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Primary Category: Genitourinary/Obstetrics - Gynecology

Secondary Category: Prostate

Pathologic correlation between transperineal in-bore 3-Tesla MR imaging-guided prostate biopsy and radical prostatectomy

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PURPOSE

To evaluate the accuracy of in-bore transperineal 3-Tesla (T) magnetic resonance (MR) imaging-guided prostate biopsies for predicting final Gleason grades among patients who underwent radical prostatectomy (RP).

METHOD AND MATERIALS

We reviewed the records of 214 men who underwent transperineal MR imaging-guided biopsy (tpMRGB) from 2010-2015. All patients received a baseline scan using 3-T multiparametric MRI (mpMR) with endorectal coil and were selected for biopsy based on findings of a target to biopsy or having a high degree of clinical suspicion for cancer. The tpMRGB were performed in a 70-cm wide-bore 3-T device. Patients who underwent RP within one year from biopsy were included. Descriptive statistics were performed to assess the concordance between tpMRGB and final pathology among patients with and without previous transrectal ultrasound (TRUS)-guided biopsies.

RESULTS

A total of 24 men underwent tpMRGB with subsequent RP within one year. At the time of biopsy median age was 65 years (interquartile range [IQR] 11.7) and median PSA was 8.7 ng/mL (IQR 8.9). The median time between biopsy and RP was 85 days (IQR 50.5). Final pathology revealed Gleason 3+4=7 in 12 patients, 4+3=7 in 7 patients, and 4+4=8 in 2 patients. We observed concordance between MR biopsy and RP in 21 cases (87.5%) in terms of summed Gleason scores. Pathologic Gleason upgrading occurred in 3 cases (12.5%), all of which had final pathologic grades of 3+4=7.

16 of the 24 patients had previously undergone TRUS biopsies, of which 6 were negative and 10 were positive for Gleason ≤ 6 . tpMRGB revealed Gleason upgrading in 8 of the positive TRUS biopsies, all of which were concordant with RP pathology. Among all patients with negative TRUS biopsies, MR biopsy demonstrated evidence of cancer and was concordant with RP results in 83% of cases.

CONCLUSION

Gleason scores determined by tpMRGB at 3-T accurately correlate to final RP Gleason score. This may offer a more precise method to diagnose and appropriately treat men with prostate cancer, especially in patients with negative or low-grade TRUS in which clinically significant cancer is suspected.

CLINICAL RELEVANCE/APPLICATION

Prostate cancer affects 1 in 7 American men. MR-guided prostate biopsies may offer a more accurate means of characterizing prostate pathology than conventional methods.

FIGURE (OPTIONAL)

**** no data entered ****

Disclosures:

Nothing to disclose:

Erik Velez

Nothing to disclose:

Christopher Allard

Nothing to disclose:

Kemal Tuncali

Nothing to disclose:

Andriy Fedorov

Nothing to disclose:

Adam Kibel

Nothing to disclose:

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Questions:

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