

MEASUREMENT OF SERUM FERRITIN LEVELS IN PATIENTS
WITH VARIOUS MALIGNANT TUMORS

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We measured serum ferritin levels of normal subjects and various patients with malignancies using a radioimmunoassay method (RIAGNOST FERRITIN). At measuring, we had not a competitiveradioimmunoassay method but an immunoradiometric assay method. In this kits, we got a satisfactory results in aspects of intraassay and interassay.

Mean ferritin values of normal subjects which we studied was 123.8 ± 60.9 in male and 29.3 ± 26.4 ng/ml in female. We assumed that the upper normal limits in male and in female were 250, 82 ng/ml respectively which were mean value plus the twice of a standard deviation.

Among 274 patients with various malignant tumors. 132 patients (48%) showed abnormal values. We found high levels of serum ferritin over 1000 ng/ml in patients with esophageal cancer, stomach cancer and ovarian cancer, but could not find significant differences between various malignancies.

For example we classified patients with uterine cancer into carcinoma in situ, stage I, stage II, stage III IV. Mean values 69.4 (CIS), 73.2 (stage I), 157.7 (Stage II), 309.4 (Stage III IV) were observed. Serum ferritin level showed a tendency that the low grade patients has lower ferritin values than the other high grade patients.

Serum ferritin levels had no correlation to serum CEA and LDH levels. We thought that serum ferritin level was independent and useful for evaluation of various malignant diseases. We measured serum CEA levels of the same patients at same time. As compared with CEA values, ferritin values might be more sensitive to the detection for malignancies.

CLINICAL IMPLICATION ON RADIOIMMUNOASSAY OF
SERUM FERRITIN IN HEPATIC DISEASES

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Serum ferritin was quantitated by means of 2-site immunoradiometric assay using paper disc method and a diagnostic implication of ferritin in patients with digestive diseases, especially hepatic diseases, was evaluated. Ferritin was isolated and purified from human liver according to the following procedure. Tissue was homogenized in distilled water and the homogenate filtered by passage through Millipore filter. After heating 75°C for 15 minutes the filtrate was centrifuged and the supernatant liquid was dialyzed against saturated ammonium sulphate. The resulting precipitate collected by centrifugation, dissolved in water. The solution was chromatographed first on Sephadex G-200 and then on Sepharose 6B. The ferritin peak was collected and concentrated. Rat ferritin was extracted and purified according to the method of Drysdale et al. All ferritin preparations were judged by polyacrylamide electrophoresis and isoelectrofocussing. Subjects were as follows, hepatoma 10 case acute hepatitis 10 case, chronic hepatitis 15 case, cirrhosis of the liver 15 case and other digestive tract carcinoma.

2-site immunoradiometric assay using paper disc method was sensitive, reproducible, economical and simple assay method. The mean value of serum ferritin was 161 ± 96 ng/ml in male, and 42 ± 30 ng/ml in female. In patients with hepatoma, remarkable high ferritin level were observed. Serum ferritin with acute hepatitis showed high level at aggravate stage. On the other hand, in patients with carcinomas of the stomach and colon, the ferritin was mostly within normal range. In non-malignant diseases, serum ferritin levels showed generally low values except acute hepatitis and pathological subjects with the presence of excess iron in the body.