on inpatient glycemic control

among patients with diabetes and acute hyperglycemia hospitalized with COVID-19. Aim This quality improvement project was conducted to evaluate the current practice of glycemic management in hospitalized COVID patients and improve the glycemic control in these patients. Method 2 PDSA cycles were conducted with inability to continue further due to reduction in incidence of disease. This involved data collection regarding glycemic control in COVID-19 patients with diabetes on wards, focusing on the referral to DSN (Diabetes Specialist Nurses) , monitoring of blood glucose levels, management in case blood glucose levels were out of range. Data was also collected about the characteristics of patients. Results First PDSA showed that although in most cases, there were timely referrals to DSN in many cases, the monitoring and management of glycemic excursions was suboptimal in all cases. Blood glucose monitoring was also variable. In the second PDSA cycle, awareness sessions were conducted around glycemic management among medical and nursing staff. A two page document based on local guidance and recommendations of Association of British Clinical Diabetologists was prepared, and posted in the ward. It was also discussed in the handovers for wards. Results are shown in attached graph.

Discussion In conclusion, awareness exercise and provision of guideline summary led to some improvement in glycemic control of these patients. Further PDSA cycles could not be done due to decrease in number of admissions. References 1. Docherty A, Harrison E, Green C, Hardwick H, Pius R, Norman L et al. Features of 20133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ*. 2020;:m1985. 2. Bode B, Garrett V, Messler J, McFarland R, Crowe J, Booth R et al. Glycemic Characteristics and Clinical Outcomes of COVID-19 Patients Hospitalized in the United States. *Journal of Diabetes Science and Technology*. 2020;14(4):813-821.

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0022

Circulating Endocan in Subjects with Obesity and Carbohydrate Disturbances

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Abstract

Objective: Endothelial-specific molecule 1 (endocan) is expressed by endothelial cells and may have a major role in the regulation of cell adhesion and in the pathogenesis of inflammatory disorders such as obesity and diabetes. Aim of this study is to evaluate endocan serum levels in patients with obesity and carbohydrate disturbances. Subjects and methods: The study group consisted of 163 patients with mean age 52.5 ± 11.3 years, divided in four groups - obesity without carbohydrate disturbances, prediabetes, diabetes and 42 healthy individuals as a control group. Endocan levels were determined using a commercially available human enzyme-linked immune sorbent assay (ELISA) kit. Results: The levels of endocan were significantly higher in patients with prediabetes and obesity compared to the control group (618.92 ± 874.29 ; 425.85 ± 391.76 ; vs. 321.02 ± 304.11 pg/ml, $p < 0.05$). Correlation analysis revealed that endocan correlates positively with triglyceride (TG) ($r = 0.219$; $p < 0.05$), gamma-glutamyl transferase (GGT) ($r = 0.225$; $p < 0.05$),