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His work on abdominal imaging and image-guided tumor ablation is of international renown. He is a co-applicant in a number of successful grant proposals in support of this research. He is a key opinion leader in gastrointestinal Radiology and body MR imaging.

Prof. Lee is scientifically very productive with currently 290 full scientific articles, over 500 research abstracts and chapters in numerous textbooks. He has co-edited the book "Radiology Illustrated: Hepatobiliary and Pancreatic Radiology" (Springer, Heidelberg) published in 2013.

Dear MAGNETOM Flash reader,

It is truly an honor and privilege for me to write this editorial for the 2014 RSNA edition of MAGNETOM Flash. The year will culminate with the 100th annual meeting of the RSNA on the theme of "A century of transforming medicine".

Indeed, diagnostic imaging has played an increasingly important role in the detection and diagnosis of diseases, staging of malignancies, and selection of appropriate treatment, transforming the way we approach medicine today. Among the diverse imaging modalities we have at our disposal, MRI has remained a cornerstone of neurologic, musculoskeletal, oncologic, and cardiovascular imaging owing to its inherent high soft tissue contrast. In fact, in recent years, body MR imaging has become one of the largest growth areas in radiology. Yet, compared with MDCT which has been shown to produce consistent image quality within a short examination time, body MR had demonstrated weaknesses in terms of inconsistency and a long examination time, particularly in patients who were obese or had limited breath-holding capacity. With recent technological advances in the MR system allowing enhanced imaged quality with faster acquisition times as well as multiparameteric capability, however, body MRI is now able to be performed in a fast, efficient, and comprehensive way, providing consistently high quality images and demonstrating disease processes effectively. Thus, although body MR is currently most often used for the purposes of "problem solving", there is a growing acceptance of MR as the primary imaging modality for liver, biliary and pancreas diseases. In addition, with the use of rapid imaging techniques and parallel imaging using high channel coils, the scanner time for body MR has been reduced so significantly that routine exam times are completed usually within 30 minutes. Furthermore, the exceptional contrast resolution and ability of MR to provide comprehensive information of abdominal organs and various diseases has allowed more definitive diagnoses, and the lack of radiation has motivated physicians and patients alike to consider MR over CT scans for follow-up exams, particularly in younger patients.

This is the current state and promising future of MR that we radiologists are forging today.

In this issue, detailing their experience on the National Jewish Health using thorax MRI, Chung et al. will show that proton MRI can be a viable means to image the chest including the lungs and pleura. This may be especially pertinent to patients with long life expectancies who may require frequent follow-up imaging of chronic lung diseases and infections [page 8].

Furthermore in this issue, Tobias Block et al. will show that radial scanning techniques, such as the Radial VIBE or StarVIBE sequence can be used to image the abdomen during free breathing, and that GRASP* can provide continuous data acquisition during free-breathing with consistently high quality volumetric T1-weighted image sets in the body [page 18]. Therefore, this approach may make abdominal dynamic contrast-enhanced MRI more accessible to patients who are unable hold their breath or for non-cooperative patients. In addition, owing to the use of the golden-angle scheme, the temporal resolution and desired image time points can be selected retrospectively, enabling reconstructing of both morphologic and perfusion imaging information from the same examination. They will also show that this technique can be utilized as a

robust imaging technique for bowel imaging and for the pediatric** population.

We will also read that the multi-parameteric capability of MRI may be valuable for not only neurologic or oncologic applications but also for musculoskeletal applications. In this issue, Muller-Lutz et al. will demonstrate that gagCEST* imaging can be a promising tool enabling non-invasive measurement of glycosaminoglycans *in vivo* [page 30]. In their study, they found that a decreased gagCEST effect was observed to be correlated with the degeneration of IVDs and disc herniation. Therefore, spine MRI may provide information on not only morphologic changes of intervertebral discs but also the compositional changes of the discs.

Moreover, regarding cardiovascular MR examinations, new approaches will be shown that may improve the efficiency as well as the safety of MRI. In this issue, there are three articles regarding non-enhanced MR angiography in the pediatric** population or in patients with peripheral arterial disease, using either the NATIVE TrueFISP [page 60] or QISS pulse sequence [page 66 and 74]. It was demonstrated that non-enhanced MR angiograph techniques can provide a robust, rapid, and easy-to-use technique for the imaging of renal or peripheral arteries. Given that many patients with peripheral arterial diseases suffer from renal dysfunction and are at risk of contrast-induced nephropathy or nephrogenic systemic fibrosis, these robust MRA techniques could provide additional value in terms of safety in these populations compared to both CT angiography and contrast-enhanced MRA. Furthermore, Pueyo et al. will show that the Cardiac Dot Engine can introduce patient benefit by allowing systematically reproducible and efficient studies which can consistently reduce the examination time [page 80].

Finally, Ingo Zenger and Antje Hellwich will review the success story of MRI at Siemens during the last 30 years, and detail the many innovations from Siemens that have changed the world [page 90].

In order to gain wide acceptance as a first-line diagnostic modality, MRI must be performed in a fast, efficient manner, and provide high quality images consistently while demonstrating disease processes in a comprehensive fashion including both morphological and functional information. I strongly believe that free breathing, radial gradient techniques with compressed sensing can consistently produce high quality post-contrast T1-weighted images, with suppression of motion artifacts, providing key morphologic information for the diagnosis of various disease entities. In addition, perfusion images which can be obtained additionally from the same dataset through GRASP reconstruction with variable temporal resolution may also show specific physiologic processes in normal and pathologic lesions in a quantitative way. Indeed, the future is bright.

I would like to thank the world-class, talented contributors to this issue for their outstanding and timely contributions and I am very confident that the readers will find this issue to be informative and relevant to daily clinical practice as I did.

Jeong Min Lee

* WIP, the product is currently under development and is not for sale in the US and in other countries. Its future availability cannot be ensured.

** MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefit of the MRI examination in comparison to other imaging procedures.