

THE VALUE OF CERULOPLASMIN LEVELS IN MONITORING OF PATIENTS WITH BREAST CANCER

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SUMMARY: The copper transport protein ceruloplasmin (CP) is suggested to have a role in cancer. CP, an acute phase reactant, has been found to be elevated in patients with various forms of cancers including breast cancer. The serum CP level were found significantly higher in patients with metastasis compared to patients without evidence of metastasis.

Key Words: Breast cancer, ceruloplasmin.

INTRODUCTION

Ceruloplasmin (CP) is an acute phase protein which is normally synthesized in the liver (1). Serum copper and CP have been reported to be useful markers of disease activity in patients with Hodgkin's disease, Non-Hodgkin's lymphoma, acute leukemias, gastrointestinal tract cancer, lung cancer and breast cancer (2-4). CP is suggested to have a role in cancer since it is involved in angiogenesis and neovascularization. In a study CP mRNA is shown in human colon and breast cancer cell lines (5). Due to its angiogenic activity, CP may be required for the growth and survival of tumors. In this preliminary study, we attempted to demonstrate the value of serum CP as a marker of the disease activity in patients with breast cancer.

MATERIAL AND METHODS

All 28 patients in this study were from the Department of the Oncology of Hacettepe University Hospital. The median age of

the patients was 42 years (23-61). 15 had metastatic breast cancer and 13 patients were in adjuvant chemotherapy program or in remission for more than a year. None of the patients had evidence of infections, primary inflammatory diseases or proteinuria.

The serum samples were tested by Radial Immunodiffusion (RID) Kits (No: 26220). The CP levels in two groups were compared with Mann Whitney U test.

RESULTS

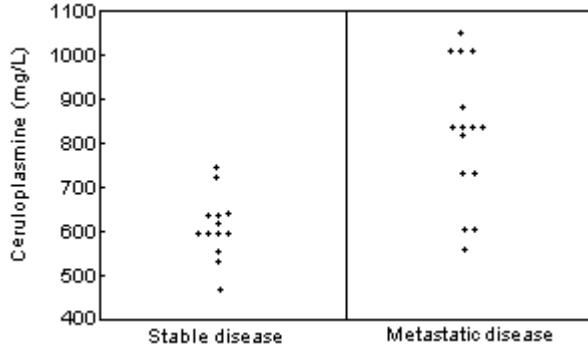
Results are shown in Figure 1. The mean serum CP level in patients with metastatic breast cancer was 804 ± 40 mg/L. The mean serum CP level in patients without evidence of disease was 592 ± 70 mg/L. When compared with Mann Whitney U test, the values obtained from patients with metastasis were significantly higher than patients without evidence of metastasis ($p < 0.05$).

DISCUSSION

Among the proteins that have been found elevated in the serum of the patients with breast cancer have been

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Figure 1: Clinical state and CP levels.



casein, alphasactalbumin and CP. In a study CP has been found elevated in 89% of 103 patients with metastatic breast cancer and CP level fallen in patients who responded to treatment (6). These results were in accordance with our results. Further studies are needed to understand the value of CP in monitoring the activity disease in patients with breast cancer.

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