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EXPLORING THE RELATIONSHIP BETWEEN CYSTATIN C LEVELS AND GLYCATED HEMOGLOBIN IN DIABETIC NEPHROPATHY PATIENTS

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Introduction:
Diabetic nephropathy is a serious complication of diabetes mellitus, characterized by kidney damage due to prolonged high blood sugar levels. Monitoring kidney function is crucial in managing diabetic nephropathy, and cystatin C has emerged as a promising biomarker for assessing renal function. This study aimed to investigate the relationship between cystatin C levels and glycated hemoglobin in diabetic nephropathy patients, categorized based on their glomerular filtration rate (GFR) calculated using creatinine-cystatin C.

Methods:
Blood samples were collected from a control group (n=20) and diabetic nephropathy patients (n=120). Kidney functional activity was calculated using the GFR formula based on creatinine-cystatin C levels. Diabetic nephropathy patients were then divided into two groups, CKD C2 and CKD C3a, based on their GFR. The relationship between cystatin C levels and glycated hemoglobin was analyzed in both groups.

Results:
In the CKD C2 group, characterized by relatively preserved kidney function, the mean glycated hemoglobin level was 9.35 ± 2.6%, while cystatin C levels in blood were 1171.2 ± 119.4 pg/ml. Conversely, in the CKD C3a group, indicative of moderate kidney dysfunction, the mean glycated hemoglobin level was higher at 10.7 ± 1.9%, accompanied by elevated cystatin C levels of 1342.2 ± 169.02 pg/ml.

Discussion:

The findings of this study suggest a potential association between cystatin C levels, glycated hemoglobin, and renal function in diabetic nephropathy patients. Elevated cystatin C levels were observed in diabetic nephropathy patients with moderate kidney dysfunction (CKD C3a), along with higher glycated hemoglobin levels, indicating poorer glycemic control. This implies that deteriorating kidney function may contribute to poorer glucose regulation in diabetic nephropathy. Monitoring cystatin C levels alongside glycated hemoglobin could serve as an additional tool for assessing kidney function and glycemic control in diabetic nephropathy patients.

Conclusion:

In conclusion, this study highlights the relationship between cystatin C levels, glycated hemoglobin, and kidney function in diabetic nephropathy patients. Elevated cystatin C levels were associated with poorer renal function and higher glycated hemoglobin levels, indicating a potential link between kidney dysfunction and glycemic control. Incorporating cystatin C measurements into routine clinical assessments may aid in early detection and management of diabetic nephropathy. Further research is warranted to elucidate the underlying mechanisms and validate these findings in larger cohorts.