MP65-02 Man vs. Machine: Comparative Effectiveness of Cognitive Targeted and Image-Fusion Targeted Transperineal Prostate Biopsy

RAPID Study Group
Aim

• To compare targeted prostate biopsy cancer detection rates performed using visual-estimation (cognitive) targeting or MRI-ultrasound image fusion by a large number of surgeons of varying expertise

Patients

• Men undergoing cognitive or image-fusion (BiopSee® (Medcom)) targeted transperineal biopsy (April 2017 - July 2019)

• mpMRI PI-RADS v2 score of >/=3 (a score of 3 required PSA-density >/=0.12ng/mL)

Methods

• Propensity score matching (1:1) by age, PSA, PSA-density, prostate volume, number of target lesions, operator grade (senior Urologist, trainee, other), PI-RADS score and number of cores (caliper=0.25).

• Detection of clinically significant (cs) (any Gleason >/=3+4) and insignificant (ci) prostate cancer (PCa) compared both overall and in subsets using Fisher’s Exact test

• Median number of cores taken was compared using the Mann-Whitney U test
Results

- Targeted transperineal prostate biopsy was performed for **845 lesions** (cognitive: 261, image-fusion: 584) in **603 patients** (cognitive: 185, image-fusion: 418).

- There was **no overall difference** in cs or ciPCa detection rates between cognitive and image-fusion targeting (242 pairs; p=1.00).

---

**Senior urologists detected more clinically significant prostate cancer using image-fusion targeted transperineal biopsy**

(cognitive: 27.8%, image-fusion: 55.6%; 54 pairs; p=0.006)

**Median cores taken was greater when biopsies were performed cognitively**

(cognitive: 6 (IQR 5-8), image-fusion: 6 (IQR: 4-6); p<0.0001)

- No significant differences between groups were noted by other operator grades, prostate volumes or lesion multiplicity (p all > 0.05)