

Evaluation of ascitic fluid cholesterol level in differentiating malignancy related ascites from cirrhosis or infection related ascites

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Abstract

Ascitic fluid analysis is routinely done for finding out the type of ascites. In the present study we have analysed ascitic fluid to calculate cholesterol level. This parameter helps us to find out whether ascites is related to malignancy or is related to cirrhosis, infection. Total 60 patients with ascites were analysed for cholesterol level in ascitic fluid. The level of ascitic fluid cholesterol >48mg% is indicator of malignancy related ascites. While if it is <48mg% it indicates non malignancy related ascites.

Keywords: ascitic fluid, cholesterol.

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Received Date: 21/05/2015 Revised Date: 02/06/2015 Accepted Date: 04/06/2015

Access this article online

Quick Response Code:



Website:

www.statperson.com

DOI: 06 June 2015

INTRODUCTION

Ascitic fluid examination forms an integral part of diagnostic work up of cases with ascites. Its ability to represent internal milieu and to reflect diseases in adjacent organs is remarkable.¹ Exfoliative cytology for malignant cells has high specificity in the diagnosis of malignancy but yields less sensitivity. Other parameters like cell count, pH, LDH can be used but are not diagnostic.^{2,6} Ascites formation in malignancies of abdomen and pelvis generally is attributed to increased rates of formation and decreased rates of removal of intraperitoneal fluid or a combination of both³. Considering a large volume of fluid traversing the peritoneal cavity and large reserve capacity of peritoneal lymphatics to absorb excess fluid one must assume that impairment of lymphatic drainage is the primary pathogenetic^{3,4} factor.

MATERIAL AND METHODS

Total 60 patients who were diagnosed to have ascites were studied. And these were divided into following groups.

Group I	No. of cases
Ascites with cirrhosis with PHT	30
Alcohol induced liver cirrhosis	15
Hepatitis induced liver cirrhosis	15
Group II	30
Ascites without cirrhosis and without PHT	
1. Ca colon	9
2. Ca ovary	9
3. Malignant lymphoma	1
4. Abdominal Kochs	8
5. Infective pancreatitis	2
6. Ca stomach	1

Following parameters were studied:

1. Estimation of Serum cholesterol level
2. Estimation of ascitic fluid cholesterol level

By manual method of Zak *et al*⁵

OBSERVATION AND RESULT

Table 1: Levels of cholesterol in serum and ascitic fluid

Group	Serum total cholesterol (mg%) Mean \pm S.D.	Ascitic fluid total cholesterol (mg%) Mean \pm S.D.
I	157.8 \pm 26.2*	29.6 \pm 12.28**
II	155.1 \pm 57.9*	85.1 \pm 90.55**

*p>0.05, **p<0.05

Serum cholesterol levels were more or less same in both the groups. But values in ascetic fluid in group 2 was grossly elevated and almost more than double the value in group 1. The difference is statistically significant.

DISCUSSION

The possible reason for occurrence of high value of ascetic fluid cholesterol in malignant ascites when compared with non-malignant ascites may be due to lymphatic obstruction leading to rupture of lymphatic channel causing increase in exudation of chyle with high lipid content (274, 4). Thus increasing levels of cholesterol in ascetic fluid. The second source of ascetic fluid cholesterol is cell membranes of malignant cells which are shade into the peritoneal cavity²

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Source of Support: None Declared
Conflict of Interest: None Declared