Eur J Cancer, Vol. 26, No. 8, p. 919, 1990.
Printed in Great Britain
0277-5379/90 $3.00 + 0.00

Letters

Ferritin Levels in Malignant Effusions: a Useful Marker?

Semra Paydaş, Özoğul Sargin, Süleyman Özbek and Elif Gürbüz

FERRITIN IS a good marker in various tumours [1] and may be a good indicator of disease activity in patients with malignant histiocytosis and virus-associated haemophagocytic syndrome [2]. Ferritin has been suggested as a valuable tumour marker compared with α-fetoprotein (AFP) in follow-up of patients with hepatocellular carcinoma, and can be produced by tumour cells [3–5]. Increased levels of ferritin in cerebrospinal fluid can be a useful guide in cancer patients with central nervous system involvement for diagnosis and follow-up [6]. In addition ferritin levels in malignant pleural and peritoneal fluids can be used in differential diagnosis of the malignant and non-malignant effusions [7].

Our aim was to assess the value of ferritin as a marker in malignant effusions and to compare it with other tumour markers.

Our study group was 43 patients with peritoneal or pleural effusion. In 23 patients the fluid was exudate associated with malignancy (group I). In 8 patients there was tuberculosis (group II), and in 12 patients effusion was transudate associated with chronic liver disease, chronic renal failure, or cardiac failure (group III). Human chorionic gonadotropin (HCG), AFP, carcinoembryonic antigen, and ferritin were measured with radioimmunoassay in serum and effusate. Protein, sugar, density, lactate dehydrogenase and cytology were also assessed. Normal ferritin level was 25–400 ng/ml for males and 10–120 ng/ml for females.

Table 1. Tumour markers (mean, S.D.)

	Group I (n=23)	Group II (n=8)	Group III (n=12)
Serum			
Ferritin (ng/ml)	110 (119)	143 (172)	205 (168)
CEA (ng/ml)	25	3	2.6
HCG (ng/ml)	7.3	0	0.3
AFP (ng/ml)	1.3	0.5	0
Fluid			
Ferritin	336 (331)	298 (295)	341 (303)
CEA	16.8	4.9	2.3
HCG	0.3	0	0
AFP	62.5	2.2	0.9

HCG, CEA, and AFP levels were low in groups II and III (non-malignant) and generally heterogeneous in group I (malignant) with a few high values (Table 1). Although some patients had high ferritin levels in serum or fluid, there was no pattern to distinguish the groups. Serum and fluid ferritin and the ratio between the three groups were not significantly different (t test). 11 patients in group I had a ratio above 5. Corresponding figures in groups II and III were 1 and zero.

We found that HCG, CEA, AFP, and ferritin levels were not useful markers for diagnosis of malignant effusion. These measurements did not even differentiate between transudative and exudative fluids. We also found that ferritin levels in serum and effusate were highly variable in all three groups and unrelated to HCG, CEA, and AFP.

In addition, the ratio between fluid and serum ferritin could not differentiate malignant and non-malignant effusions.

Correspondence to S. Paydaş.
The authors are at the Departments of Oncology and Nuclear Medicine, Çukurova University School of Medicine, 01330 Blacali, Adana, Turkey.

1. Maxim PE, Ueltri RW. Serum ferritin as a tumor marker in patients with squamous cell carcinoma of the head and neck. *Cancer* 1986, **57**, 305–311.
2. Esumi N, Ikushima S, Hibi S *et al.* High serum ferritin level as a marker of malignant histiocytosis and virus associated hemophagocytic syndrome. *Cancer* 1988, **61**, 2071–2076.
3. Nagasue N, Yukaya H, Chang YC *et al.* Serum ferritin level after resection of hepatocellular carcinoma. *Cancer* 1986, **57**, 1820–1823.
4. Tatsuta M, Yamamura H, Lishi H *et al.* Value of serum alpha fetoprotein and ferritin in the diagnosis of hepatocellular carcinoma. *Oncology* 1986, **43**, 306–310.
5. Zhou HD, Detolla L, Custer P *et al.* Iron ferritin, hepatitis B surface and core antigens in the livers of Chinese patients with hepatocellular carcinoma. *Cancer* 1987, **59**, 1430–1437.
6. Goddard GZ, Matzner Y, Konijn AM *et al.* Cerebrospinal fluid ferritin in malignant CNS involvement. *Cancer* 1986, **58**, 1436–1439.
7. Yinnon A, Konijn AM, Link G *et al.* Diagnostic value of ferritin in malignant pleural and peritoneal effusions. *Cancer* 1988, **62**, 2564–2568.

Eur J Cancer, Vol. 26, No. 8, pp. 919–921, 1990.
Printed in Great Britain
0277-5379/90 $3.00 + 0.00
Pergamon Press plc

Cyclophosphamide, Doxorubicin and Vincristine with Amphotericin B in Sonicated Liposomes as Salvage Therapy for Small Cell Lung Cancer

J.P. Sculier, J. Klastersky, P. Libert, P. Ravez, D. Brohee, G. Vandermoten, J. Michel, J. Thiriaux, G. Bureau, J. Schmerber, R. Sergysels and A. Coune for the European Lung Cancer Working Party

IN SMALL cell lung cancer (SCLC) second-line or salvage treatment is needed to prolong survival and to achieve regimens that

Correspondence to J.P. Sculier.
The authors are at the European Lung Cancer Working Party, Institut Jules Bordet, Rue Héger-Bordet 1, B-1000, Bruxelles, Belgium.