

# CLINICAL SIGNIFICANCE OF THE COMBINATION OF CEA AND CA 19-9 TUMOR MARKERS IN MALIGNANT AND BENIGN TUMORS OF VARIOUS ORIGINS

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At the 5th International Conference on Human Tumor Markers, held in Stockholm, Sweden in 1988, it was adopted a definition that the tumor markers are products that are produced in tumor cells, excreted in bodily fluids, and measured quantitatively by noninvasive in vitro procedures.

The present study aimed to assess the diagnostic and prognostic value of clinical tumor markers carcinoembryonic antigen (CEA) and carbohydrate antigen-19.9 (CA-19.9), used in combination as a helpful diagnostic method for malignant and benign tumors from different origin. Smoking habit of patients was considered as a factor for evaluation of the risk of malignancy development.



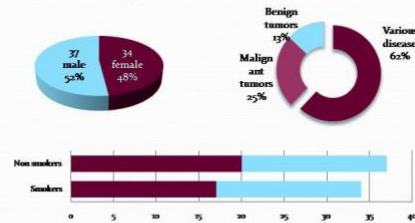
## IT WAS USED:

- Electro-chemiluminescence immuno method (ECLIA)
- Automated analyzer Roche, Cobas e411
- Elecsys assays for tumor markers CEA and CA 19-9
- 71 patients
- Malignant or benign disease
- Smoking survey
- Statistical program StatsDirect

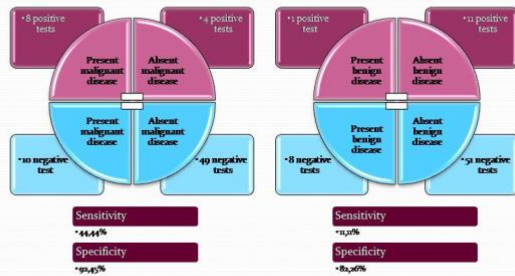


Combined use of two tumor markers CEA and CA 19-9 can allow mistakes in diagnosing malignant and benign diseases because these tumor markers do not have 100% sensitivity and specificity.

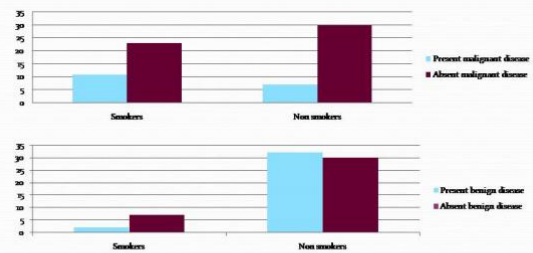
Information for the patient of this study:



Combined specificity for malignant tumors was 92.45% and for benign tumors 82.26%. Combined sensitivity for malignant tumors was 44.44% and for benign tumors 11.11%.



Smoking as a risk factor for malignant disease was calculated in 1.4, and for benign disease was insignificant



The specificity of 92.45% suggests that 7.55% of people who do not have malignant disease on the basis of this examination will be classified with malignancy, or will be false positives.

The 44.44% sensitivity suggests that on the basis of this study only 44.44% of patients who have a malignant disease will be classified as patients with tumors, and the remaining 55.56% will be falsely negative.

A specificity of 82.26% suggests that 17.74% of the respondents who do not have a benign illness will be classified as having it as false positive.

The sensitivity of 11.11% suggests that only 11.11% of those who have benign illnesses will be classified as having a benign illness on the basis of the examination, while 88.89% are falsely negative.



7.55% of patients would have been diagnosed with malignant diagnosis incorrectly, while 55.56% of patients with such a disease would remain undetected. 17.74% of patients would have been diagnosed with a benign illness diagnosis, while 88.89% would remain undetected.

The prevalence of malignant disease was 25.35% while of benign disease 12.68%.

Smokers were 1.4 times more likely to have malignant neoplasm than non-smokers, while smoking was insignificant factor for development of benign neoplasm.

