

## OP31.5

### **A new computerized diagnostic algorithm for performing thyroid ultrasound screening by the family doctors**

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**Background:** in recent decades in Romania we observe a clear increase over ten times of thyroid diseases. The prevalence of malignant thyroid nodules are growing, mostly 80% being papillary microcarcinomas. Ultrasonography used as a screening method can diagnose both: diffuse thyroid disorders such as malformations, endemic goiter or thyroiditis and especially focal thyroid lesions such as benign and malignant tumors. Our objective was early diagnosis and treatment of the diffuse thyroid diseases or focal lesions by thyroid screening in the high risk population.

**Methods:** We report a prospective thyroid ultrasound screening performed on 2149 apparently healthy adults with oncological risk factors+, aged over 20 years, followed for two years, sex ratio 2:1. To patients aged 20-40 years, we have conducted an ultrasound screening every two years and over 40 years annually. We used the TIRADS classification by Russ and Strain Elastography scores by Rago, for standardization and accuracy of reporting for easy communication among practitioners and to show when fine-needle aspiration biopsy(FNAB) should be performed. We designed an Ultrasound Scoring System(USS) for predicting thyroid malignancy. We analyzed the angioarchitecture and stiffness of all thyroid lesions. All patients who entered study, were stored and counted into our algorithm as an electronic database.

**Results:** Prevalence of thyroid pathology was:29,6%(95%CI:26,99to32,31) with screening sensitivity:95,38% and specificity: 94,78% and a high accuracy of 94,95%, PPV:88,47%, NPV:97,99%, statistically significant  $p<0,01$ . ROC statistical analysis confirmed a higher level of diagnostic accuracy of Strain elastography compared with Doppler Triplex Ultrasound, with  $p<0.001$ , AUC=0,995,95%CI:0,97 to1.for the comparative statistical analysis-ANOVA the significant statistical methods used, was Ultrasound Scoring System, $p<0,001$ .

**Conclusions:** Performing Doppler US Screening together with Elastography, had the best accuracy in analysis of the vascular network in tumors and absence of elasticity in the nodule, for differentiating “benign versus malignant” of the thyroid tumors and for diagnosis of diffuse thyroid diseases.