

[MRI/TRUS fusion-guided prostate biopsy : Value in the context of focal therapy]

[Article in German]

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Abstract

Background: Several systems for MRI/TRUS fusion-guided biopsy of the prostate are commercially available. Many studies have shown superiority of fusion systems for tumor detection and diagnostic quality compared to random biopsy. The benefit of fusion systems in focal therapy of prostate cancer (PC) is less clear.

Objectives: Critical considerations of fusion systems for planning and monitoring of focal therapy of PC were investigated.

Materials and methods: A systematic literature review of available fusion systems for the period 2013-5/2016 was performed. A checklist of technical details, suitability for special anatomic situations and suitability for focal therapy was established by the German working group for focal therapy (Arbeitskreis fokale und Mikrotherapie).

Results: Eight fusion systems were considered (Artemis™, BioJet, BiopSee®, iSR´obot™ Mona Lisa, Hitachi HI-RVS, UroNav and Urostation®). Differences were found for biopsy mode (transrectal, perineal, both), fusion mode (elastic or rigid), navigation (image-based, electromagnetic sensor-based or mechanical sensor-based) and space requirements.

Discussion: Several consensus groups recommend fusion systems for focal therapy. Useful features are "needle tracking" and compatibility between fusion system and treatment device (available for Artemis™, BiopSee® and Urostation® with Focal One®);

BiopSee®, Hitachi HI-RVS with NanoKnife®; BioJet, BiopSee® with cryoablation, brachytherapy).

Conclusions: There are a few studies for treatment planning. However, studies on treatment monitoring after focal therapy are missing.