



## SERUM LEVELS OF CA 15-3, CA 125 AND CA 19.9 IN TRIPLE NEGATIVE BREAST CANCER AT TIME OF DIAGNOSIS

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**INTRODUCTION** Cancer antigen 15-3 (CA 15-3) is often used in follow up care of breast cancer and provide important clues to the clinicians for disease progression in metastatic and recurrent breast cancer. However, use of CA 15-3 is not recommended for surveillance after primary therapy of breast cancer at ASCO guideline (1). Triple-negative breast cancers (TNBC) are frequently defined as a single group identifiable using routine clinical tests. They are negative for estrogen receptor (ER), progesterone receptor (PR), and the human epidermal growth factor receptor 2 (HER2 $neu$ ), the so-called 'triple-negative' breast cancers.

**METHODS** We retrospectively analyzed serum CA 15-3, CA 125 and CA 19.9 levels of 51 consecutive non-metastatic breast cancer patients presenting at Casa di Cura Giovanni XXIII (Monastier di Treviso, Treviso, Italy) between November 2008 and October 2009. The 13.7% of the patients (7/51) were TNBC. The negative control group consisted of 51 women with histologically proven benign breast disease (27 fibroadenomas - FAs; 8 papilloma/papillomatosis and 16 miscellaneous (fibrocystic disease - FCD, ductal hyperplasia/atypical ductal hyperplasia - DH/ADH).

**RESULTS** There were no statistically significant differences in clinical characteristics of the disease between TNBC and non-TNBC patients. At the time of diagnosis TNBC group have higher serum levels of CA 15-3 and CA125 compared to non-triple negative group. No differences were found in serum levels of CA 19.9 (table 1).

SERUM MARKER (U/ml) (mean $\pm$ SD, range)	TNBC	non-TNBC	<i>p</i>
CA 15-3	14.9 $\pm$ 8.8, 7.7 - 32.1	1.8 $\pm$ 4.5, 5.2 - 47.7	<i>p</i> = 0.004
CA 125	12.8 $\pm$ 8.8, 4.3 - 25.3	1.9 $\pm$ 6.4, 2.0 - 37.2	<i>p</i> = 0.002
CA 19.9	14.6 $\pm$ 8.5, 2.0 - 64.0	1.1 $\pm$ 0.5, 0.0-91.0	<i>p</i> =ns

1. Serum levels of tumoral markers in TNBC vs non-TNBC

SERUM MARKER (U/ml) (mean $\pm$ SD, range)	BREAST CANCER	BENIGN DISEASE	<i>p</i>
CA 15-3	13.8 $\pm$ 7.3, 5.6 - 47.7	12.1 $\pm$ 4.1, 7.1 - 24.5	ns
CA 125	10.7 $\pm$ 6.4, 2.0 - 37.2	20.7 $\pm$ 28.5, 5.1 - 174.2	0.01
CA 19.9	11.9 $\pm$ 16.1, 0 - 91	10.0 $\pm$ 10.3, 0 - 49.8	ns

2. Serum levels markers in breast cancer vs. benign disease

Patients with breast cancer were statistically significantly older than patients with benign disease (mean age yrs $\pm$ SD, range: 56.5 $\pm$ 11.7, 32-88 vs 46.9 $\pm$ 12.7, range 21- 77, *p*=0.0001). No statistically significant difference were noted between breast cancer group and benign breast disease group in the serum levels of the CA 15-3 and CA 19.9, while CA 125 was significantly higher in benign disease group (table 2).

**CONCLUSIONS** The difference in serum levels of specific tumoral markers may be explained in part by highest histological grade of triple negative breast cancers. In conclusion, serum levels of CA 15-3 and CA 125 may be different in breast cancer subgroups (specifically TNBC). The higher levels of CA 125 in benign breast diseases could be partly explained by the younger age of this group. Our findings need to be confirmed in further studies, in order to define the possible role of combined use of multiple serum markers in the individuation of particular breast cancer subgroups and to define possible interfering parameters.

#### REFERENCE

1. C.M. Sturgeon, M.J. Duffy, U. Stenman, Hans Lilja, N. Brunner, D. W. Chan et al. NACB SUB-COMMITTEE MEMBERS. National Academy of Clinical Biochemistry Laboratory Medicine Practice Guidelines for Use of Tumor Markers in Testicular, Prostate, Colorectal, Breast, and Ovarian Cancers. Clinical Chemistry 54:12; e11-e79 (2008)

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