



REVIEW

Early transjugular intrahepatic portosystemic shunt: When, how and in whom? ☆



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Abstract Early TIPS is basically a new application of an old concept. This intervention used to be a useful rescue therapy when other interventions failed but has now become a primary intervention in patients with variceal bleeding and risk factors for poor prognosis. This technique has also been proven to control bleeding and has a definite survival advantage at 6 weeks and 1 year over standard therapy with vasoactive drugs and endoscopy, without increasing the rate of adverse events. In well-trained hands and with appropriate candidate selection, early TIPS is a safe, life-saving and evidenced-based procedure.

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Derivación portosistémica intrahepática transyugular precoz: cuándo, cómo y a quién

Resumen El TIPS precoz es una nueva aplicación de una herramienta conocida. Esta intervención ha pasado de ser únicamente una terapia de rescate útil cuando otras intervenciones han fallado a convertirse en la forma de tratamiento de los pacientes con sangrado variceal y criterios tempranos de mal pronóstico. Su uso ha demostrado, además del control adecuado de la hemorragia, una mejoría en la supervivencia a 6 semanas y un año en comparación al

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uso estándar de endoscopia y fármacos vasoactivos, sin condicionar un aumento del número de eventos adversos. En manos experimentadas y con una apropiada selección de los casos el TIPS precoz es un tratamiento seguro, que mejora la supervivencia y que está basado en la evidencia clínica.

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Introduction

Portal hypertension is the most feared complication of cirrhosis, due to its association with increased morbidity and mortality, as well as complications such as ascites, encephalopathy and variceal bleeding. Haemorrhage, which is correlated with high mortality, is the most serious of these complications.¹⁻⁴

Major advances in the management of variceal bleeding in recent decades have gradually reduced 6-week, 6-month and 1-year rebleeding and mortality rates. In 2003, D'Amico and De Franchis performed a retrospective evaluation of 2 cohorts of cirrhotic patients admitted with variceal bleeding, showing that the mortality rate had fallen from a historic high of 40%¹ to close to 20%.² The main reasons for improved survival were: (1) general support and resuscitation measures; (2) prompt administration of vasoactive drugs; (3) extensive use of emergency endoscopy, and, albeit it less effective, (4) introduction of the rescue transjugular intrahepatic portosystemic shunt (TIPS).²

A similar recently published French study compared 2 historical cohorts, one from 2000 to 2001 and another more recent series from 2008 to 2009, finding a significant decline in 6-week mortality, from 24.6% to 10.9%. Among the reasons for this decrease were greater use of endoscopic ligation in the more recent cohort, a more restrictive transfusion strategy, widespread use of antibiotic prophylaxis and more frequent use of rescue TIPS. When the authors analysed this major difference in survival by subgroups, the most significant impact was observed in Child C patients, despite being the group with highest mortality.⁴

Nevertheless—and despite the improved prognosis achieved in recent years—bleeding episodes due to portal hypertension continue to be associated with significant mortality.

TIPS: what is it?

TIPS consists of a shunt connecting a suprahepatic vein (usually the right or middle) to a portal branch (usually the right) in order to divert part of the portal blood flow and thus decompress the portal venous system.

Expanded polytetrafluoroethylene-covered stents are currently recommended; expanded polytetrafluoroethylene (e-PTFE) is a non-thrombogenic material that prevents pseudo-intimal development, thereby reducing the possibility of stent dysfunction, a common problem when bare stents are used. Antibiotic prophylaxis against Gram-positive cocci and

enterobacteria is recommended prior to TIPS placement in order to prevent infections, particularly endotysitis, which is difficult to treat.

Because the procedure is carried out under deep sedation, the post-TIPS portal pressure gradient should be measured between the portal vein and inferior vena cava 24 hours post-surgery, with the patient awake to avoid the effects of sedation and changes caused by respiratory oscillations accentuated during sedation. Follow-up is with Doppler ultrasound every 6 months to monitor patency and to ensure that the stent is working properly.⁵⁻⁷

One of the main problems associated with TIPS is the incidence of hepatic encephalopathy, which was higher with the bare stents formerly used. The general recommendation is to avoid very low portal-cava gradients, and to this end, stent dilatation diameter must be considered and candidates carefully selected. Patients aged over 65 years or with a history of encephalopathy have a higher risk of this condition. Although there is no specific portal-cava gradient that can accurately predict the risk, our group recommends gradients close to 10 mmHg and less than 12 mmHg, provided this is tolerated by the patient.

TIPS as rescue therapy

TIPS is used as rescue therapy in variceal bleeding when standard management has failed, and is therefore known as salvage or rescue TIPS. Despite controlling bleeding in more than 95% of cases, this procedure has a high 30-day mortality of between 30% and 50%, essentially due to deterioration in liver function.⁸ For that reason, candidates for TIPS must be carefully selected, identifying patients with little likelihood of survival; the intervention is therefore not recommended in patients with a Child score greater than 13 points (as a measure of advanced liver disease), with multiple organ dysfunction syndrome or with active sepsis.⁹ Nevertheless, therapeutic failure of standard treatment is usually a dramatic situation that requires an individualised approach (Tables 1 and 2).

Early TIPS

As previously mentioned, despite advances in treatment and a decline in mortality rates, mortality continues to be high, approximately 10% at 6 weeks and 20% at 1 year. Initial treatment failure rates (10–15%) are also high. Much research into portal hypertensive bleeding today focuses on the identification of prognostic factors that can identify

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