
MRI-Ultrasound Study For Targeted Prostate Biopsy Receives CEM Award



During the recently held EAU 13th Central European Meeting (CEM) in Prague, Czech Republic, the study entitled 'Using Magnetic Resonance Imaging-Ultrasound (MRIUS)- guided prostate biopsy has high sensitivity to detect prostate abnormalities compared with transrectal ultrasonography (TRUS biopsy) of MRI positive findings' won the first prize from Karl Storz for best poster.

As presenting author, Anna Katarzyna Czech of the Dept. of Urology, Jagiellonian University in Krakow, Poland explained that the currently considered standard of care for the diagnosis of prostate cancer (PCa) was the systematic 12-core transrectal ultrasound guided biopsy (TRUS biopsy), however it missed many non-palpable, small lesions invisible to ultrasound.

Despite the fact that improved imaging modalities, including MRI, have increased the rate of tissue abnormality findings, Czech pointed out that these interventions were uncomfortable for patients as well as time consuming. Combining MRI with TRUS images made it possible for the physician to perform the MRI guided TRUS biopsies in the office environment, she added.

Czech and colleagues used the fusion of TRUS images with recorded MR images (MRIUS) based on linear interpolation of pixels for their study on 80 men, whose prostate lesions had been exclusively detected in the transrectal prostate magnetic resonance imaging and included in the research. All participants were randomly split into two groups of 40 patients each, and TRUS guided biopsy was performed.

In group I were administered TRUS biopsies of MRI identified lesions, whereas group II underwent biopsies of the lesions visualised in MRI using MRIUS method, fusing the two types of images.

8 cases of prostate cancer were confirmed via histopathological examination of TRUS guided prostate biopsy of MRI identified lesions, three for ASAP and HGPIN, and five cases for chronic prostatitis. No microscopic pathologies were found in 24 patients.

Group II displayed 17 cases of prostate cancer, 8 of ASAP and HGPIN, and 8 cases of chronic prostatitis. Histopathological examination diagnosed no abnormalities in 8 out of 40 patients.

The researchers state in their results that MRIUS guided prostate biopsy yielded an increase of 22.5% in prostate cancer, 10% in ASAP and HGPIN and 7.5% in chronic prostatitis cases, compared with TRUS biopsies of the MRI identified lesions.

A statistically significant difference was seen in the sensitivity to identify microscopically confirmed prostate abnormalities with TRUS guided prostate biopsy of MRI identified lesions, 40% (95% CI: 24.9-56.7), compared to a diagnosis with the MRIUS method of 80% (95% CI: 64.4-90.9).

According to Czech, these findings make the fusion technology a potential solution for the patients with clinical suspicion of prostate cancer, and she added that by conducting additional research, it would be possible to establish the relevance of an endorectal coil used during MRI for prostate deformation, the measurement of gland volume, as well as the viability of MRIUS for the detection of cancer in larger prostates.

Czech further stated the necessity of investigating the use of 3Tesla MRI for fusion technology which would eliminate use of endorectal coil, and highlighted in conclusion that in spite of these limitations, MRIUS guided prostate biopsy has high sensitivity to detect prostate abnormalities.

Source: [AlphaGalileo](#)

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