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Prospective evaluation of endorectal magnetic resonance imaging to detect tumor foci in men with prior negative prostate biopsy: a pilot study.

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Abstract

Purpose:

Prostate cancer foci have a characteristic appearance on endorectal magnetic resonance imaging (MRI) which might be useful for prostate cancer detection. In this pilot study the ability of endorectal MRI to detect prostate cancer foci prospectively in men at risk for a malignant prostatic neoplasm is assessed.

Materials and Methods:

Endorectal MRI was performed in 33 consecutive men with 1 or more prior negative prostatic biopsies. All studies were read by 2 MRI dedicated study radiologists in consensus before and after receiving patient clinical data. Areas of interest on endorectal MRI were mapped as low, moderate or high suspicion for carcinoma on a prostate model. Directed needle biopsy cores of the prostate were obtained based on this model, and the histopathological findings were compared with MRI results.

Results:

Carcinoma was detected in 7 of 33 men (21.2%) on post-MRI biopsy, including 1 of 18 (5.6%) with low, 1 of 8 (12.5%) with moderate and 5 of 7 (71.4%) with high suspicion MRI. The site of positive biopsy correlated correctly with the area of suspicion on MRI in 85.7% of cases. Overall, endorectal MRI had 40% positive predictive value (moderate or high suspicion), 94.4% negative predictive value (low suspicion) and 69.7% accuracy. On multivariate analysis positive endorectal MRI was associated with an 11.3-fold risk of positive biopsy.

Conclusions:

Endorectal MRI may effectively stratify patients with prior negative prostatic biopsy into low, moderate and high risk groups for a malignant prostatic neoplasm, and may improve our ability to identify prostatic tumor foci prospectively.

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