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New Way of Prostate Cancer Diagnosis in Hong Kong: Image Fusion-guided Prostate Biopsy

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Introduction

Conventional transrectal ultrasound (TRUS)-guided 12-core systematic biopsy (SB) of the prostate is a blind procedure with problems of missing clinically significant cancers and over-detection of indolent prostate cancers. Magnetic Resonance Imaging (MRI)/Ultrasound (US) fusion-guided biopsy is a new technology to improve the diagnostic accuracy, and is first introduced in our centre for Hong Kong patients.

Objectives

To compare the diagnostic efficacy and complication outcome of MRI/US fusion-guided biopsy with conventional TRUS-guided SB of the prostate in a Chinese cohort.

Methodology

From July 2015 to November 2016, men with elevated serum prostate-specific antigen (PSA) of 4-20 ng/mL were counselled for MRI of the prostate to detect any lesions according to the Prostate Imaging Reporting and Data System (PI-RADS). Those with PI-RADS 2-5 lesions underwent targeted biopsy (TB) plus 12-core SB using the Artemis® MRI/US fusion platform system. The biopsy outcomes were compared with a matched cohort of 250 patients who underwent conventional TRUS-guided SB in the same period. Complication rates including sepsis, retention of urine and haematuria after the procedure were compared.

Result

A total of 141 patients had pre-biopsy MRI performed, with an average of 1.7 ± 1.0 MRI lesions/patient were detected in 127 patients. 14 patients with negative MRI had no cancer detected on SB. In 97 patients having lesions of intermediate to high suspicion (PI-RADS 3-5), the overall cancer detection rate by fusion biopsy (TB+SB) was significantly higher than the conventional SB group (37.1 vs 17.6%, p