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The effect of gadopentetate dimeglumine on renal function and early acute kidney injury markers

Ebru Gok Oguz[1], Refik Olmaz[1], Kenan Turgutalp[1], Onur Ozhan[2], Mehmet Ali Sungur[3], Mehmet Horoz[4] and Ahmet Kiykim[1]
[1]Department of Internal Medicine, Division of Nephrology, School of Medicine, Mersin University, Turkey
[2]Department of Internal Medicine, Division of Endocrinology and Metabolism, School of Medicine, Mersin University, Turkey
[3]Department of Bioistatistic, School of Medicine, Mersin University, Turkey
[4]Department of Internal Medicine, Division of Nephrology, School of Medicine, Harran University, Turkey

Background: Iodinated radiocontrast media frequently causes acute kidney injury (CIN) in high risk patients. Gadolinium chelates (GC) using in magnetic resonance imaging (MRI) have been considered as non-nephrotoxic contrast materials. But, in some recent articles it has been suggested that GC may have a nephrotoxic potential.

Aim: to investigate the effect of gadopentetate dimeglumine (GD) on traditional renal function tests (RFT) and early biomarkers of AKI in the low and high risk patients, and to determine the AKI's risk factors.

Patients and Method: Eighty patients were included the study. Patients are divided into two groups, according to their AKI's risk factor status (low risk vs high risk). Anthropometric measures and biochemical tests were recorded. Before MRI, traditional renal functional tests (serum creatinine, glomerular filtration rate, urine tests) were assessed. Early biomarkers for AKI (NAG, NGAL, Cystatin C) were also measured. The clinical and laboratory assessments including early biomarkers for AKI are retested at 6, 24 and 72 hours after the contrast (GD)-enhanced MRI.

Results: Baseline renal functional capacity was poor in high risk patients ($p<0.05$). After the MRI, we did not obtained significant change in traditional or early biomarkers for AKI in both groups ($p>0.05$). We observed no correlation between AKI and risk factor status in high risk patients ($p>0.05$).

Conclusion: The findings demonstrated that GD is not harmful for human kidneys in a short term. GD can be a preferred MR contrast media in high risk patients.

Serum levels of cancer biomarkers in patients with primary glomerular disease: A preliminary study

Kenan Turgutalp[1], Onur Ozhan[2], Mehmet Horoz[3], Ebru Gok Oguz[1], Alper Ata[4], Ali Arican[4], Burcu Boztepe[1] and Ahmet Kiykim[1]
[1]Division of Nephrology, Department of Internal Medicine, School of Medicine, Mersin University, Turkey
[2]Division of Endocrinology and Metabolism, Department of Internal Medicine, School of Medicine, Mersin University, Turkey
[3]Division of Nephrology, Department of Internal Medicine, School of Medicine, Sanliurfa University, Turkey
[4]Division of Medical Oncology, Department of Internal Medicine, School of Medicine, Mersin University, Turkey

Background: Cancer biomarkers (CB) can be used in early detection of several cancers as well as detection of recurrence and following response to treatment. We aimed to investigate the levels of CB levels in patients with primary glomerular disease (PGD), and to compare with healthy controls.

Patients and method: One hundred and two patients with untreated PGD and 84 healthy controls were enrolled. Levels of Cancer antigen 125 (CA125), Cancer antigen 15-3 (Ca15-3), carcinoembriogenic antigen (CEA), alpha-fetoprotein (AFP), total prostate specific antigen (TPSA), free prostate specific antigen (FPSA) and carbohydrate antigen 19-9 (Ca19-9) were measured.

Results: Compared to healthy controls, levels of CA 125, CA 15-3 and CA 19-9 were higher in patients with PGD (all $p<0.05$), while levels of TPSA, FPSA, AFP and CEA were lower ($p<0.05$). There was a significant positive correlation of CA15-3, CA19-9, and serum fibrinogen level with urinary protein excretion rate ($p=0.007$, $r=0.50$ and $p=0.004$, $p=0.025$, $r=0.34$, respectively). Neither urinary protein excretion rate nor serum albumin level were correlated with AFP, CEA, PSA, or FPSA (all $p>0.05$).

Conclusion: Serum levels of cancer biomarkers seem to be different in proteinuric patients than healthy controls. This condition should be kept in the mind when evaluating CB levels in proteinuric patients.