Re: Can Clinically Significant Prostate Cancer Be Detected with Multiparametric Magnetic Resonance Imaging? A Systematic Review of the Literature


Experts’ summary:
In this systematic review, the authors evaluated the diagnostic accuracy of multiparametric magnetic resonance imaging (mp-MRI) for detection of clinically significant prostate cancer (cs-PcAs). The studies included in the review were heterogeneous in terms of MRI protocols, MRI target lesion reporting, the definitions used for cs-PcAs, and the availability of radical prostatectomy specimens. The authors concluded that mp-MRI had a diagnostic accuracy of 44–87% for cs-PcA detection, with a negative predictive value of 63–98%. These encouraging results have clinical implications in terms of routine use of MRI targets for guided biopsies and avoidance of unwanted biopsies in patients without abnormalities on MRI.

Experts’ comments:
Over the past decade, substantial progress in mp-MRI technology has resulted in excellent PCA localization. There is continuous robust research to improve existing techniques and MRI reporting. Sadly, the enthusiasm and investment focused on developing ultrasound (US) as a multiparametric technology are minimal. An important concern is whether we are ignoring the advantages of a basic tool over the glamour of advanced technology. Postema et al [1] recently published a systematic review of the limited literature available on mp-US. They found that addition of a lower-performing modality (combination of elastography/contrast-enhanced US [CEUS]/power Doppler) to conventional transrectal US (TRUS) biopsy via even crude methods improved TRUS sensitivity by 13–51%. In an unpublished study presented at the 2015 European Association of Urology congress, Wijkerstra et al compared mp-MRI- and CEUS-detected lesions with the final histopathology for radical prostatectomy specimens. They concluded that mp-MRI had a diagnostic accuracy of 44–87% for cs-PcA detection, with a negative predictive value of 63–98%. These encouraging results have clinical implications in terms of routine use of MRI targets for guided biopsies and avoidance of unwanted biopsies in patients without abnormalities on MRI.

Advances in mp-US techniques would have several specific advantages. First, US is widely available, cost-effective, simple, and less time-consuming compared to mp-MRI. Second, urologists in most worldwide centers perform TRUS, and addition of multiparametric adjuncts to TRUS could be easily accessed and interpreted by treating physicians. These advantages would have a significant impact given the increasing incidence of PCA diagnoses, and could potentially eliminate tedious procedures and reduce costs and MRI waiting times, even in several developed countries. Third, TRUS images are more dynamic and real time compared to static MRI images. Technically, introduction of a multiparametric component to TRUS would provide dynamic images with real-time guidance for biopsy, which is performed separately in the case of MRI. Fourth, in spite of its high negative predictive value, several studies have shown that mp-MRI is liable to miss clinically significant high-grade prostate cancer [3]. In patients who underwent combined systematic/MRI-targeted biopsies, high-grade cancers were detected in systematic cores located at some distance from the target areas [4]. It will be very interesting to verify the mp-US imaging characteristics of these MRI-invisible cancers and assess the impact on diagnostic protocols. Fifth, confirmation of the feasibility of mp-US and mp-MRI fusion will be a significant step forward in prostate imaging [5]. This approach may not be appropriate for every patient for whom PCA is suspected, but it could represent an effective tool in downstream management of patients with equivocal findings or multiple prior negative biopsies. Sixth, with the evolving trend towards focal therapy, technical advances in mp-US can provide real-time monitoring and eventually verify the effectiveness of therapy.

It is high time that we focus on improving the technology already in the hands of urologists and direct our research towards perfecting mp-US as an effective tool. mp-MRI is an excellent technology and it is possible that mp-US could establish a symbiotic co-existence in the armamentarium of prostate cancer imaging.

Conflicts of interests: The authors have nothing to disclose.

References

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http://dx.doi.org/10.1016/j.euro.2015.06.033

Re: Effectiveness of Primary Androgen-Deprivation Therapy for Clinically Localized Prostate Cancer
Potosky AL, Haque R, Cassidy-Bushrow AE, et al

J Clin Oncol 2014;32:1324–30

Experts’ summary:
In this retrospective cohort study from three integrated health care systems composed of 15 170 men diagnosed with localized prostate cancer between 1995 and 2008 who were not treated with curative intent, the authors found that primary