

# AB165. SOH21AS165. Avoiding unnecessary prostate biopsy using multiparametric magnetic resonance imaging and prostate specific antigen density

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**Background:** Multiparametric magnetic resonance imaging (mpMRI) is rapidly gaining prominence as an important diagnostic tool for prostate cancer. This study examines the diagnostic accuracy of performing and reporting mpMRI in a high-volume centre to assess whether mpMRI can be used to stratify patients prior to prostate biopsy.

**Methods:** This is a retrospective case series. Patients who had both mpMRI prostate and transperineal biopsy of prostate (TPBx) performed at Western Health from January 2017 to December 2018 were included. There were no exclusion criteria. Clinicopathological data were extracted from medical records. The primary outcome of this study was the sensitivity, specificity, positive and negative predictive value of mpMRI prostate in the detection of PCa in comparison with template TPBx.

**Results:** A total of 140 patients were included in this study. Overall, 57.1% of patients had a positive biopsy result. A higher PI-RADS score was associated with a higher risk of diagnosing clinically significant prostate cancer on biopsy ( $P < 0.001$ ). The sensitivity, specificity, negative predictive value, and positive predictive value of mpMRI in detecting clinically significant cancer (ISUP  $\geq 2$ ) in men with a prostate imaging-reporting and data system (PI-RADS)  $\geq 3$  lesion, was 95%, 41%, 95.3% and 39.2%, respectively.

Combining this with prostate-specific antigen density (PSAD) of  $< 0.15$  further improved the negative predictive value to 100%.

**Conclusions:** This study demonstrates that mpMRI is an effective tool in the diagnosis of prostate cancer with a high sensitivity and negative predictive value. Thus, mpMRI and PSAD may play a pivotal role in stratifying men for prostate biopsy and help avoid biopsy and its associated morbidity in select patients.

**Keywords:** Prostate cancer; multiparametric magnetic resonance imaging (mpMRI); prostate specific antigen density; transperineal biopsy; prostate imaging-reporting and data system (PI-RADS)

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## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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