Prostate cancer diagnosis: Pushing boundaries while understanding the limitations of current technologies

Nathan Perlis

Department of Surgery, University of Toronto; Division of Urology, University Health Network, Princess Margaret Cancer Centre, Toronto, ON, Canada

Cite as: Perlis N. Prostate cancer diagnosis: Pushing boundaries while understanding the limitations of current technologies. *Can Urol Assoc J* 2022;16(12):423. http://dx.doi.org/10.5489/cuaj.8179

See related article on page 418

It is challenging to integrate a new technology into already-established workflow, and even harder to establish evidence to support its adoption. I applaud Becher et al for designing and executing a prospective cohort to answer the question of whether repeat magnetic resonance imaging (MRI) ± biopsy is worthwhile for men with Prostate Imaging-Reporting and Data System (PI-RADS) 4 or 5 on baseline MRI and non-clinically significant prostate cancer (csPCa) on initial targeted biopsy.[1]

The study accrued 36 consecutive men in that clinical scenario, and each underwent repeat MRI with targeted biopsy for ≥PI-RADS 3. Eight men (40%) had csPCa (>Gleason grade group 1 PCa) on the repeat biopsy, all of whom went on to receive treatment with either cryoablation or radical prostatectomy. Of variables tested, only prostate-specific antigen (PSA) >10 predicted for csPCa.

The authors conclude that all men with PI-RADS 4 or 5 lesions and non-csPCa at baseline should undergo repeat MRI and targeted biopsy with ipsilateral systematic biopsy for persistent lesions. This is a reasonable approach for seeking csPCa in this population. Biopsy can undergrade targets for several reasons (e.g., misregistration, tumor heterogeneity, radiological and pathological inter-reader variability) and it is important to establish the true diagnosis.

While this is a thoughtful approach, it is not currently used in our practice, and the resources required to repeat an MRI and biopsy for these men might prohibit adoption of this protocol.

If the authors are correct that sampling error is the most likely source of the Gleason grade disagreement between biopsies, perhaps there are ways to decrease the sampling error at the time of the first biopsy? One suggestion would be to carry out additional perilesional biopsies.[2] A recent publication suggests that biopsies within the penumbra of the MRI lesion are useful for detecting csPCa and that the biopsy should be carried out further from the regions of interest for lower PI-RADS lesions.

That being said, one benefit of repeat biopsy in these men is that if focal therapy is being considered, two sets of normal systematic biopsies give additional reassurance that no clinically significant disease exists beyond the target lesion.

Regardless of resources available for repeat MRI and biopsy, it is important to appreciate that a single targeted biopsy session does not always provide the full truth. This manuscript is a reminder for us to be vigilant with prostate cancer diagnosis and understand the limitations of the technologies we have adopted.

Competing interests: The author does not report any competing personal or financial interests related to this work.

References

1. Becher E, Wysock JS, Taneja SS, et al. A prospective study of cancer detection rates following early repeat imaging and biopsy of PI-RADS 4 and 5 regions of interest exhibiting no clinically significant prostate cancer on prior biopsy. *Can Urol Assoc J* 2022;16(12):418-22. http://dx.doi.org/10.5489/cuaj.7843
2. Brisbane WG, Priester AM, Ballon J, et al. Targeted prostate biopsy: Umbra, penumbra, and value of perilesional sampling. *Eur Urol* 2022;82:303-10. https://doi.org/10.1016/j.eururo.2022.01.008

Correspondence: Dr. Nathan Perlis, Department of Surgery, University of Toronto; Division of Urology, University Health Network, Princess Margaret Cancer Centre, Toronto, ON, Canada; Nathan.Perlis@uhn.ca