

# PSA/biparametric MRI: An accurate potential diagnostic approach for detection and management of local recurrence after radical prostatectomy

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Dear Editor,

We report a diagnostic approach using prostate specific antigen (PSA) and biparametric MRI (bpMRI) for the detection and management of local recurrence after radical prostatectomy (RP).

Recurrence rates after RP range from 10% to 30% within 5 years depending on the Gleason score and other clinicopathological stages.<sup>[1]</sup> Recently, the current American Urological Association and European Association of Urology guidelines defined the biochemical recurrence (BCR) following RP as an initial PSA level of  $\geq 0.2$  ng/mL, confirmed by a subsequent PSA level of  $>0.2$  ng/mL.<sup>[2]</sup>

We believe that only an increase in PSA level is not sufficient, and a distinction must be made between a PSA-only relapse, local recurrence, distant metastatic disease, as well as a combination of both.

Novel imaging techniques in adjunction to PSA testing are needed to identify local recurrence with a high level of accuracy when the PSA levels are low. The multiparametric MRI (mpMRI) approach allows the detection of local recurrence after RP at early stages when the PSA value is still below 1 ng/mL; mpMRI by dynamic contrast-enhancement with T2-weighted imaging demonstrated a

sensitivity of 82% for the detection of local recurrences in biochemical progression after RP.<sup>[3]</sup>

In our preliminary retrospective study on 24 patients with BCR after RP, 3T bpMRI of the prostate, without endorectal coil, was able to detect areas with local recurrence in 18 of 24 (75%) patients; of them, 3 (12.5%), 6 (25%) and 9 (37.5%) were characterized by PSA levels  $<0.2$  ng/mL,  $\geq 0.2$ -1.0 ng/mL, and  $>1.0$  ng/mL, respectively. Interestingly, 12.5% of tumors were detected at PSA levels lower than the cut-off value indicated for BCR, and 25% at PSA levels lower than 0.4 ng/mL, the most optimal cut-off value reported for the metastatic disease progression. Our preliminary results, which need to be confirmed in further and larger studies, suggest that the combined diagnostic approach of PSA/bpMRI could have the following impact in clinical practice: a) in patients with BRC with either low or high PSA levels, the detection of local recurrence would change the concept of BRC in prostatic cancer recurrence; b) in the detection of local recurrence in BRC patients with a low PSA level in which our approach would allow early-salvage radiotherapy to be initiated at the earliest sign of measurable PSA, thereby reducing both bowel and urinary toxicity, and c) in local recurrence in BRC patients with a PSA level of  $<0.4$  ng/mL in which our approach would help in the early diagnosis of disseminate disease and guide therapeutic decision-making.

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PSA combined with bpMRI, which we indicated for the detection and diagnosis of prostate cancer<sup>[4,5]</sup>, may also represent an inexpensive and accurate investigative approach for the detection and management of local recurrence after prostatectomy.

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