[The diagnostic value of pre-biopsy magnetic resonance imaging for precise detection of clinically localized prostate cancer compared to post-biopsy setting].

[Article in Japanese]
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Abstract
A total of 136 patients who underwent radical prostatectomy following histological diagnosis of prostate cancer by transrectal biopsy and 3-Tesla magnetic resonance imaging (MRI) were evaluated. MRI was performed on 26 patients before prostate biopsy (pre-biopsy group) and on 110 patients after prostate biopsy (post-biopsy group). We defined the largest tumor focus in a radical prostatectomy specimen as the index cancer. We compared the accuracy of MRI in detecting and localizing the index cancer in the groups. The sensitivity of detecting the index cancer by MRI was significantly (p = 0.012) higher in the pre-biopsy group (96.2%) than in the post-biopsy group (77.3%). The negative predictive value of extracapsular invasion was 84.6% in the pre-biopsy group and 80.7% in the post-biopsy group. The average interval between biopsy and MRI was 42.8 days. Artifacts due to post-biopsy hemorrhage were observed in 32 (29.1%) of the patients in the post-biopsy group. The sensitivity of detecting the index cancer by MRI was significantly (p = 0.022) higher in 78 patients without artifacts due to hemorrhage (83.3%) than in the 32 patients with artifacts due to hemorrhage (62.5%). Even if MRI is delayed until after prostate biopsy, the artifact due to hemorrhage markedly interferes with the accuracy of MRI. Although pre-biopsy MRI is more accurate than post-biopsy MRI, there are some problems to be solved, such as cost effectiveness and the detectability of low-malignant and small cancers.

PMID: 24419007 [PubMed - indexed for MEDLINE]
The diagnostic value of pre-biopsy magnetic ... [Hinyokika Kiyo. 2013...