

Editorial Comment on: Combined Magnetic Resonance Imaging and Magnetic Resonance Spectroscopy Imaging in the Diagnosis of Prostate Cancer: A Systematic Review and Meta-analysis

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Magnetic resonance imaging (MRI) has been evaluated as a diagnostic procedure for the detection, localization, and staging of prostate cancer due to the technique's high-resolution imaging of soft tissue. The meta-analysis by Engelbrecht et al [1] of MRI in prostate cancer staging (T2 vs T3) with a summary receiver operating characteristic (ROC) curve with a joint maximum sensitivity and specificity of 71% was the first goal-oriented attempt to determine the diagnostic properties of MRI.

Both MRI and magnetic resonance spectroscopy imaging (MRSI) have shown promise for improving the detection and characterization of prostate cancer; however, the exact role of combined MRI/MRSI in the management of prostate cancer patients remains to be established. Thus, the aim of the present manuscript by Umbehr et al [2] was the systematic review of the diagnostic accuracy of combined MRI/MRSI in prostate cancer. The authors included a total of 16 studies with rather heterogeneous study protocols and study populations.

Even though Umbehr et al [2] found little evidence indicating a potential role for this technique for prostate cancer detection, the meta-analysis revealed a pooled mean sensitivity of 68% in men with confirmed cancer and specificity of 85%, while the pooled sensitivity and specificity with suspected prostate cancer was 82% and 88%, respectively. The risk of clinically relevant cancer could be determined with a

sensitivity of 75% and a specificity of 91% in low-risk patients. Due to the fact that a substantial number of patients with prostate cancer are still being overtreated by definitive cancer therapy, active surveillance (AS) has been proposed as an alternative strategy with excellent long-term results, entailing regular prostate-specific antigen (PSA) testing, serial digital rectal examination (DRE), and periodic repeat prostate biopsy. Based on the high pooled mean specificity rates of combined MRI/MRSI, functional MRI techniques may be incorporated in AS programs to reduce rebiopsies and sampling errors. Additionally, higher field strengths will lead to better spatial resolution, and other combinations of existing functional magnetic resonance techniques such as diffusion weighted imaging and dynamic contrast-enhanced MRI may provide additional information on tumor grade and aggressiveness [3].

Despite all existing limitations, ongoing advances in imaging modalities may offer the potential to equal the gold standard of pathologic evaluation in the future diagnosis of prostate cancer.

References

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