Transjugular Intrahepatic Portosystemic Shunt Stent (TIPSS) – Full Clinical Guideline

Reference no.: CG-T/2014/221

A TIPSS is an artificial channel formed within the liver that decompresses the portal circulation by establishing communication between a branch of the portal vein and hepatic vein. Successful decompression leads to clinical resolution of complications of portal hypertension in 90% of patients.
In Derby it is performed by radiologists under general anaesthetic.

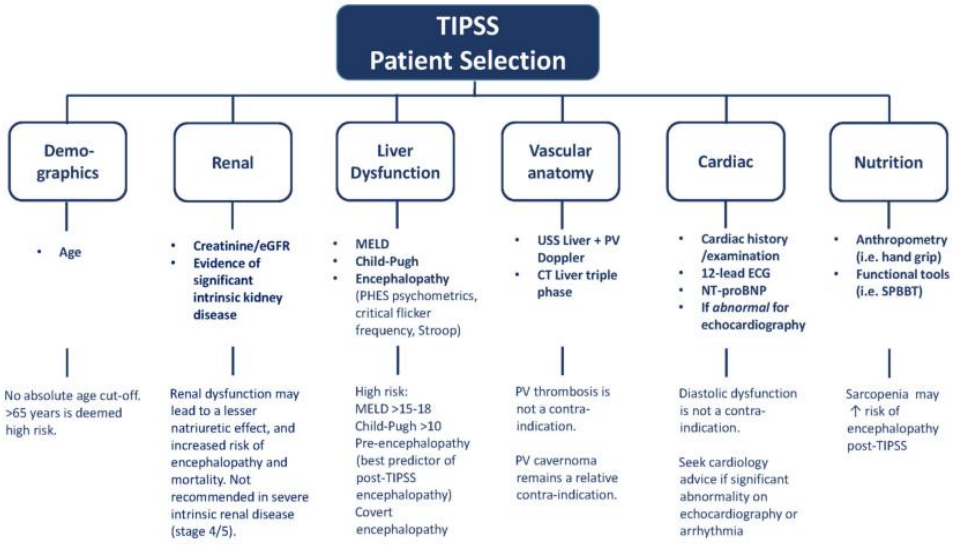
Indications

- **2° prevention of variceal haemorrhage/ salvage of acute variceal haemorrhage**
- **Refractory cirrhotic ascites**
- Refractory hepatic hydrothorax
- Budd Chiari syndrome
- Transfusion dependent portal hypertensive gastropathy

Consider whether portal hypertension is likely to improve e.g ALD with abstinence. In such cases delaying a decision on TIPSS for 3-6 months is appropriate.

Workup

- Assessment of synthetic liver function - Bilirubin, INR, Albumin, calculate MELD score
- CT Abdomen - assess patency of hepatic/ portal veins, exclude mass lesions
- ECG, BNP and ECHO - specify measurement of pulmonary artery pressure



Reproduced from Tripathi et al. BSG guideline. Gut 2020

Contraindications

- Congestive cardiac failure
- Pulmonary hypertension - mean PAP > 45mmHg (systolic PAP > 74mmHg) TIPSS contraindicated, mean PAP > 30mmHg (systolic > 50mmHg) → further assessment
- Mass lesions - multiple hepatic cysts/ HCC
- Unrelieved biliary obstruction
- Established portal vein thrombosis with cavernoma
- Poor synthetic liver function (Relative contraindication)*

***** Patients with a MELD score > 15 or serum bilirubin > 50μmol/L have a high mortality post TIPSS. For every 17μmol/l ↑ in Bilrubin above 51 there is a 40% greater odds of death at 30/7 and only 5% of patients with Bilirubin > 100 survive > 30/7. Variceal haemorrhage is frequently associated with a decline in synthetic liver function and can lead to death from liver failure rather than bleeding. A study from the Barcelona group suggested early (within 72hrs) TIPSS post variceal haemorrhage is associated with improved survival in Childs B and C (≤ 13

points). This study has been repeated by the Glasgow group and though early TIPSS reduced variceal rebleeding, it had no effect on mortality and increased rates of encephalopathy. It is difficult to make a clear recommendation re early TIPSS and cases should be considered on an individual basis.

Consent/ risks

- Failed procedure - 5%
- TIPSS dysfunction (thrombosis/ occlusion) - 20% at 2yrs with PTFE covered stents
- Immediate procedure related complications associated with risk of death - 3% (intraperitoneal bleed, hepatic infarction, acute cardiac dysfunction)
- New or worse encephalopathy - 20-30% depending on synthetic liver function**
- Stent migration
- Haemolysis 10% - usually minor (< 2g/dl reduction in Hb) and temporary (8-12/52)

** ↑ risk of encephalopathy in aetiologies other than ALD, women, low Albumin, older Age, past encephalopathy
The final decision to proceed should be taken by a Hepatology consultant in discussion with a radiologist (R Singh, P Thurley). Elective cases are performed on a monthly anaesthetist supported GA list.

Pre/ Post procedure care <u>(See Appendix for TIPSS pre-op checklist)</u>

- Admit patient to PIU the day before - drain large volume ascites if present and record post drainage weight
- Discuss any significant change in blood parameters with consultant
- Ensure Platelets > 50 x 10^9/L, INR ≤1.5
- Stop β-blocker (if for variceal haemorrhage prophylaxis) and halve diuretics post successful procedure
- Prescribe Co-amoxiclav 1.2g (or Gentamicin 1.5 mg/kg and Metronidazole 500mg iv if penicilin allergic). Add Teicoplanin 400mg iv if known MRSA carriage.
- If well discharge the next day after doctor/ nurse specialist review
- Request USS doppler TIPSS (specify RS or PT to do) and clinic appointment for 4 weeks - ideally organise for the same day
- Subsequent 6/12 USS for 1st year and then yearly if TIPSS for varices. If for ascites USS if fails to resolve/ recurs.

Further reading

1. TIPSS in the management of portal hypertension BSG guidelines (Tripathi et al 2020)
2. AASLD Practice guideline on TIPSS

Documentation Controls (these go at the end of the document but before any appendices)

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<tr><td>Reference Number

CG-T/2014/221</td><td colspan="2">Version:

3</td><td>Status

Final</td><td>Final</td></tr>
<tr><td rowspan="3">Version / Amendment History</td><td>Version</td><td>Date</td><td>Author</td><td colspan="2">Reason</td></tr>
<tr><td>3</td><td>2022</td><td>Liver Management Group (Cross-site teams)</td><td colspan="2">Previous guideline expired</td></tr>
<tr><td></td><td></td><td></td><td colspan="2"></td></tr>
<tr><td colspan="6">Intended Recipients: All clinicians managing patients with liver disease</td></tr>
<tr><td colspan="6">Training and Dissemination: Forms part of liver handbook which is disseminated to all clinicians rotating through Hepatology</td></tr>
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Job Title: Dr A Lawson. Revised version 2022 Dr C Grant</td></tr>
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<tr><td colspan="2">Contact for Review</td><td colspan="4">Dr Adam Lawson</td></tr>
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Appendix

TIPSS – Pre-op checklist

TIPSS patients often come from other hospitals and so recent tests are not always available to us at RDH.

Please ensure the following to minimise delays on the day. All bloods should be less than 3 days old:

- CT abdomen prior to the procedure to assess anatomy/patency of veins ☐
- If there is significant ascites drainage will be required pre procedure ☐
- FBC (Inform admitting team if Hb <80g/L or platelets <50) ☐
- U+Es ☐
- Coagulation (Inform admitting team if INR 1.5 or above/ Stop all anticoagulation 5 days prior to the procedure). ☐
- Valid Group and Save allowing electronic issue of blood if needed ☐
- ECG ☐
- Patients must be starved, 6 hours solid food and 2 hours for clear fluids ☐
- Patients must be given an information leaflet and consented by the ward team. ☐
- Prophylactic antibiotics must be given prior to the procedure ☐

Following this will minimise on the day of surgery delays / cancellations.

If you have concerns about the patient before the day please contact

i) Parent team (hepatology or gastroenterology)

ii) Anaesthetist for the procedure (call 07827283079 or ext 88989 to find out who this is)

iii) Radiologist for the procedure - normally Dr Thurley (88570) or Dr Singh (89455)