S2. THE VALUE OF SONOHYSTEROGRAPHY IN THE PREDICTION OF ENDOMETRIAL PATHOLOGIES IN ASYMPTOMATIC POSTMENOPAUSAL, TAMOXIFEN-TREATED BREAST CANCER PATIENTS

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Introduction: The accuracy of transvaginal ultrasound (TVS) for the identification of endometrial pathologies in postmenopausal, tamoxifen (TAM)-treated breast cancer patients has been challenged, mainly due to a high false-positive rate [1]. Therefore, sonohysterography (SIS) was introduced in order to improve the diagnostic accuracy for such endometrial pathologies [1].

In this study, we used receiver operating characteristic (ROC) curve analysis to detect the most accurate cut-off value in the intrauterine findings for the diagnosis of endometrial pathologies, measured by SIS, in asymptomatic postmenopausal, TAM-treated breast cancer patients with ultrasonographic endometrial thicknesses of ≥ 8.0 mm.

Patients and methods: Overall, 85 patients were evaluated by SIS, operative hysteroscopy or diagnostic hysteroscopy.

All patient records were evaluated for the mean $\pm$ standard deviation (SD) of intrauterine mass diameter, as detected by SIS, for the endometrial histological findings detected immediately thereafter, as well as for various clinical factors.

Logistic regression analysis and ROC curve were performed to identify the most accurate cut-off value of mean intrauterine mass diameter, as measured by SIS, for the diagnosis of endometrial pathologies.

Statistical analysis was performed using logistic regression and Chi-square analyses. A value of $P < 0.05$ was considered statistically significant.

Results: The duration of breast disease was 48.2 $\pm$ 41.9 months and the duration of TAM treatment was 38.3 $\pm$ 30.7 months. Mean ultrasonographic endometrial thickness was 14.56 $\pm$ 6.2 mm and mean intrauterine mass diameter, detected by SIS, was 11.6 $\pm$ 10.4 mm.

The mean diameter of the intrauterine mass gradually increased as the histological findings became more severe. False-negative and false-positive rates of SIS were 2.4% and 8.2%, respectively.

Logistic regression analysis revealed low Odds Ratios for all parameters tested, except for the diameter of intrauterine mass. With any additional millimetre of diameter, the risk of development of new endometrial pathology was elevated by 1.37-fold [Odds Ratio = 1.37, 95% Confidence Interval (CI) = 1.21–1.56, $P < 0.001$]. ROC curve analysis revealed 5 mm as the most accurate cut-off value for the diagnosis of endometrial pathologies. With this cut-off value, SIS had a sensitivity of 74.1%, specificity of 93.0%, positive predictive value of 88.3% and negative predictive value of 84.2%.

Discussion: Our findings suggest that SIS is a highly specific diagnostic test for postmenopausal, TAM-treated breast cancer patients. ROC curve revealed that an intrauterine mass diameter of 5 mm was found to be the most accurate cut-off value for the diagnosis of endometrial abnormalities.

Fong and colleagues [1] found SIS to be significantly more specific, but not more sensitive, than TVS for the detection of endometrial pathologies.

In our series, SIS had false-negative and false-positive rates of 2.4% and 8.2%, respectively.

The mean diameter of intrauterine mass gradually increased with the increasing severity of the histological findings. Polyps containing proliferative endometrium had a diameter of 5.4 $\pm$ 5.1 mm, while those containing simple hyperplasia had a diameter of 24.8 $\pm$ 13.8 mm. Moreover, the single polyp-containing malignancy had a diameter of 43 mm.

Logistic regression analysis revealed that any additional millimetre in diameter of the intrauterine mass, detected by SIS, increased the risk of developing new endometrial pathology by 1.37-fold. This is a unique finding, which has not yet been described.

Reference

1. Fong K, Kung R, Lytwyn A, Trudeau M, Chapman W, Nuget P, Glanc P, Manchul L, Szabunio D, Myhr T. Endometrial evaluation with transvaginal US and hysterosonography in asymptomatic postmenopausal women with breast cancer receiving tamoxifen. *Radiology* 2001, **220**, 765–773.