EP006 Risk stratification for equivocal PI-RADS 3 results: Can micro-ultrasound help determine which men to biopsy?

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Introduction & Objectives: Reducing unnecessary prostate biopsy procedures is an important clinical goal to reduce pain and anxiety for the patient, as well as the risk of infection and overtreatment. Multiparametric (mpMRI) has been proposed as an effective strategy to reduce the need for a prostate biopsy both in the initial and in the repeat biopsy setting. However, indeterminate or equivocal findings at mpMRI can pose a diagnostic challenge. We aimed to determine whether micro-ultrasound could help to further stratify the need for a prostate biopsy in patients with PIRADS 3 lesion at mpMRI.

Materials & Methods: This study was based on a retrospective series of patients presenting with at least one PI-RADS 3 lesion at mpMRI at one of 7 international sites. All patients were imaged with micro-ultrasound using the ExactVu™ (Exact Imaging, Markham, Canada) system, and the presence of suspicious lesions was determined and graded according to the PRI-MUS™ (Prostate risk identification using micro-ultrasound)[1] protocol. Maximum PRI-MUS score for each subject was used to determine whether the case was non-suspicious on micro-ultrasound (PRI-MUS 1 or 2), equivocal (PRI-MUS 3), or suspicious (PRI-MUS 4 or 5). All patients with a suspicious (PRI-MUS >2) lesion were subjected to a micro-ultrasound guided targeted biopsy. In addition, mpMRI targeted biopsies on PI-RADS 3 lesions were also obtained either with a cognitive or with a fusion biopsy technique according to each center protocol.

Results: 83 subjects were included Overall prostate cancer detection rate for PI-RADS 3 subjects was 55% (46/83), while 23% (19/83) of patients were diagnosed with a clinically significant prostate cancer defined as a ISUP Grade Group (GG) > 1 tumor. PRI-MUS was able to provide significant risk stratification in this population, with non-suspicious micro-ultrasound imaging reducing the risk of finding GG>1 cancer by more than half to 10% (1/10). Equivocal micro-ultrasound provided little additional information with a GG>1 detection rate of 17% (3/18), while suspicious micro-ultrasound imaging resulted in a 17% relative increase in GG>1 detection rate to 27% (15/55).

Conclusions: Micro-ultrasound imaging and PRI-MUS protocol findings appear to provide useful additional information in the case of equivocal mpMRI results. When combined with other clinical risk indicators such as PSA, PSA density and family history, it may be possible to better advise patients on the necessity of a biopsy using this data.

References:

1. Ghai, S. et al., “Assessing Cancer Risk in Novel 29 MHz Micro-Ultrasound Images of the Prostate”, Journal of Urology, 2016 Aug;196(2):562-9