

Research article

Comparison of partial splenic embolization in HIV infected and non-HIV infected patients with cirrhosis

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Abstract

Objective: The aim of this study is to see whether it is effective for human immunodeficiency virus (HIV) infected patients conducted partial splenic embolization (PSE) and if there are differences in the effects of PSE between HIV and non-HIV patients.

Method: We retrospectively reviewed seven patients, three were HIV infected, the rest weren't. We compared the effects of PSE between the two groups using indices of hematologic indices and liver function.

Result: In HIV infected patients, WBC rose in all PSE procedure, RBC rose in 3 procedures. PLT increased in 2 procedures. ALT decreased in all patients, but the changes of ALB and AST were not obvious. In non-HIV infected patients, all the hematologic indices were increased, except one patient. ALT and AST were increased, the change of ALB was not obvious.

Conclusion: PSE do improve the hematologic indices and liver function in patients with HIV and hepatitis virus co-infected, but when compare with non-HIV infected patients included in our study, we haven't seen much differences in the effects.

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Keywords: HIV; Viral hepatitis; Hypersplenism; PSE

1. Introduction

The co-infection of human immunodeficiency virus (HIV) and hepatitis virus became more prevalent, because of the same route of transmission: blood. What is worse, infection with HIV accelerates the progression of HBV/HCV disease to cirrhosis by increasing hepatitis B/C viremia [1]. A study showed that non-AIDS related death was mostly caused by liver diseases and there was a strong relation between immunodeficiency and risk of liver related death [2]. This means that HIV and HBV/HCV co-infected patients may experience a higher risk of death than other HIV or HBV/HCV infected patients. In hepatic cirrhosis, hypohepatia, thrombocytopenia, anemia and leucopenia are frequently occurring clinic features. Additionally,

hypersplenism due to portal hypertension may result in further reduction of hematologic indices [3]. Thrombocytopenia increases a patient's risk of spontaneous bleeding, and may preclude surgical or endovascular interventions. Leukopenia decreases the patient's ability to overcome infection, and may serve as a contraindication to the use of chemotherapies. Anemia places a patient at a high risk of bleeding [4].

Splenectomy is a traditional treatment of hepatic cirrhosis and hypersplenism, but it is associated with severe complications, such as hemorrhage, thromboembolic, subphrenic abscess, overwhelming postsplenectomy infection (OPSI) [5]. While for partial splenic embolization (PSE), postembolization syndrome including abdominal pain, fever, malaise, and gastrointestinal symptoms is the most common side effect of PSE [6]. A retrospective study shows that both splenectomy and PSE can improve hematologic indices, but the patients conducted splenectomy may experience more severe complications [7]. The PSE not only improve liver function and serum cell counts, but also decrease the incidence of variceal bleeding and the protection

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can persist for at least a year [8]. But for the patients who have hypersplenism secondary to cirrhosis and infected with HIV virus at the same time, the effect of PSE is unclear.

2. Materials and methods

2.1. Materials

We retrospectively analysed seven patients with liver cirrhosis who underwent 8 PSE during 2007–2013 in Zhongnan Hospital of Wuhan University. One of the patients conducted twice PSE because of a smaller infarction area in the first time. The patients included in this study were those who conducted CT before and after PSE, and their CT images could be seen in the PACS system in our hospital and the WBC, RBC, PLT and liver function should be tested before and after PSE. The patients who only conducted B ultrasound or who hadn't had all of the biochemical tests were excluded. The seven patients are divided into 2 groups. There are three patients infected with HIV virus in group A, including 2 women aged 44 and 45 and a 55-year-old man. The 44 year-old woman has had hepatitis B for more than 8 years; the 45 year-old woman was the one who received PSE twice, had hepatitis B and C, and cirrhosis; and the man was diagnosed with hepatitis C and cirrhosis. The remaining four patients haven't infected with HIV virus are in group B. There are 2 women aged 56, 72 and 2 men aged 53, 54. Both group patients have bad liver functions and splenomegaly confirmed by computerized tomography, and associated decreasing hematologic indices including thrombocytopenia and leucopenia.

2.2. Methods

We used Seldinger's method through the right femoral artery puncture. Via a 5 F arterial sheath pipe, we inserted the

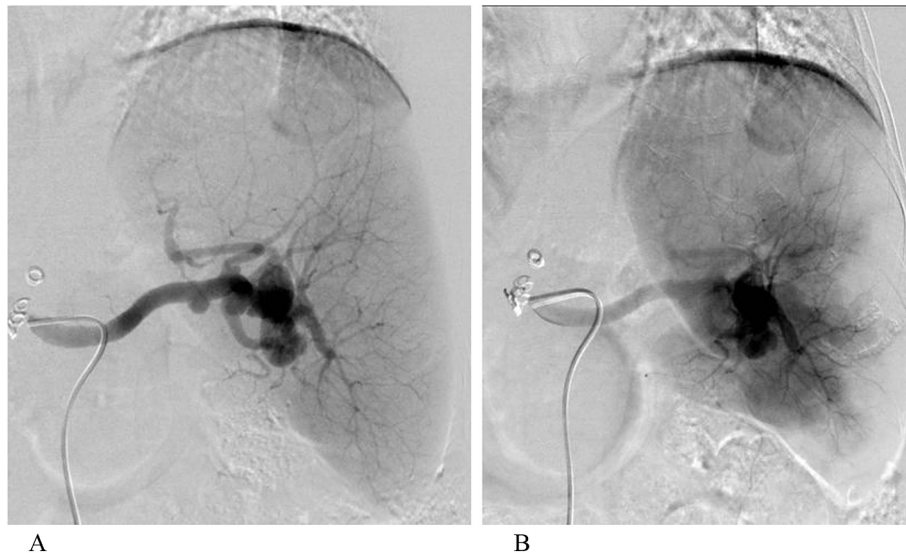
catheter into proximal splenic artery and conducted angiography to map the distribution and branches of the splenic artery, and the size of spleen. Then we further advanced the catheter to reach to the distal splenic artery or the hilum of spleen. Amount of gelatin sponge needed is based on the number of splenic artery branches with a diameter of 1 mm. Also, we needed to treat patients accordingly based on their conditions to control the embolism area within 30%–70%. The procedure was performed under X-ray fluoroscopy. We used low-pressure flow control technology to inject gelfoam. All the gelfoam were produced by HangZhou Alicon Pharma Science and technology Company and the size of gelfoam were 500–1000µm. We judged embolism area according to blood flow speed and contrast reflux (Picture 1). After operation, the patients should lie in bed and apply local compression for 24 h. Antibiotics may be required if embolism syndrome such as fever, spleen pain, nausea and other symptoms appear.

2.3. Observation items

We observed and recorded the indices of liver function including alanine aminotransferase (ALT), aspartate aminotransferase (AST), albumin (ALB), the size of spleen and hematologic indices including thrombocyte, leukocyte and erythrocyte counts before and after PSE.

3. Result

PSE were conducted successfully in both groups. In group A, 1 of 4 patients experienced transient abdominal tenderness and disappeared 4 days later without any treatment; 1 of 4 patients developed abdominal pain during the night following the procedure and were given painkillers. The last patient received PSE twice and during the first time, the patient had no



Picture 1. The digital subtraction angiography (DSA) pictures of a 46 years old woman with HIV and cirrhosis. A: pre-embolization arteriogram shows the main splenic artery is wide and has many branches. B: digital subtraction splenic arteriogram obtained after embolization of approximately 50% of the spleen shows the terminal arteries of spleen are embolized.

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