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Large-Volume Paracentesis Treatment for Refractory Ascites Due to Lack of Response with Maximum Dosses of Diuretics: A Case Report

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Abstract: ***Introduction: Refractory ascites (RA) refers to ascites that cannot be mobilized or that has an early recurrence that cannot be prevented by medical therapy. [1] We present a case report of 60 years old male diagnosed with liver cirrhosis with refractory ascites treated by Large-Volume Paracentesis (LVP) due to lack of response with maximum dosses of diuretics. Case Report: A 60-years old man has been diagnosed with cirrhosis hepatic from 8 months ago. He has been hospitalized 2 times in the last 2 months with complaint of discomfort of the stomach and hard to breath. Physical examination revealed a blood pressure 110/70 mmHg, pulse of 100x/minute, respiratory rate of 26 times per minutes, body temperature of 36.5^{0}C. Abdominal examination revealed distended and tense abdomen with positive undulation and shifting dullness which consistent with massive ascites. Total serum protein was 6.5g/dL, with albumin levels of 2.3g/dL, globulin level 4.2 g/dL. Because lack of response despite maximum dosses of diuretics therapy, we decided to performed Large-Volume Paracentesis on the 9 th day of hospitalization, and about 5,000 mL of yellowish fluid was evacuated. Summary: In this case report, we presented a patient who had refractory ascites with underlying disease liver cirrhosis. We perform Large-Volume Paracentesis (LVP) in this patient to reduce volume of ascites due to lack of response with maximum dosses of diuretics. Removing a large amount of ascites in a short period may induce circulatory dysfunction, a condition known as Paracentesis-induced Circulatory Dysfunction (PICD). Hence, administration of albumin during LVP significantly reduces the incidence of PICD.***

Keywords: Large-Volume Paracentesis (LVP), Refractory ascites, Liver cirrhosis

1. Introduction

Refractory ascites (RA) refers to ascites that cannot be mobilized or that has an early recurrence that cannot be prevented by medical therapy. Every year, 5–10% of patients with liver cirrhosis and with an accumulation of fluid in the peritoneal cavity develop RA while undergoing standard treatment (low sodium diet and diuretic dose up to 400 mg/day of spironolactone and 160 mg/day of furosemide). [1]

Refractory ascites, which develops in 5%–10% of all patients with cirrhotic ascites, has a high mortality rate. The mean 1-year survival rate of refractory ascites is approximately 50%. Ascites can be treated by diuretics drugs, Large-Volume Paracentesis (LVP), Transjugular Intrahepatic Portosystemic Shunt (TIPS) and an automated low-flow ascites pump system, but liver transplantation is the only definitive treatment for these patients. However, liver transplantation is costly and the number of donors is limited and high cost. [2, 3]

Here we present a case report of 60 years old male diagnosed with liver cirrhosis with refractory ascites treated by Large-Volume Paracentesis (LVP) due to lack of response with maximum dosses of diuretics.

2. Case Report

A 60-years old man has been diagnosed with cirrhosis hepatic from 8 months ago. He has been hospitalized 2 times in the last 2 months with complaint of discomfort of the stomach and difficulty of breathing. Physical examination revealed a blood pressure 110/70 mmHg, pulse of 100 times per minutes, respiratory rate of 26 times per minutes, body temperature of 36.5^{0}C. Abdominal examination revealed distended and tense abdomen with positive undulation and shifting dullness which consistent with massive ascites. We considered the cause of his complaint was his ascites because his lung examination was in normal limit and no abnormalities were found on chest x-ray.

Routine investigations revealed haemoglobin 7.2 g/dL with a MCV of 77.9 fL. The total leucocyte count was 4.5 X 109 /L with normal differentials and platelet count of 313,000/mm3. Liver function tests showed normal alanine and aspartate aminotransferases (AST= 35 IU/L, ALT=36 IU/L) and normal serum bilirubin concentration. Total serum protein was 6.5g/dL, with albumin levels of 2.3g/dL, globulin level 4.2 g/dL. Renal function was within normal limit.

During hospitalization, patient was treated with spironolactone 200 mg BID, furosemide 80 mg BID, omeprazole 40 mg BID, lactulose syrup 10 ml TID, transfusion of packed red cell, and 40 g of albumin transfusion. Because of a lack response despite maximum dosses of diuretics therapy, we decided to performed Large-Volume Paracentesis on the 9th day of hospitalization, and about 5,000 mL of yellowish fluid was evacuated.

3. Discussion

Refractory ascites cannot be managed by medical therapy either because lack of response to maximum doses of diuretics (furosemide 160 mg/day and spironolactone 400 mg/day) or because patients develop complications related to diuretic therapy that preclude the use of an effective dose of diuretics. [4] In 5-10% of patients, ascites become resistant to treatment (either do not respond to a maximun dose of diuretics or because these drugs induce complications), which is called Refractory Ascites (RA). RA is associated with poor survival around 20-50% at 1 year. Different treatments have been proposed. however, only liver transplantation can improve survival. [3] In these patients the use of diuretics was ineffective, we gave the maximum doses of diuretics 200 mg BID spironolactone and 80 mg BID furosemide but it's not reduce the volume of the ascites. The patient complained of abdominal discomfort and difficulty of breathing because of the ascites. We decided to do a large-volume paracentesis (LVP) to control massive ascites in this patient. LVP, the first-line treatment for refractory ascites, is defined as direct aspiration of >5 L of ascites. Compared with diuretics, LVP can control massive ascites rapidly and shorten the hospital stay, but it has no effect on the mortality rate. [2] The patient symptoms released after we collected 5000 mL of yellowish fluids.

Removing a large amount of ascites in a short period may induce circulatory dysfunction because of the sudden reduction of effective circulating volume with reactivation of RAA and sympathetic systems, a condition known as Paracentesis-induced Circulatory Dysfunction (PICD). [5] Which can be prevented by an infusion of 7–8 g of albumin per litre of fluid tapped. [2] Administration of albumin during LVP significantly reduces the incidence of PICD among colloid agents. However, further studies are still required to identify the efficacy of albumin. [2,5] We gave 40 g infusion of albumin to reduce incidence of PICD in this patient, which is an important risk factor for reaccumulation of ascites and various complications. The main physiological function of albumin is to retain ongoing intravascular osmotic pressure and to maintain effective circulating volume. As a colloid volume expander, albumin has been used to "fill" potentially inadequate intravascular volume, especially after LVP. [2]

4. Summary

In this case report, we presented a patient who had refractory ascites with underlying disease liver cirrhosis. We perform large-volume paracentesis (LVP) in this patient to reduce volume of ascites due to lack of response with maximum dosses of diuretics. Removing a large amount of ascites in a short period may induce circulatory dysfunction, a condition known as Paracentesis-induced Circulatory Dysfunction (PICD). Hence, administration of albumin during LVP significantly reduces the incidence of PICD.

References

[1] Kasztelan-Szczerbinska B, Cichoz-Lach H. 2019. Refractory ascites—the contemporary view on pathogenesis and therapy. PeerJ 7:e7855 DOI 10.7717/peerj.7855
[2] Zhao R *et.al.* Current management of refractory ascites in patients with cirrhosis. *J Int Med Res. 2018 Mar; 46(3): 1138–1145.*
[3] Ennaifer R, Elleuch N, Romdhane H, Hefaiedh R, Cheikh M, et al. (2014) Refractory Ascites in Cirrhosis: Prevalence and Predictive Factors. J Liver 3: 162. doi:10.4172/2167-0889.1000162
[4] Fuku H, Kawaratani H, Kaji K, Takaya, Yoshiji H. Management of refractory cirrhotic ascites : challenges and solutions. *Hepat Med. 2018;10;55-71*
[5] S.-J. Hsu, H.-C. Huang. Management of ascites in patients with liver cirrhosis: Recent evidence and controversies. *Journal of the Chinese Medical Association 76 (2013) 123-130*