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Abstract

MRI in Nephrology—Current clinical applications & future approaches

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Abstract:
Renal function is characterized by different physiologic aspects, including perfusion, glomerular filtration, interstitial diffusion and tissue oxygenation. MRI shows great promise in assessing these renal tissue characteristics noninvasively. Over the past decade, application of functional MRI extended beyond detection of cerebral activity, and techniques for abdominal functional MRI evolved. Assessment of renal perfusion, glomerular filtration, interstitial diffusion, and parenchymal oxygenation turned this modality into an essential research and potentially diagnostic tool. Variations in many renal physiologic markers can be detected using functional MRI before morphologic changes become evident in anatomic magnetic resonance images. Moreover, the framework of functional MRI opened a window of opportunity to develop novel pathophysiologic markers. In our discussion we will focus on the clinical applications of Renal Functional MRI Tools like DCE MRI, DWI MRI, BOLD MRI, ASL MRI, DTI MRI, MR Urography and MR Renal Angiography. The trajectory of functional renal imaging over the past decade and the growth in interest in this field promise a bright future ahead. Without question, research advances in this field will benefit substantial patient populations with high impact.

Biography:
Dr. Waseem Sajjad Graduated from King Edward Medical University, Lahore Pakistan and done MD Diagnostic Radiology training from KEMU affiliated Mayo Hospital, Lahore which is a 3000 bedded University Hospital. He has a special interest in Nephro-Radiology and novel clinical applications of MRI.

Publication of speakers:

- Agildere AM, Tarhan NC, Bozdagi G, Demirag A, Niron EA, Haberal M. Correlation of quantitative dynamic magnetic resonance imaging findings with pathology results in renal transplants: a preliminary report. Transplant Proc. 1999;31:3312–3316.

- Agmon Y, Brezis M. Effects of nonsteroidal anti-inflammatory drugs upon intrarenal blood flow: selective medullary hypoperfusion. Exp Nephrol. 1993;1:357–363.
- Agmon Y, Dinour D, Brezis M. Disparate effects of adenosine A1- and A2-receptor agonists on intrarenal blood flow. Am J Physiol Renal Fluid Electrolyte Physiol. 1993;265:F802–F806.
- Agmon Y, Peleg H, Greenfeld Z, Rosen S, Brezis M. Nitric oxide and prostanoids protect the renal outer medulla from radiocontrast toxicity in the rat. J Clin Invest. 1994;94:1069–1075.
- Ahmed M, Masaryk TJ. Imaging of acute stroke: state of the art. Semin Vasc Surg. 2004;17:181–205.
- Alford SK, Sadowski EA, Unal O, Polzin JA, Consigny DW, Korosec FR, Grist TM. Detection of acute renal ischemia in swine using blood oxygen level-dependent magnetic resonance imaging. J Magn Reson Imaging. 2005;22:347–353.
- Appelt S, Ben-Amar Baranga A, Erickson CJ, Romalis MV, Young AR, Happer W. Theory of spin-exchange optical pumping of 3He and 129Xe. Physiol Rev. 1998;58:1412–1439.
- Aumann S, Schoenberg SO, Just A, Briley-Saebo K, Bjornerud A, Bock M, Brix G. Quantification of renal perfusion using an intravascular contrast agent (part 1): results in a canine model. Magn Reson Med. 2003;49:276–287.

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