IRIS AperTO

UNIVERSITÀ DEGLI STUDI DI TORINO

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This is the author's manuscript

Original Citation:

Availability:

This version is available http://hdl.handle.net/2318/1670409 since 2018-07-05T17:53:53Z

Published version:

DOI:10.23736/S0393-2249.17.02993-9

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12 October 2024

IRIS AperTO

UNIVERSITÀ DEGLI STUDI DI TORINO

This is the author's final version of the contribution published as:

Multiparametric prostate MRI for prostate cancer diagnosis: is this the beginning of a new era?

Manfredi M, DE Luca S, Fiori C.

Minerva Urol Nefrol. 2017 Dec;69(6):628-629.
doi: 10.23736/S0393-2249.17.02993-9.

The publisher's version is available at:
[https://www.minervamedica.it/en/journals/minerva-urologica-nefrologica/article.php?cod=R19Y2017N06A0628]

When citing, please refer to the published version.

Link to this full text:

[http://hdl.handle.net/hdl:2318/1670409]

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Multiparametric prostate MRI for prostate cancer diagnosis: is this the beginning of a new era?

Matteo MANFREDI *, Stefano DE LUCA, Cristian FIORI

Department of Oncology, University of Turin, San Luigi Hospital, Orbassano, Turin, Italy

Dear Editor, Castellucci et al.1 report on the prospective comparison of multiparametric prostate magnetic resonance imaging (mp-MRI) cognitive targeted biopsies versus standard randomized transrectal ultrasound-guided biopsies (TRUSGB) in the diagnosis of prostate cancer (PCa) in 168 biopsy-naïve patients. Patients with elevated PSA levels and/or abnormal digital rectal examination were included, and all patients underwent mp-MRI prior to TRUSGB and cognitive 2-cores targeted biopsy, if needed. The authors showed that the overall cancer detection rate was 35.7%, 28.6% and 41.1% in TRUSGB, cognitive biopsy and combination (TRUSGB + cognitive) technique respectively, whilst the clinical significant cancer detection rate (based on biopsy Gleason score only) was 55%, 62.5% and 59.4% respectively, with a higher sensitivity, specificity, positive, and negative predictive value compared to the standard approach. The authors concluded that the mp-MRI cognitive targeted approach in naïve patients detected a higher number of intermediate and high-risk PCas compared to the standard approach. This study is not without limitations, but it has the value of highlighting the use of mp-MRI as a triage test in patients suspected of having PCa. Indeed, while the role of mp-MRI and target biopsies is now consolidated in re-biopsy scenarios,2 its exact role in biopsynaïve patients is still being discussed. The actual PCa diagnostic scenario is represented by an existing test, the standard untargeted 12-cores TRUSGB. The advent of mp-MRI has changed the approach to prostate biopsy, allowing clinicians to direct biopsies to suspected lesions rather than performing them randomly. mp-MRI , followed by target biopsy if needed, could add-on or replace the existing test. In the study of Castellucci et al., and in most studies conducted to determine the diagnostic value of target biopsy, patients underwent cognitive 2-cores targeted biopsy combined with TRUSGB in the same session, representing an add-on to the existing standard test in the detection rate of significant PCa. Another approach to the problem is to evaluate the role of mp-MRI as an initial test which will replace the existing standard diagnostic process. Porpiglia et al. recently published a randomized controlled trial comparing PCa detection rates between a new diagnostic pathway, based on mp-MRI and, in case of suspected lesions, subsequent MRI/TRUS fusion software-guided target biopsy alone, with the standard pathway in biopsy-naïve men with PSA levels ≤15 ng/mL, and negative digital rectal examination.3 They reported higher detection rates for the mp-MRI pathway in terms of overall and clinically significant PCas, concluding that mpMRI could be considered prior to a first prostate biopsy. In our opinion, the use of mp-MRI and target biopsies as a first-line test will become the standard of care in biopsy-naïve men if it replicates the results of target biopsies in re-biopsy scenarios, outperforming the standard biopsy to: 1) detect clinically significant PCas and not detect clinically insignificant PCa; 2) detect PCa with fewer number of cores; 3) improve the quality of samples, both in core length and in Gleason grading.4 Moreover, the use of mp-MRI and target biopsies early in the pathway of PCa diagnosis could improve the selection of candidates for active surveillance 5 or minimally invasive treatments such as focal therapy.6 This, together with a better localization and

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monitoring of the disease process over time, could increase the enrollment of patients and the safety of these treatments. Further evidence will be acquired in the near future when the results of ongoing trials will be available and will better clarify the role of mp-MRI and target biopsies in the pathway of PCa diagnosis.

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