

MP-MRI could improve the diagnosis of prostate cancer

AUTHOR
Dr Jonathan Rees
MD MRCS MRCGP
GPwSI Urology, Bristol

MULTI-PARAMETRIC MAGNETIC RESONANCE IMAGING (MP-MRI) COULD PLAY AN IMPORTANT role in triaging men with a raised PSA for prostate biopsy and improve the detection of clinically significant prostate cancer, findings from a UK study suggest.¹

In most solid organ cancers imaging is used to identify the patients who require a biopsy. Prostate cancer is an exception, the orthodox pathway has been a PSA test, and where this is sufficiently concerning, a transrectal ultrasound (TRUS) guided biopsy. The ultrasound in this procedure is used to guide the biopsy. A standard 12-biopsy procedure is carried out in all patients, sampling all areas of the gland that can be accessed by this posterior approach.

For some time, urologists have felt that MP-MRI may have a role as an intermediate step on this pathway. For those men identified as being at low risk, using the combination of PSA and imaging, a biopsy may be avoided, as well as potential adverse effects of biopsy such as pain, bleeding, and most importantly, sepsis.

The PROMIS study was a prospective, multicentre, paired-cohort confirmatory study, to examine the role of MP-MRI in men with a clinical suspicion of prostate cancer, with no previous prostate biopsy.

The study compared the diagnostic accuracy of MP-MRI and TRUS biopsy against template prostate mapping (TPM) biopsy as the reference standard.

Men with a PSA up to 15 ng/ml, with no previous biopsy, underwent MP-MRI followed by both TRUS biopsy and TPM biopsy.

A clinically significant cancer was defined as one with a Gleason grade of 4+3 or greater or maximum cancer core length of 6 mm or more.

A total of 740 men were enrolled in the study and 576 underwent all three tests. Using the gold standard TPM biopsy, 408 (71%) of these 576 men had prostate cancer, with 230 out of 576 (40%) having clinically significant disease.

MP-MRI was found to be more sensitive than TRUS biopsy (sensitivity 93% vs 48%) for clinically significant prostate cancer, with a negative predictive

value of 89% vs 74%. However, MP-MRI was less specific when compared with TRUS biopsy (41% vs 96%) and had a lower positive predictive value (51% vs 90%). A total of 158 men (27%) had a negative MRI, of whom 17 were found to have clinically significant cancer on TPM biopsy. All 17 however had low-grade disease, but were determined as clinically significant on the basis of core length.

The authors conclude that using MP-MRI in the diagnostic pathway would result in up to a quarter of patients avoiding a biopsy who would previously have had this procedure. Furthermore, if TRUS biopsies were carried out based on MP-MRI findings, up to 18% more clinically significant cancers could be detected compared with the standard pathway without imaging prior to biopsy.

It is hoped that by adding this imaging technique to the investigation of men with suspected prostate cancer the number of men requiring a biopsy would fall, and the diagnosis of clinically

significant cancers would increase.

'Cost-effectiveness analyses of the PROMIS data are underway and will be reported elsewhere, but the primary outcome data provide a strong argument for recommending MP-MRI to all men with an elevated serum PSA before biopsy,' say the study authors.

They conclude: 'Using MP-MRI as a triage test would reduce the problem of unnecessary biopsies in men who have a low risk of harbouring clinically significant cancer, reduce the diagnosis of clinically insignificant disease and improve the detection of clinically significant cancers.'

REFERENCE

¹ Ahmed H, El-Shater Bosaily A, Gabe R et al. Diagnostic accuracy of multi-parametric MRI and TRUS biopsy in prostate cancer (PROMIS): a paired validating confirmatory study. *Lancet* published online January 19 2017. [http://dx.doi.org/10.1016/S0140-6736\(16\)32401-1](http://dx.doi.org/10.1016/S0140-6736(16)32401-1)

'Using MP-MRI as a triage test would improve the detection of clinically significant cancers'

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