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Role of MRI corticomedullary differentiation in the assessment of renal post transplantation complications

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Objective: To observe MRI features about renal corticomedullary differentiation in the assessment of renal allograft complications during the post transplantation period.

Materials & Methods: 30 patients with post transplantation complications underwent MR T₁ weighted fat saturation (T₁ FS) and contrast enhanced gradient echo scan. The signal intensity of the cortex and medulla were measured on the coronal scans and the cortio-medullary contrast (CMC) was calculated.

Results: All the patients with acute rejection showed loss of the corticomedullary differentiation with a negative CMC% with a sensitivity of 75%, a specificity of 31% and a positive predictive value of 11% and a negative predictive value of 92%. One of the 2 cases with ATN showed a decreased CMD with a CMC% of 6% and the other one showed a negative CMC% of -3%, having a sensitivity of 100%, a specificity of 36%, a positive predictive value of 15% and a negative predictive value of 100%. The cases with cyclosporine nephrotoxicity showed a wide variability in their CMD, where 40% showed normal CMC% of >9%, 17% showed a decreased CMD ranging between 0-9% and 43% showed loss of CMD. The MR assessment by this modality showed a sensitivity of 63%, a specificity of 28% and a positive predictive value of 18% and a negative predictive value of 75% in detection of this type of medical complication. On the other hand, all patients with CAN showed decreased CMD ranging from 0-9% with a sensitivity of 100%, a specificity of 32%, a positive predictive value of 7% and a negative predictive value of 100%. There was a statistically significant decrease in the CMD seen in patients with chronic allograft rejection and those of the controls (p=0.02).

Conclusion: In conclusion, alteration in CMC is a sensitive but nonspecific indicator of renal disease.

Biography

Ahmed Abdel Samie Mahmoud has completed his Master's degree in Radiology from Cairo University and MD from Alazhar University School of Medicine. He is an Assistant Professor and Head of Radiology Department in Theodor Bilharz Research Institute, Cairo, Egypt. He has published 10 papers in reputed journals and has been serving as a Reviewer for the *Egyptian Journal of Radiology and Nuclear Medicine*.

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