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Study of prevalence of refractory ascites in patients with liver cirrhosis in western Punjab

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INTRODUCTION

Together with hepatic encephalopathy (HE), hepatorenal syndrome, and upper gastrointestinal hemorrhage, ascites is among the most prevalent side effects of cirrhosis. Ascites growth is accompanied by a poor diagnosis and a reduced standard of living in terms of health[(1)].Within ten years of being diagnosed with cirrhosis, 60% of people will experience ascites[(2)]. Refractory ascites has a significant survival rates and occurs in 5%–10% of all people with liver cirrhosis induced ascites.[(3)] Refractory ascites has a 50% average 1-year life expectancy[(2,4)]. The only effective treatment for these people is liver transplant, however the procedure is expensive and has a low donor liver supply in India. Nowadays, the first-line therapy for people with refractory ascites is recurrent large-volume or total-volume paracentesis with iv albumin administration [(10,6)]. As these patients will ultimately require transplant, it is important to look into indicators of refractory ascites formation in patients with liver cirrhosis. But there are few studies looking for indicators of RA formation in patients with cirrhosis, and as far as we know, no Tunisian research has looked at that issue[(9)]. Patients with refractory ascites were divided in 1996 by the International Ascites Club into two different groups: those who have diuretic-resistant ascites (patients who were unable to respond to maximum doses of diuretics), and those who experienced complications from diuretic treatment that prevented using an optimal dose of diuretic (diuretic-intractable ascites)[(7,8)].

The purpose of this study was to identify the prevalence of Refractory Ascites in cirrhotic individuals.

Material and Methods

Study conduct in department of gastroenterology for the first time for controlling refractory ascites between 18th August to 31st October. This study included etiology, demographic data, any co-morbid factors, child-pugh score, physical examination, complication of cirrhosis, laboratory value , MELD score, were gathered at the time of admission . The type of refractory ascites and treatment methods were also described for individual who developed refractory Ascites during the follow-up period.

Exclusion Criteria: Patients under the age of 18 were excluded, those who had a confirmed refractory Ascites diagnosis or ascites caused by either heart failure, nephrogenic cause, malignancy, tuberculosis.

Diagnosis of ascites and Refractory Ascites

Physical examination and ultrasound were utilized to diagnose the condition of ascites. The following are the diagnosis measures as stated by the International Ascites Club (IAC).

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

Incapable or unwilling ascites or early return of ascites that can't be well avoided by medical treatment[7]. As a result, there were two main categories of Refractory Ascites: "Diuretic-resistant ascites" which is an ascites that cannot be mobilized or whose early return cannot be avoided due to a lack of sensitivity to sodium restriction, diuretic therapy (spironolactone 400 mg/day and furosemide 160 mg/day), and sodium restriction. Diuretic-intractable ascites" which was immobilized but whose early recurrence could not be controlled due to the emergence of problems brought on by diuretics like: hyponatremia, in the absence of another triggering cause, hepatic encephalopathy, hyper/ hypokalemia, renal failure[11,12].

Statistical analysis

All the data was recorded and analysis was done using IBM SPSS version 22.0, where Chi Square test was applied with p-value <0.05.

Results

Baseline characteristics

90 people were admitted to the hospital to treat ascitic decompensation, out of 75 Patients 83.3% were male and 15 (16.7) were female and all patients' average ages were 57 ± 13 years. Data from patients with refractory ascitis from western Punjab was analyzed.17 (56.7%) of patients were from Bathinda region, 5 (16.7%) of patients were form Rampura, 4 (13.3%) of patients were form Malout and 4(13.3%) of patients were from Mansa. Child-Pugh score was C in 43% and B in 53.3% .Ascites was grade 2 in 60% grade 3 in 40%. Cirrhosis's primary etiology was viral (56.4%): C in 36.2% and B in 22.1%, rest was either due to alcohol or any other cause. Mean MELD score was 23.26. At entry 30 patients had diuretic treatment .No one received spironolactone alone, 09 patients (30%) receive furosemide alone and 21 patients (70%) receive both spironalactone and furosemide .

Table 1: Show the Prevalence of Refractory Ascites Patients.

S.NO	Address	No of Ascites Patients (%)	No of Refractory Ascites Patients %
(1)	Bathinda	27 (30.0%)	17 (56.7%)
(2)	Rampura	14 (15.6%)	5 (16.7%)
(3)	Malout	9 (9.9%)	4 (13.3%)
(4)	Mansa	17 (18.8%)	4 (13.3%)
(5)	Moga	5 (5.5%)	0%
(6)	Firozpur	9 (9.9%)	0%
(7)	Faridkot	9 (9.9%)	0%

Table 2: Show Refractory ascites development in patients with cirrhosis admitted to manage ascitic decompensation: indicators.

S.No	Variables	RA(+) N=30
01	Mean age(Years)	57

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02	Male	25(83.3%)
03	Diabetes mellitus	6(20%)
04	Bacterial infection	22(73.3%)
05	Score of MELD≥15	26(86.6%)
06	INR≥1.05	14(46.6%)
07	Sodium (mmol/l)	130.1
08	Creatinine (mg/dl)	1.81
09	Hydrothorax	1(3.3%)
10	Prothrombin time ≥11.7	17(56.6%)
11	Ascites Grade 3	12(40%)
12	Score of Child-Pugh C	13(43.3%)

RA incidence during follow-up

30 individuals experienced the onset of Refractory Ascites on review, suggesting an incidence of 33.3% in a median of 2.2± 2.3months after admission. All patients of refractory ascites type were diuretic intractable. Serum creatinine levels in the 22 individuals with renal dysfunction varied from 1.4 to 2.0 mg/dl, and 10 of them had levels more than 2.1 mg/dl. Thus, 17.7% of people had Refractory Ascites, as determined by the IAC guidelines. All participants had substantial paracentesis repeat every 2.1± 0.7 weeks to address refractory ascites. Additionally, 09 individuals (30%) administered furosemide.

Table 3: **Show Cirrhotic patients' biochemical parameters at entrance.**

S.No	Test	Mean
01	Prothrombine Time	18.24
02	Serum Albumin, g/L	2.85
03	Serum bilirubin, µmol/L	5.65
04	Serum Sodium, mmol/L	130.1
05	Serum Creatinine, µmol/L	1.81
06	Serum Potassium, mmol/L	4.33
07	INR	1.69

Table 4: Show Complication of Cirrhosis.

S.No	Complication	Number	Percentage
01	Variceal Haemorrhage	00	00
02	Hepatic Encephalopathy	4	13%
03	SBP	3	10%
04	Bacterial Infection	22	73%
05	Hydrothorax	1	3.33%

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

Discussion

In our research the prevalence of refractory ascites was 33.3 per each case. The refractory ascites type was intractable diuretic. Ascites grade 3 at the date of the initial treatment were identified to be predictive markers of refractory ascites development in univariate analysis. Prothrombin time ≤ 64.5%, child-pug score C, spontaneous bacterial peritonitis at the initial treatment, MELD score ≥15, sodium urinary output ≤42 mmol/24 hours were also considered as predictive markers. Only urine sodium average yield was a separate predictive indicator of Refractory Ascites development in bivariate analysis.

Each year, five to ten percent of ascites patients become resistant to standard medical therapy, either as a result of inappropriate natriuretic effect form diuretic treatments or, more frequently, as a result of the rise of severe side effect from diuretics that influence the patient to end taking the medication. These results are based on observational studies done in inpatients or on controlled clinical research in highly selected populations. It is most probably significantly different based on the stage of cirrhosis, being positively higher in individuals with decreased renal function.Therefore, patients with cirrhosis and ascites admitted to tertiary care hospital or to liver transplant units may more frequently exhibit lack of response to medical therapy. The incidence of Refractory Ascites in our population was greater than that seen in the literature, and there are several possibilities for this: First, nearly 72% of our subjects had a serious condition of cirrhosis (Child Pugh B or C). In our research, the level of serum creatinine causing the cessation of diuretics was less than 2.1 mg/dl in 10 individuals. Considering the IAC's criteria, prevalence was lower (17.7%), while it was still greater than had been initially reported. The diuretic intractable such kind refractory ascites is the one that has been identified in the research as being the most frequent.

As per recent research, subjects with refractory ascites have a poor outcome at the early stages of the disease, with 1- and 2-year survival rates about just 50 and 30%, significantly, without liver transplantation. In order to address an early liver transplant, it is crucial to identify predictors that might identify a group of patients with liver cirrhosis who would develop refractory ascites .We selected two studies in the research whose primary objective was to identify the predictors of refractory ascites development in cirrhotic individuals : a Korean study of Seo et al. and , the Spanish study of Planas et al. For individuals whose liver function was Child-Pugh C, the liver failure was certainly enough to trigger the onset of refractory ascites. In our research, the primary analysis indicated that Child-Pugh class, MELD score were key indicators of Refractory Ascites development, however the bivariate analysis did not confirm this. This shows a possible separate role for liver failure in the development of refractory ascites.

Other refractory ascites predictor studies have not looked for this parameter. However, it is intriguing to take into account that these individuals should be closely monitored due to their elevated risk of developing the same. In our study, the only significant indicator of the development of refractory ascites was sodium urine output 42 mmol/24 h. Natriuresis is a simple criterion that can be helpful in our clinical practise in early separation of the sensitivity to diuretic therapy, and this outcome is not tied to the administration of any diuretics. Our findings were in line with those of two previous investigations, which

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

discovered that natriuresis less than 50 mEq/8 hours, assessed eight hours after a bolus of 80 mg furosemide, was a reliable indicator of the onset of Refractory ascites[15,16]. These investigations shown that refractory ascites patients may be rapidly and precisely identified using the simple furosemide-induced natriuresis test, that could be extremely helpful to choose individuals for liver donation. Natriuresis was not discovered as a predictive factor in studies that looked at the causes of Refractory ascites: Planas et al.[13]and Seo et al.[17], revealed a correlation between blood electrolyte levels and the sensitivity of ascites to diuretic therapy.

Conclusion

The present study indicates the prevalence of refractory ascitis in cirrhotic patients is significant, and that sodium urinary output was an independent predictor of refractory ascitis development in cirrhotic patients admitted to control ascitic decompensation. Future research should, however, examine if natriuresis may be used to rank the need for liver transplant in these individuals.