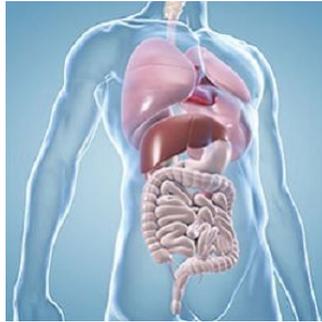# New MRI Technique for Classifying Liver Tumours

Researchers at MedUni Vienna have used a new magnetic resonance imaging (MRI) technique to classify adenomas — rare liver tumours — without subjecting patients to invasive tissue sampling procedures. This type of tumour, the researchers say, can now be clearly classified by means of a liver-specific MR contrast agent called gadoxetic acid.

Although adenomas of the liver are relatively rare, they can develop in different ways. Hence there are three subtypes (benign, inflammatory, pre-malignant) and a fourth unclassifiable subgroup with different clinical courses and potential progression. Hitherto patients have had to undergo biopsy to take tissue samples for histological examination in order to determine whether a hepatocellular adenoma is benign or potentially malignant.

With the new MRI technique, it is now possible to determine which group a particular adenoma belongs to, according to the MedUni Vienna research published in the journal *Radiology*.

The liver-specific contrast agent, gadoxetic acid, targets the bile transporters OATP (organic anion-transporting polypeptide) and MRP (multidrug resistance-related protein) in adenoma cells and normal liver cells. These cells will either absorb the agent or re-excrete it. The tumours can then be classified on the basis of the relative proportion of these surface transporters as compared to normal liver cells, as shown in the MR image.

"This new investigation technique enables us to evaluate the nature of an adenoma without the need for invasive sampling, and that is less stressful for patients," explains the study's lead author Dr. Ahmed Ba-Ssalamah of the MedUni Vienna Department of Radiology and Nuclear Medicine at Vienna General Hospital. "Moreover, this method opens up new avenues, in terms of research, so that we can gain a better understanding of the biology of adenomas and other liver tumours."

The study was conducted by Dr. Ba-Ssalamah, Head of the Abdomen Working Group at the University Department of Radiology and Nuclear Medicine, in collaboration with the Clinical Department of Gastroenterology and Hepatology and MedUni Vienna's Clinical Institute of Pathology. Coimbra University Hospital (Portugal) also provided patient data for the study.

MedUni Vienna has five research clusters that focus on fundamental and clinical research. These research clusters include medical imaging, cardiovascular medicine, cancer research/oncology, medical neurosciences and immunology. Dr. Ba-Ssalamah's study falls within the remit of the medical imaging cluster.

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Published on : Thu, 18 Jun 2015