PROSTATE CANCER

MRI reduces low-risk prostate cancer diagnosis and biopsy

An MRI-based biopsy protocol—involving noninvasive screening by 3T MRI, followed by selective magnetic resonance-guided biopsy (MRGB) of any identified equivocal or suspicious prostatic lesions—has been shown to reduce the diagnosis of low-risk prostate cancer compared with the current diagnostic standard, transrectal ultrasonography-guided biopsy (TRUSGB).

“...almost eliminates the diagnosis of low-risk cancer”

In recent years, use of multiparametric (mp) MRI has improved image-based diagnosis of solid organ tumours, but until now it has not been definitively compared with TRUSGB in the same men for detection of prostate cancer. In a study led by Leslie Thompson of The Wesley Hospital in Brisbane, Australia, 223 consecutive biopsy-naïve men with elevated PSA and/or abnormal digital rectal examination results were examined using both mpMRI and TRUSGB.

A diagnosis of prostate cancer was made in 126 of the 223 men by TRUSGB, including 47 diagnoses of low-risk cancers. By contrast, 142 men with lesions indicative of intermediate-risk or high-risk disease on mpMRI (scored independently by three readers) underwent MRGB, reducing the need for biopsy by 51%. Prostate cancer was detected in 99 of these men, including only six low-risk cases, a decrease of 89.4% compared with TRUSGB. The MRI-based protocol “almost eliminates the diagnosis of low-risk cancer,” says Thompson, which “relieves a huge psychological, investigative, and treatment burden on men who have been told they have ‘insignificant’ cancer.”

The MRI protocol increased diagnosis of intermediate-risk or high-risk prostate cancer by 17.7%, with 79 diagnoses by TRUSGB and 93 by MRGB. mpMRI with MRGB detected cancers of intermediate or high risk in 29 men that were missed or classified as low risk by TRUSGB. By contrast, 15 cancers designated

intermediate or high risk by TRUSGB were either not suggested by mpMRI, or were missed on MRGB. Thompson acknowledges that the MRI methodology is not perfect, but he believes that it can be further improved. “The key to success will be education and quality control,” he adds. “Urologists will have to learn about MRI, and learn how to recognize what good image quality is, and insist on this good image quality from their radiologists.”

The ability to specifically diagnose high-risk prostate cancer in men with elevated PSA could improve the value of PSA screening by preventing unnecessary biopsies and treatments in men with low-risk disease. The results suggest that MRI can help to achieve this important aim.

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Original article Pokorny, M. R. *et al.* Prospective study of diagnostic accuracy comparing prostate cancer detection by transrectal ultrasound-guided biopsy versus magnetic resonance (MR) imaging with subsequent MR-guided biopsy in men without previous prostate biopsies. *Eur. Urol.* doi:10.1016/j.eururo.2014.03.002