



# Safety of Drug-Eluting Beads Chemoembolization in Patients with Pre-existing Transjugular Intrahepatic Portosystemic Shunt

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## OBJECTIVES

Transarterial chemoembolization with drug-eluting beads (DEB-TACE) has been shown to be at least as effective as and safer than conventional TACE, especially in high risk populations with inoperable hepatocellular carcinoma (HCC). Many cirrhotic patients with symptomatic sequelae of portal hypertension undergo a transjugular intrahepatic portosystemic shunt (TIPS) placement, which results in significant shunting of the portal venous blood flow in to the systemic veins with associated compensatory increase in the hepatic arterial blood flow to the normal liver parenchyma. This suggests an increased theoretical risk of post-TACE hepatic dysfunction. This study was designed to retrospectively assess the safety of DEB-TACE in this population.

## METHODS

Medical records of the patients with a patent TIPS who underwent DEB-TACE for inoperable HCC from 2005 to 2014 at two institutions were reviewed. Patient demographics, number of procedures, extent of embolization (lobar vs segmental), 30-day mortality, and post-procedure adverse events were recorded. The adverse events were classified based on Common Terminology Criteria for Adverse Events (CTCAE V4.03).

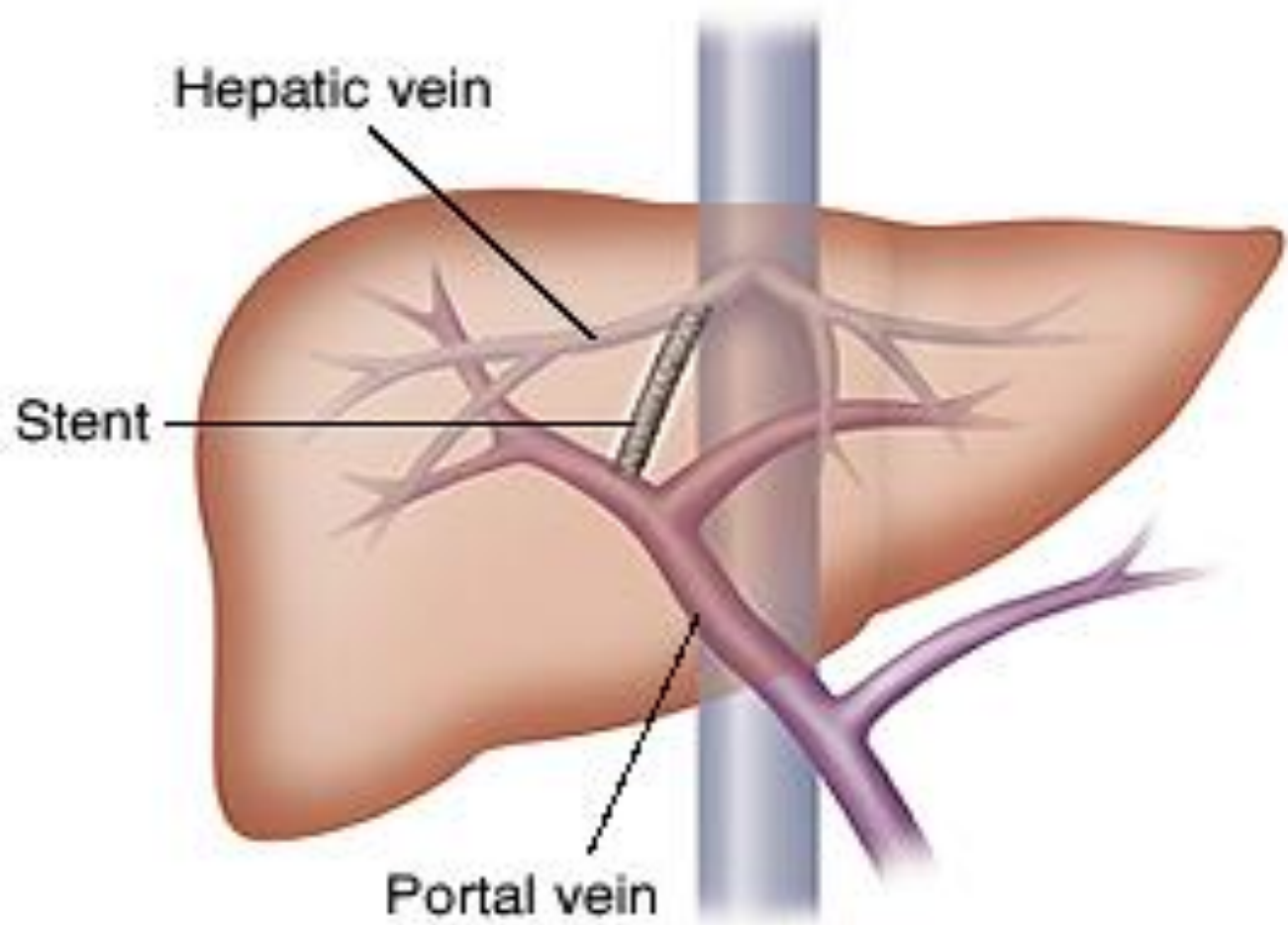
## RESULTS

Ten patients (6 male, average age 59) with a patent TIPS underwent 14 DEB-TACE procedures. TIPS to TACE period range was 4 days to 17 years. The underlying liver disease included hemochromatosis (n=2), chronic hepatitis B (n=2), combined chronic hepatitis C with alcoholic cirrhosis (n=2), isolated alcoholic cirrhosis (n=3), and non-alcoholic steatohepatitis (n=1). Patient belonged either to Child-Pugh class A or B. The number of procedures per patient ranged from 1-4, with a median of 1 TACE per patient. Four patients underwent lobar embolization, and the rest were segmental (Table 1). Post-procedure hospital stay ranged from 1 to 8 days. There were no deaths within 30 days of the procedure. One patient who underwent lobar embolization required a 5-day hospitalization for acute necrotizing pancreatitis, upper GI bleed, and liver toxicity – CTCAE grades 4, 3, and 4, respectively. Another patient who underwent lobar embolization required an 8-day hospitalization for grade-4 liver toxicity. One patient who underwent segmental embolization experienced a normal post procedure stay, however was admitted two weeks later for sepsis and a hepatic abscess. Less severe adverse events which did not result in prolonged hospital stay are listed in Table 1.

## CONCLUSIONS

Segmental DEB-TACE is a well-tolerated option for non-operative HCC in patients with pre-existing TIPS; complications are more likely to be seen in the setting of lobar embolization. Three of 10 patients had significant adverse events requiring prolonged hospitalization or readmission, two of which had undergone lobar embolization. These patients were successfully managed with supportive measures and discharged home. The study limitations include its retrospective nature, a small cohort, and lack of a comparable group of patients without TIPS who underwent the similar procedure.

Transjugular Intrahepatic Portosystemic Shunt (TIPS)



Transarterial Chemoembolization (TACE)

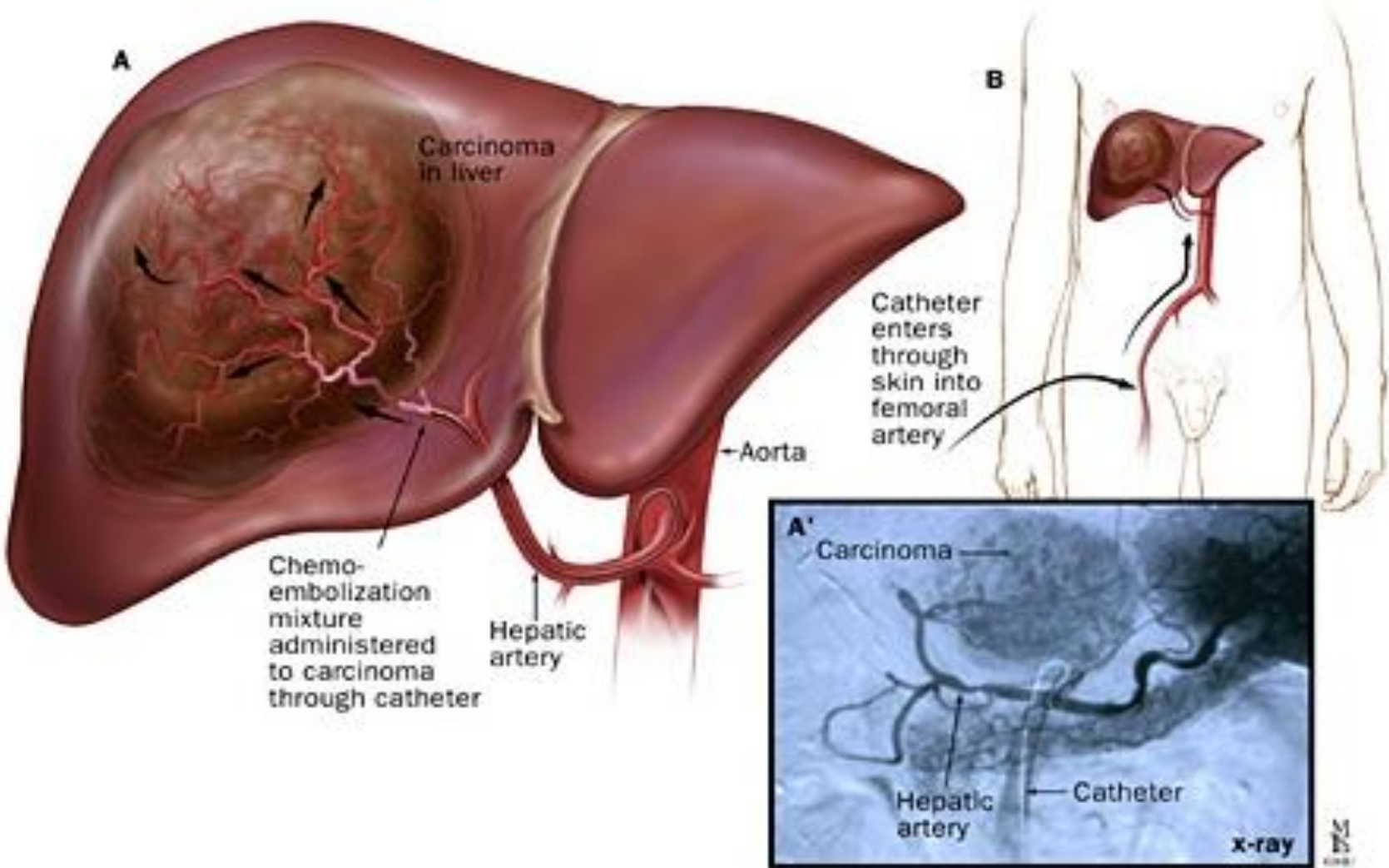


Table 1: Patient Information, Procedure Details, and Adverse Events

Patient	Age/Sex	Number of TACE	Lobar vs Segmental	Hospital Stay Following Each TACE	Significant Adverse Events (CTCAE Grade)
1	39/Male	1	Segmental	1	Transient elevation of alkaline phosphatase (1)
2	56/Male	1	Segmental	2	None
3	52/Female	1	Lobar	5	Necrotizing pancreatitis (4) Liver toxicity (4) Upper GI bleed (3)
4	71/Female	1	Segmental	1	None immediately following Hepatic abscess two weeks post-procedure
5	56/Male	1	Segmental	1	Transient bilirubin rise (2) Transient mild transaminitis (1)
6	74/Female	4	Lobar x 4	2,3,2,2	None
7	50/Female	1	Lobar	8	Liver toxicity (4)
8	60/Male	2	Segmental x2	2,2	None
9	70/Male	1	Lobar	2	Transient azotemia (2)
10	64/Male	1	Segmental	2	None

## References

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- Image 1 Liver showing stent connecting portal and hepatic vein. Digital image. Health Library. University of Minnesota Medical Center, n.d. Web. 20 Dec. 2014.
- Image 2 A, B, Hepatic artery chemoembolization; A, with corresponding angiogram. Digital image. Liver Tumor Center. Johns Hopkins Medicine, n.d. Web. 20 Dec. 2014.