Nature Reviews Urology **11**, 5 (2014); published online 3 December 2013; doi:10.1038/nrurol.2013.285

PROSTATE CANCER

Visual estimation versus software fusion for MRI-targeted biopsy

Although the use of MRI–ultrasonography fusion is more histologically informative than visual estimation for MRI-targeted biopsy, a recent prospective blinded study published in *European Urology* has shown that rates of cancer detection are similar for the two approaches.

In-gantry prostate biopsy of MRI-suspicious regions using real-time magnetic resonance guidance is the gold standard approach to targeted biopsy, but this technique is only available at a few centres and is limited by several challenges, including a steep learning curve. In its place, investigators use either visual estimation (whereby the surgeon samples a visually estimated area on ultrasonography that corresponds to the suspicious region on MRI) or software fusion of prebiopsy MRI scans with real-time ultrasonography images.

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In this latest study of 145 men (with 172 MRI targets), two MRI–ultrasonography-fusion-targeted cores per target were sampled by a single operator, before a second operator took samples from two visually targeted cores per target and a standard 12-core biopsy. Fusion biopsy detected 55 cancers in total (including 35 Gleason sum ≥7 cancers) compared with 46 cancers (including 26 Gleason sum ≥7 cancers) using visual estimation.

This difference was not statistically significant, but Wysock *et al.* observed a trend towards increased detection with fusion biopsy for all study subsets (particularly for men with smaller lesions), suggesting that larger studies are needed before a benefit of MRI–ultrasonography fusion targeted biopsy can be ruled out. Furthermore, fusion biopsy provided nonbenign histological information for 77 targets compared with 60 targets using visual targeting, highlighting a clear advantage of using this technique.

Although the cancer detection rate was greater with standard biopsy than with targeted biopsy, the latter identified all cancers with Gleason sum ≥7. Overall, more cancer was found on a per-lesion and per-core basis with targeted biopsy; until more data are available, the authors recommend targeted biopsy with software fusion for men with smaller tumours.

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Original article Wysock, J. S. *et al.* A prospective, blinded comparison of magnetic resonance (MR) imaging–ultrasound fusion and visual estimation in the performance of MR-targeted prostate biopsy: the PROFUS trial. *Eur. Urol.* doi:10.1016/j.eururo.2013.10.048