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Estimation of renal function in elderly diabetic patients

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Introduction & Aim: Kidney function loss in Type-2 Diabetic Patients (T2DM) translates into a high incidence of Chronic Kidney Disease (CKD) and susceptibility to ischemic or toxic renal insult. In clinical practice indirect methods are used to approximate GFR. The MDRD, Cockcroft-Gault (CG) and the CKD-EPI formulae are the most frequently used. The aim is to assess the accuracy and impact of formula-based for the estimation of renal function in elderly diabetic patients.

Method: A cross sectional study was carried out. The study included elderly patients with T2DM and serum creatinine over the normal range, who attended the outpatient nephrology clinic of our hospital within 2016. Diabetic Nephropathy (DN) was classified in 5 stages: stage-1(S1) : >90, stage-2 (S2): 60-89, stage-3 (S3): 30-59, stage-4 (S4): 15-29 and stage-5 (S5) : <15 ml/min/1.73 m². Renal function was estimated using MDRD, CG and CKD-EPI formula. Categorical data are presented as absolute and relative frequencies and using the Pearson r test.

Result: 125 patients were included (48% males, mean age 70±11 years). According to the CG equation, the percentage of patients who classified to the five stages was: 4% S1, 8% S2, 15% S3, 32% S4 and 41% S5. Using the MDRD and CKD-EPI formulae the percentage of patients did not differ in 5 stages and were 1.5%, 3%, 12%, 32% and 51.5% respectively. Comparison between CG, CKD-EPI and MDRD equations, revealed a higher percentage (10.6%) of patients to the stage-5 using either CKD-EPI or MDRD. At the same time CG revealed a higher percentage of patients at stage-1, 2 and 3 (3%, 4.6% and 3.1%, respectively). The correlation between CG and CKD-EPI and CG and MDRD was statistically significant (r=0.884, p=0.001 and r=0.854, p=0.001, respectively).

Conclusion: Our results show that CG equation overestimated the renal function of elderly diabetic patients in the first three stages of DN. On the other hand, CKD-EPI and MDRD seems to have a higher accuracy at estimates the renal function in T2DM elderly patients in different stages of DN and particular to the stage-5, when compared with the CG equation.

Biography

Eleni Chelioti is working as a Consultant Nephrologist in the Department of Nephrology of General Hospital of Piraeus Tzaneio in Athens, Greece. She has passion in improving the health and well-being in patients with chronic kidney disease.