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The general ultrasonography as an experimental oncology screening and a comparative statistical analysis of different type of ultrasound methods (Triplex Doppler or Strain Elastography) who can be significant in primary care

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Introduction: in the last years, big progresses have been made in oncology, both in therapy and in diagnostic. Ultrasonography is an investigation useful in the tumor diagnosis, establishing the topography, extension, consistency, tissues stiffness, vascular network analysis and even pathology elements connected to its nature. Our objective was early diagnosis and treat quickly in the earliest stages of malignant tumors through Oncology Ultrasound Screening at primary care level to the high risk population. The aim of this study is to establish a guide for the General Ultrasound Screening for differentiation "benign versus malignant' of tumors detected.

Method: We report a prospective oncology screening(abdominal, pelvic, breast, thyroid and soft tissues ultrasound) performed on a total of 5000 patients with oncology risk factors+, over 40 years, followed over five years, sex ratio=1:1. We used a questionnaire to identify presence of the risk factors as inclusion criteria. To patients aged 40-50 years, were made an ultrasound screening every two years and over 50 years annually, by an ultrasound guideline and archived into an electronic database designed by us. Positive patients had done the following ultrasound methods: Doppler with fractal geometry analysis, Elastography and „Malignancy Ultrasound Score"(M.U.S) developed by us.

Results: Were found a total of 310 patients with benign (n=157) and malignant tumors (n=153).The incidence of malignant tumors was 3.6% in the risk population. The sensitivity of screening was 81%,specificity 90,94% with a high accuracy of 90,54%,p<0,01, 5-year prevalence was 6,2%, PPV=37,32%, NPV=98,68%. ROC analysis confirmed a higher level of diagnostic accuracy of elastography compared with Doppler Ultrasound, AUC=0,996,95%CI=0,981to1,00,p<0.001. To ANOVA comparative analysis the very significant statistical method was M.U.S., p<0,001.

Conclusions: Both Doppler Ultrasound and Elastography proves to be very efficient methods with a high accuracy 90% in oncology screening for the early detection of hypervascular tumors in asymptomatic stage, who can confirm malignancy and the need for biopsy.