

MALİGN VE BENİGN ASSİD'İ OLAN HASTALARDA, ASSİD SIVISINDAKİ FERRİTİN DÜZEYLERİ

LEVELS OF FERRITIN IN ASCITES IN THE PATIENTS WITH BENIGN AND MALIGN ASCITES*

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Özet

Assid intraabdominal hastalıkların sık görülen bulgusudur. Assid sıvılarının biyokimyasal ve histolojik incelemeleri yapılarak altta yatan hastalığın tanısına çalışılmaktadır. Günümüzde, assid sıvısındaki LDH, protein ve kolesterol düzeylerinin malign ve benign assidlerin ayırıcı tanısında kullanılan biyokimyasal kriterlerdir. Ferritin dolaşımdaki depo demiridir. Bir çok malign hastalıkta artar. Benign ve malign hastalığa bağlı assid'i alan hastalarımızın assid sıvısındaki ferritin düzeylerini inceledik. Çalışmamıza 25 benign assidli ve 25 malign assidli hastayı dahil ettik. Malign assidte LDH, protein, kolesterol düzeyleri yüksek iken ($p < 0.0001$), ferritin düzeyi, benign assid ile benzerdi ($p > 0.5$). Benign ve malign assidlerin tanısında, assid sıvısı ferritin düzeyinin kriter olarak kullanılamayacağı kanaatine vardık.

Anahtar kelimeler: *Assid, Ferritin*

Summary

Ascites is a common sign of intraabdominal diseases. Biochemical and histological examination of ascites fluid is used in the diagnosis of underlying pathological process. Nowadays, levels of lactic dehydrogenase (LDH), protein, and cholesterol in the ascitic fluid are accepted as a differential diagnostic criteria between benign and malign ascites. Ferritin is a protein which stores iron. Plasma levels of ferritin increase in the patients with malignancy and is a criteria of malign disease. We evaluated levels of ferritin in the ascites fluid in the patients with benign and malign ascites. Levels of LDH, protein, cholesterol and ferritin in the ascites fluid were detected in the ascites fluid in twentyfive patients with benign ascites and 25 patients with malign ascites. In the malign ascites group, fluid levels of LDH, protein and cholesterol were higher than those of benign ascites group ($p < 0.0001$). However, there was not a significant difference between the ascites fluid of malign and benign ascites group. We claimed that levels of ferritin in the ascites fluid is not used as a criteria in the differential diagnosis of benign and malign ascites.

Key words : *Ascites, Ferritin.*

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Introduction

The accumulation of fluid within the peritoneal cavity is a common clinical finding of patients with gastrointestinal and extra-gastrointestinal disease. The diagnosis of ascites is made by examination, imaging techniques, or paracentesis, laboratory analysis of the ascites fluids. Protein concentrations, LDH levels of ascites fluids, ascites-serum protein and LDH activities, amylase, glucose, triglycerides, lactate, carcino-

embryonic antigen (CEA) of ascites fluids, ascites-serum albumin gradient were made by differential diagnosis of ascites fluids (1). Iron-free apoferritin is a spherical protein made up of 24 subunits that surround a central cavity. The central cavity of each apoferritin molecule can potentially store more than 4000 molecules of iron. When iron is present in the central cavity, the protein is termed ferritin. Ferritin is the

Table-1. General Characteristics in the Study

	Benign ascites group	Malign ascites group
Number of patients	25	25
Average of age (year)	48.3 ± 8.4	45.7 ± 5.6
Underlying diseases		
Cardiac insufficiency (%)	40.0	
Hepatic cirrhosis (%)	60.0	
Gastrointestinal malign disease (%)		84.0
Extra-gastrointestinal malign disease (%)		16.0

most important stored iron which is 450 kd and is widely present all of tissues (2). The importance of

ferritin as an iron storage compound is emphasized by the wide distribution. Small amounts ferritin circulate in plasma and can be accurately measured by a widely available radioimmunoassay (1). Mobilisation of iron from the storage pool is interfered with by infection, inflammation, and malignancy. Increased levels of serum ferritin detected in the above mentioned diseases have been reported by widely investigations (1). It was suggested that levels of serum ferritin may be a diagnostic marker of Hodgkin disease (3), acute leukemia (4). We examined the levels of ferritin in the ascites fluids of patients with benign and malign ascites.

Table-2. Levels of LDH, Protein, Cholesterol and Ferritin in Benign and Malign Ascites Groups

	Benign ascites group	Malign ascites group	P values
LDH (IU / L)	34.95 ± 17.40	264.68 ± 225.38	< 0.0001
Protein (µg / L)	0.91 ± 0.74	2.85 ± 1.27	< 0.0001
Cholesterol (mmol / L)	1.45 ± 0.69	8.70 ± 6.83	< 0.0001
Ferritin (µg / L)	242.40 ± 233.74	281.88 ± 210.48	> 0.05

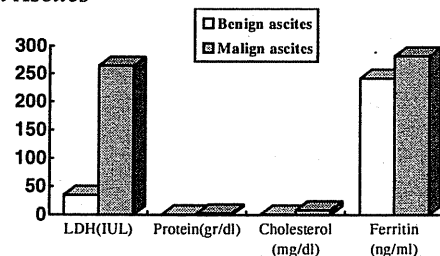
Materials and Methods

This study was applied between September 1992 and August 1994 in the Department of Internal Medicine, Medical School of Atatürk University, Erzurum, Turkey. In all patients, ascites fluid was diagnosed by physical examination, ultrasound examination and paracentesis. Ascites fluid samples were stored at -20 °C until laboratory investigations. In the differential diagnosis, we examined hepatic and cardiac functions and performed radiologic and endoscopic examinations of gastrointestinal tractus. In the ascites fluids, levels of LDH, protein, cholesterol were studied by Boehringer Mannheim kits at Hithachi 717 autoanalyzer and ferritin were detected made by commercial kits (Ferritin Enzyme Immunoassay Test Kit, cat. no : DMX 04053, DRG International, Germany) and enzyme immunoassay method. Student's t-test was used for evaluation the difference among biochemical parameters. All of the calculations were applied on IBM computer by GB-STAT, Version 3.0 programme (7).

Results

Twentyfive patient with benign ascites and 25 malign ascites were detected. In the benign ascites group, average of age was 48.3 ± 8.4 year-old. The number

of males was 14 (% 56), and the number of females was 11 (% 44). As an underlying disease, we detected cardiac insufficiency in 10 patients (% 40.0), and hepatic cirrhosis in 15 patients (% 60.0) (Table-1). In the malign ascites group, average of age was 45.7 ± 5.6 year-old. The number of males was 18 (%) and the number of females was 7 (%).

Fig-1. Comparison of Parameters in the Benign and Malign Ascites

We detected gastrointestinal malign disease in 21 patients (% 84.0) (17 gastric malignancy, 8 colorectal malignancy) and extra-gastrointestinal malign disease in 4 patients (% 16.0) (3 lymphoma, 1 carcinoma peritoneum which has an undefined origin)

(Table-1). In the benign ascites group, levels of LDH, protein, cholesterol, ferritin were 34.95 ± 17.40 IU / L, 0.91 ± 0.74 μ g / L, 1.45 ± 0.69 mmol / L, and 242.40 ± 233.74 μ g / L, respectively. In the malign ascites group, same parameters were 264.68 ± 225.38 IU / L, 2.85 ± 1.27 μ g / L, 8.70 ± 6.83 mmol / L, and 281.88 ± 210.48 μ g / L, respectively (Table-2).

In the malign ascites group, levels of LDH, protein, cholesterol were higher than those of benign ascites group ($t = 5.68$, $p < 0.0001$, $t = 3.88$, $p < 0.0001$, and $t = 4.96$, $p < 0.0001$, respectively). However, there was not a significant difference between ferritin levels of benign and malign ascites group ($p > 0.05$) (Table-2) (Figure-1).

Discussion

Nowadays, criterias of differantial diagnosis of benign and malign ascites are well known. In the ascites fluid, levels of protein, cholesterol, LDH and serum-ascites albumin gradient are high in the malign ascites (1). Increased serum ferritin levels are known as a marker of several malignant diseases, excluding hemochromatosis. As a diagnostic criteria of malign ascites, investigations of levels of ascites ferritin have been rarely used in the English medical literature. In this opinion, Kountouras et al (5) and Kadayıfçı et al (6) have suggested that levels of ascites ferritin are higher than those of benign ascites and it is a more significant criteria of malign ascites than serum-ascites albumin gradient. In contrast to, we did not detect any difference between the levels of ascitic ferritin in the benign and malign ascites. We think that a substance should be transferred into peritoneal cavity from systemic circulation for detection in the ascitic fluid (1). In addition, we know that peritoneal tissue is semipermeable against all substances and ferritin is also macromolecule which is 450 kd (2). According to our opinion, ferritin can not be transferred to peritoneal cavity from circulation. But, LDH and albumin are small sized proteins and they can easily transfer to peritoneal cavity from systemic circulation. In this presented study, we did not detect the difference between the levels of ascitic ferritin in

benign and malign ascites groups. But, we think that serum-ascites ferritin gradient should be detected in these patients. In the present study, however, values of ascitic ferritin were detected in the normal commercial kit limits. In summary, we saw that levels of ascitic ferritin are not criterias in the differantial diagnosis of patients with ascites.

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