Using latest technology, MRI provides 'one-stop-shop' to evaluate potential liver donors

July 27 2017

Using the latest techniques, MRI can provide a "one-stop-shop" method for evaluation of potential living liver donors, according to an article published in the July 2017 issue of the *American Journal of Roentgenology (AJR)*.

"Conventional evaluation methods, such as selective catheter digital subtraction anglography, ERCP, and liver biopsy, are not only time-consuming but also are invasive and have limitations," said the article's lead author, Dr. Kartik S. Jhaveri, of the Joint Department of Medical Imaging at the University of Toronto.

Titled "Current State-of-the-Art MRI for Comprehensive Evaluation of Potential Living Liver Donors," the review examines the role of updated MRI-based techniques for comprehensive evaluation of living liver donors. "With the introduction of cross-sectional imaging techniques, CT and MRI have largely replaced the conventional invasive methods from the preoperative evaluation of donor candidates," the review stated.

MRI is devoid of ionizing radiation, and gadolinium-based contrast agents are generally safe with rare allergic reactions, according to Jhaveri. With recent developments in contrast agents and pulse sequences, some state-of-the-art techniques greatly improve the MR image quality by overcoming the time and spatial resolution limitations and have been used for noninvasive evaluation of hepatic steatosis and vascular and biliary anatomy.

The review reports that liver transplantation is the most effective treatment for many patients with end-stage liver disease and irreversible hepatic failure resulting from a variety of causes, including hepatocellular carcinoma. The increasing demands have resulted in a relative shortage of cadaveric organs.

"Since the first adult-to-adult transplantation of a right liver lobe reported in 1994, the number of living-donor liver transplants has increased dramatically with good results," Jhaveri said, "similar to those of cadaver liver transplantation. To guide safe harvesting of the graft from donors, an accurate preoperative evaluation of potential living liver donors for conditions that increase the donor's surgical risk is crucial."

More information: Kartik S. Jhaveri et al. Current State-of-the-Art MRI for Comprehensive Evaluation of Potential Living Liver Donors, *American Journal of Roentgenology* (2017). DOI: 10.2214/AJR.16.17741

Provided by American Roentgen Ray Society