



**SS02**

**Scientific Session 2**

**14:00-15:30**

**GBR 103**

**Chairperson(s):**

Eun Ju Son (Gangnam Severance Hospital, Yonsei University College of Medicine, Korea)

Young Mi Park (Inje University Busan Paik Hospital, Korea)

**14:10-14:20 (SS02-P2)**

## **Stand-Alone Performance of Artificial Intelligence-Based Computer-Assisted Diagnosis in Screening Automated Breast Ultrasound**

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**PURPOSE:** To evaluate the stand-alone performance of artificial intelligence-based computer-assisted diagnosis (AI-CAD) in screening automated breast ultrasound (ABUS) interpretation and find the factors associated with false-negative and false-positive results.

**MATERIALS AND METHODS:** The ABUS source data of 435 women in a single institution were retrospectively analyzed using AI-CAD system (LUCAS). Of total 435 women, 97 were breast cancer patients with screening detected single malignant lesion between October 2019 and June 2020, and 338 were women who underwent screening ABUS between May 2019 and June 2019 and showed negative final diagnosis. We reviewed the results of AI-CAD system in detecting malignant lesion on ABUS and analyzed the sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). Also the associated factors with false-negative and false-positive results were analyzed.

**RESULTS:** The sensitivity, specificity, PPV, and NPV of AI-CAD in ABUS interpretation were 0.75 (73 of 97; 95% confidence interval, 0.65 to 0.83), 0.58 (195 of 338; 95% CI, 0.52 to 0.63), 0.34 (73 of 216; 95% CI, 0.30 to 0.37), and 0.89 (195 of 219; 95% CI, 0.85 to 0.92), respectively. False-negative results in breast cancer were more frequent for isoechoic mass ( $p<0.001$ ) and mass without echogenic rind ( $p=0.043$ ). False-positive results were more frequent for dense breast on mammography ( $p<0.001$ ). Among 143 false-positive results, 94 (65.7%) were pseudo-lesions.

**CONCLUSION:** AI system showed NPV of 89% for negative interpretation of ABUS. However, radiologists should carefully recheck the results of AI-CAD system to reduce false-positive results and recall rate.