

Thesis Title	Serum Levels of Carcinoma Antigen 15-3 (CA15-3), Mucin-like Carcinoma Associated Antigen (MCA) and Carcinoembryonic Antigen (CEA) in Primary Breast Cancer
Name	Pranee Onsrì
Degree	Master of Science (Physiology)
Thesis Supervisory Committee	Supompim Chearskul, M.D., M.Sc. Kris Bhothisuwan, M.D.
Date of Graduation	16 May B.E. 2540 (1997)

ABSTRACT

Serum levels of CEA, CA15-3 and MCA were studied in 40 patients with primary breast cancer, 20 patients with benign breast disease and 20 normal subjects. The percentage of sensitivity, specificity, positive predictive value and negative predictive value were respectively 65, 75, 72.22 and 68.18 for CEA as well as 32.5, 77.5, 59.09 and 53.45 for CA15-3. Those values of MCA were at 30, 95, 85.71 and 57.58 respectively. The above data was obtained from selected cut-off value of 2.5 ng/ml for CEA, 22 u/ml for CA15-3 and 8 u/ml for MCA respectively. In reference to established cut-off values, CEA gave the best sensitivity but MCA offered highest specificity. Combination of CA15-3 and/or MCA to CEA improved sensitivity with acceptable level of specificity.

Serum CA15-3 and MCA cannot distinguish patients with breast cancer from all women with benign breast disease and normal subjects. CEA though, higher in the whole group of breast cancer than benign breast disease and normal subjects, could not identify an early stage of breast cancer from the latter two

groups. Results indicated that CEA, CA15-3 and MCA were not useful for early detection of breast cancer.

Though serum levels of CEA, CA15-3 and MCA in breast cancer patients were significantly related to each other, comparison of the effectiveness of individual marker for breast cancer diagnosis showed disagreement of CEA and CA15-3 as well as between CEA and MCA but levels of CA15-3 and MCA were agreeable. Consideration of CEA values together with values of CA15-3 and/or MCA in related samples would improve the reliability of the diagnosis.

Although, difference in percentage increase of individual marker in relation to tumor stage, ER or PR status, axillary node involvement and histological grade of breast cancer was not detected. Levels of CEA, CA15-3 and MCA increased progressively with more advanced stage of breast cancer, but significant difference among tumor stages was shown for CEA only. Moreover, correlation and regression analysis confirmed positive relationship of CEA and axillary node involvement as well as of CA15-3 or MCA and tumor size. In addition, mean serum CA15-3 level in node-positive patients was significantly higher than in node-negative patients. The results suggest the benefit of CEA, CA15-3 and MCA as indices of tumor burden and locoregional progression of breast cancer.