

THE DEMOGRAPHIC PATTERN OF MALIGNANT AND NONMALIGNANT ASCITIC PATIENTS

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ABSTRACT

Objective: In this study our main aim is to evaluate the demographic pattern of malignant and nonmalignant ascites patients. **Method:** This observational, cross sectional type study conducted in Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka from September 2014 to February 2017. During the study period of total 60 patients (30 patients with malignant ascites and 30 patients with nonmalignant ascites) were enrolled for the study. **Results:** The mean age was 29.19±9.11 years in nonmalignant and 32.80±9.20 years in malignant group. Mean serum Hb % (g/dl), ESR (mm in 1st hr), platelet count in nonmalignant group were 10.73(±1.56), 47.67(±23.83) and 199.70(±133.84) respectively and in malignant group were 10.88 (±1.61), 55.63 (±28.47) and 430.40 (±160.58) respectively. . Out of 30 nonmalignant ascites, majority 24(80%) were cirrhosis of liver and 6(20%) were found tubercular ascites. that majority 19(63.3%) patients were unknown primary causes, 06(20.0%) had ovarian carcinoma. **Conclusion:** The present study revealed on the usefulness of fibronectin in the differential diagnosis of ascites and these data and findings suggest that fibronectin may have potential value to differentiate malignant from nonmalignant ascites.

KEYWORDS: Ascitic fluid fibronectin, malignant ascites, nonmalignant ascites.

INTRODUCTION

Malignancies are a common cause of ascites both in the developed and in developing countries. Studies in US have shown that malignancies account for up to 10% of all causes of ascites.^[1] Studies in Asia have shown a prevalence ranging from 13% to 25%.^[2] Most of the malignancies were due to metastatic colon carcinoma. In Africa, one previous study done in the late 1970's in Eastern Zaire reported malignancy in 22.7% of the patients with ascites, and most of them had hepatocellular carcinoma.^[3] In recent study in Nigeria, 22% of the patients with ascites had malignancy, with the commonest being ovarian cancer, gastric carcinoma, and breast cancer. However, this could be due to the fact that this study involved mostly (78.4%) females.^[4] In general, the presence of ascites portends a poor prognosis. The mean survival in patients with malignant ascites is generally less than 4 months. However, with ascites due to a malignancy that is relatively sensitive to chemotherapy (e.g., newly diagnosed ovarian cancer),

the mean survival may be significantly better (i.e. 6-12 months).^[5]

In this study our main aim is to evaluate the demographic pattern of malignant and nonmalignant ascites patients.

OBJECTIVE**General objective**

- To evaluate the demographic pattern of malignant and nonmalignant ascites patients.

Specific objective

- To detect Causes of nonmalignant ascites of the patients.
- To identify diseases according to malignant and nonmalignant ascites of the patients.

METHODOLOGY**Study type**

This was an observational, cross sectional type study.

Place and period of the study

This study was conducted in Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka from September 2014 to February 2017.

Study Population and sample size

During the study period of total 60 patients (30 patients with malignant ascites and 30 patients with nonmalignant ascites) were enrolled for the study.

Study procedure

Patients with ultrasonographic evidence ascites admitted in the Department of Hepatology, Oncology, Gynae Oncology and Internal Medicine of BSMMU were provisionally selected. Then proper history, clinical examination and some initial investigations like CBC, S. Albumin, Urine R/M/E, Ascitic fluid study (Cytology, total protein, SAAG, ADA, malignant cell) and Chest X-ray P/A view were done for matching of inclusion and exclusion criteria. Further investigations were done according to the study protocol like ECG, Echocardiography, AFP, CA 19-9, CEA, CA 125, CA 15-3, TVS, Endoscopy of UGIT, Colonoscopy, CT Scan of abdomen, FNA from primary site, Laparoscopy/Laparotomy with biopsy. Patients who meet inclusion & exclusion criteria were informed in details about the study.

Data processing and data analysis

The statistical analysis was carried out using the Statistical Package for Social Sciences version 20.0

for Windows (SPSS Inc., Chicago, Illinois, USA). The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Chi-Square test was used to analyze the categorical variables, shown with cross tabulation. Sensitivity, specificity, positive predictive value and negative predictive value were calculated by using the area under the receiver operating characteristic (AUROC) curves. P value of <0.05 was taken as significant.

RESULTS

In table-1 shows baseline characteristics of the study population. It was observed that the mean age was 29.19±9.11 years in nonmalignant and 32.80±9.20 years in malignant group. Mean serum Hb % (g/dl), ESR (mm in 1st hr), platelet count in nonmalignant group were 10.73(±1.56), 47.67(±23.83) and 199.70(±133.84) respectively and in malignant group were 10.88 (±1.61), 55.63 (±28.47) and 430.40 (±160.58) respectively, among them ESR was statistically significant. Serum albumin (g/dl), ascitic fluid total protein (g/dl) and ascitic protein albumin (g/dl) were significantly higher in malignant group than nonmalignant group (p<0.001). Whereas ALT (U/L) and SAAG (g/dl) were significantly lower in malignant group than nonmalignant. The following table is given below in detail:

Table-1: Baseline characteristics of the study population (n=60).

Variable	Nonmalignant ascites Mean(±SD)	Malignant ascites Mean(±SD)	p value
Age in years	29.19±9.11	32.80±9.20	0.074 ^{ns}
Gender (Male/Female)	22/8	13/17	0.01 ^s
Hb% (g/dl)	10.73(±1.56)	10.88 (±1.61)	0.722 ^{ns}
TC (--x10 ⁹ /L)	26.74(±108.35)	10.07 (±4.47)	0.403 ^{ns}
Differential count, Neutrophil (%)	67.03(±19.26)	73.67 (±11.38)	0.110 ^{ns}
Lymphocyte(%)	20.53(±6.85)	17.83 (±9.10)	0.200 ^{ns}
Monocyte (%)	4.90(±1.93)	4.40 (±2.04)	0.345 ^{ns}
Eosinophil (%)	3.53(±2.25)	4.00 (±8.70)	0.785 ^{ns}
ESR (mm in 1st hour)	47.67(±23.83)	55.63 (±28.47)	0.001 ^s
Platelet count (--x10 ⁹ /L)	199.70(±133.84)	430.40 (±160.58)	0.399 ^{ns}
RBS (mmol/L)	12.24(±24.34)	6.62 (±3.23)	0.074 ^{ns}
S. Creatinine (mg/dl)	17.06(±48.65)	0.88(±0.29)	0.423 ^{ns}
ALT (U/L)	50.90(±28.62)	33.07(±24.04)	0.01
Prothrombin Time	17.67(±4.22)	16.62(±9.97)	0.63
INR	1.46(±0.36)	1.47(±0.98)	0.98
Serum Albumin (g/dl)	2.44(±0.58)	3.21(±0.78)	<0.001
Ascitic fluid total protein (g/dl)	2.25(±1.92)	4.72(±1.30)	<0.001
Ascitic protein albumin (g/dl)	0.94(±1.10)	2.30(±.72)	<0.001
SAAG (g/dl)	1.57(±0.65)	0.89(±0.41)	<0.001

s=significant; ns=not significant

P value reached from unpaired t-test

In table-2 shows distribution of diseases of the patients. In nonmalignant ascites 24(80.0%) had cirrhosis of liver and 6(20.0%) had tubercular ascites. In malignant ascites

group, majority 19(63.3%) patients were unknown primary and 6(20.0%) had ovarian carcinoma. The following table is given below in detail:

Table-2: Distribution of diseases according to malignant and nonmalignant ascites.

Cause	Nonmalignant Ascites (n=30)		Malignant Ascites (n=30)		P value
	n	%	n	%	
Carcinoma Colon	--	--	2	6.7	0.150
Cirrhosis of liver	24	80.0	--	--	0.001 ^s
Carcinoma Lung	--	--	1	3.3	0.313 ^{ns}
Carcinoma Stomach	--	--	1	3.3	0.313 ^{ns}
Lymphoma	--	--	1	3.3	0.313 ^{ns}
Ovarian carcinoma	--	--	6	20.0	0.009 ^s
Tubercular Ascites	6	20.0	--	--	0.009 ^s
Unknown primary	--	--	19	63.3	0.001 ^s

s=significant; ns=not significant

p value reached from Chi square test

In figure-1 shows Causes of nonmalignant ascites. Out of 30 nonmalignant ascites, majority 24(80%) were

cirrhosis of liver and 6(20%) were found tubercular ascites. The following figure is given below in detail:

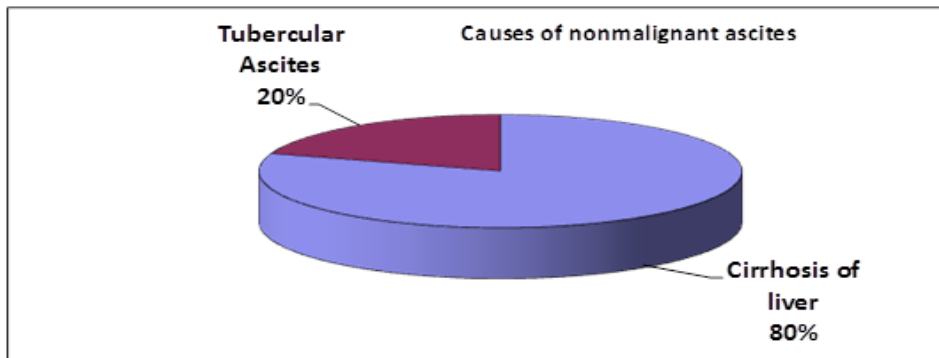


Figure 1: Pie chart shows causes of nonmalignant ascites (n=30).

In table-3 shows causes of malignant ascites. Where it was observed that majority 19(63.3%) patients were

unknown primary causes, 06(20.0%) had ovarian carcinoma. The following table is given below in detail:

Table-3: Causes of malignant ascites (n=30).

Causes of malignant ascites	Number of patients	Percentage
Carcinoma Colon	02	06.7
Carcinoma Lung	01	03.3
Carcinoma Stomach	01	03.3
Lymphoma	01	03.3
Ovarian carcinoma	06	20.0
Unknown primary	19	63.3
Total	30	100.0

In table-4 shows distribution malignant ascites according to negative and positive for malignant cell. Negative for

malignant cell was found 14(46.7%) and positive for malignant cell was 16(53.3%).

Table-4: Distribution malignant ascites according to negative and positive for malignant cell (n=30).

Variable	Number of patients	Percentage
Negative for malignant cell	14	46.7
Positive for malignant cell	16	53.3
Total	30	100.0

DISCUSSION

In malignant ascites group majority 8(26.7%) patients belonged to age 51-60 years and in nonmalignant ascites group 9(30.0%) patients belonged to age 41-50 years. The mean age was found 32.80±9.20 years in malignant group and 29.19±9.11 were nonmalignant group. One study showed the mean age of their study was 46.58±12.44 years with a range of 18 years to 65 years. Patients in malignant group were slightly older than those in nonmalignant group (mean age ±SD: 48.43±11.13 vs. 44.79±13.51 respectively).^[6] Another study showed that patients in malignant group were significantly older than those in nonmalignant group (mean ± SD age 63.40 ± 13.48 versus 53.50 ± 14.63 years, respectively; $P < 0.001$).^[7]

Regarding investigations of the patients, it was observed that mean serum Hb % (gm/dl), ESR (mm in 1st hour), platelet count in nonmalignant group were 10.73(±1.56), 47.67(±23.83) and 199.70x10⁹(±133.84) respectively and in malignant group were 10.88 (±1.61), 55.63 (±28.47) and 430.40 (±160.58) respectively, among them ESR was statistically significant. Serum Albumin (g/dl), ascitic fluid total protein (g/dl) and ascitic fluid albumin (g/dl) were significantly higher in malignant group than nonmalignant group ($p < 0.001$). Whereas ALT (U/L) and SAAG (g/dl) were significantly lower in malignant group than nonmalignant. Similar investigation was observed one study where they showed that the mean ascitic fluid total protein was 30.21±15.00 g/L NMA and 38.72±18.00 g/L in MA.^[8]

In this study showed that out of 30 nonmalignant ascites, cirrhosis of liver was found 24(80%) cases and tubercular was found 06(20.0%) cases, among cirrhotic ascites more common causes were found HBV which was 13(43.3%) followed by 01(3.3%) were HCV and 10(33.3%) were NBNC. One report showed Hepatitis B virus is the commonest cause of chronic liver disease in Bangladesh.^[9]

In present study showed that in malignant ascites group, majority 19(63.3%) patients were unknown primary causes and 6(20.0%) had ovarian carcinoma. In study revealed out of 107 patients, 57 had malignant ascites, the distribution of malignancies being: 16 gastric carcinomas, three breast cancers, 10 colon carcinomas, four non-Hodgkin's lymphomas, six ovarian cancers, nine malignant mesotheliomas, five pancreas adenocarcinomas, one germ cell tumour and three adenocarcinomas of primary unknown origin.^[10]

CONCLUSION

The present study revealed on the usefulness of fibronectin in the differential diagnosis of ascites and these data and findings suggest that fibronectin may have potential value to differentiate malignant from nonmalignant ascites. Also, fibronectin is more sensitive in diagnosing malignancy, when compared to cytology.

Further prospective studies on larger number of subjects might be necessary for validation of these findings.

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