
Abstract 13:7-1

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Siemens presenterar -

Clinical experiences from syngoZOOMit

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Over the last years, diffusion-weighted imaging (DWI) has developed to a powerful, widespread used, clinical magnetic-resonance-imaging (MRI) tool for several indications beyond traditional fields as neuro-imaging. These new indications comprise - among others - the large field of oncology (whole-body) and abdominal imaging. A large number of studies were published dealing with the advantages of DWI e.g. to differentiate benign and malignant tumors.

A widely used technical approach is based on fast echo-planar imaging (EPI). The method consists of a single excitation and continuous acquisition in the form of a gradient echo train. Nevertheless, the EPI technique shows some remarkable limitations evoked by inherent problems, such as chemical shift and susceptibility differences resulting in ghosting artifacts or geometric distortions and signal losses. These limitations can hamper the image quality, diagnostic confidence and restrict the spatial resolution. Anatomical regions, where these problems can exemplarily be found, are head and neck, the upper abdomen at 3.0T or the prostate.

The latest generation of clinical MR scanner offers the opportunity of parallel radiofrequency (RF) transmission, which can be used to customize RF pulses due to a spatial dependent RF coil field. Applying two-dimensional spatial-selective RF excitation pulses for single-shot EPI combined with reduced field-of-view (FOV) can overcome some above-mentioned limitations of EPI-DWI. The commercially available technique is called ZOOMit.

This presentation will provide an overview of the ZOOMit approach and show various clinical examples showing the advantages of this new technique, taking especially into account the problematic anatomical regions.