



Procedure Information

Transcatheter Embolotherapy(TCE) for Internal Bleeding

Introduction

Embolotherapy is an interventional procedure in which clotting or occluding agents are delivered to an organ through blood vessels. It can be performed to control severe internal bleeding in circumstances such as ruptured tumours of the liver or kidney, postpartum haemorrhage (severe bleeding after delivery), bleeding from the gastrointestinal tract, and bleeding due to trauma to internal organs or pelvis.

This procedure is performed by radiologists with special training in interventional radiology in the Medical Imaging Department or inside the Operation Theater under image guidance. Please discuss the risks and benefits of this procedure with your doctor for the better option plans and treatment.

Outcomes

The expected outcome of this procedure is to stop the internal bleeding for saving the client's lives.

Procedures

1. This procedure is usually performed under local anaesthesia.
2. The femoral artery at the groin is punctured and an arterial sheath is inserted to provide an access to the arterial system. An alternative access is from the upper arm.
3. The contrast medium is injected through a small catheter to look for the site of bleeding.
4. Once identified, the catheter is advanced into the bleeding site, and an embolic material is delivered to the organ through the catheter. The type of embolic agent used depends on the circumstances. It may be a temporary agent or a permanent agent.
5. A check angiogram is performed at the end of the procedure to confirm the cessation of bleeding.
6. The catheter is removed.
7. The arterial sheath may be removed immediately and bleeding from the puncture site is controlled by pressure. The compression on wound is kept until stop bleeding. If the patient's clinical condition is unstable, the sheath may be removed later.

Possible Risks and Complications

1. Depending on the site of embolization, the complications vary
 - Liver:
 - Post-embolization syndrome: abdominal pain, abdominal distension, nausea, vomiting, tiredness, and fever (common)
 - More serious complications occur in less than 7% of cases which include liver function insufficiency or death of liver tissue (2%), hepatic abscess (2%), tissue death in bile ducts and bile duct narrowing (rare), inflammation of the gall bladder requiring surgical removal (rare), and nontarget embolization of the gut (rare).



Source:
<https://www.thoughtco.com/artery-anatomy-373235>

- Spleen:
 - In splenic injury requiring embolization, subsequent immune function may be diminished, but it compares favourably to outright resection of the spleen.
 - Splenic abscess (rare)
 - Kidneys:
 - Renal function impairment. Its occurrence depends on the pre-procedural renal function and the extent of embolization.
 - Transient hypertension (rare, and can be controlled with medication).
 - Post-embolization syndrome: transient pain and low-grade fever (common).
 - Infection of blood clot surrounding the kidney, and may require percutaneous drainage or surgery (rare).
 - Gastrointestinal tract:
 - Transient fever (common)
 - Bowel infarction occurs in less than 15% of cases which may cause perforation, peritonitis and severe systemic infection. Abdominal surgery and bowel resection may be necessary.
 - Nontarget embolization to other parts of the bowel, resulting in bowel ischemia or infarct
 - Pelvic arteries in pelvic trauma:
 - Nontarget embolization to other pelvic organs causing ischemic injury, such as nerve paralysis and result in numbness or paralysis. It is generally rare, as pelvic organs are supplied by multiple vessels.
 - Menses and potential for future pregnancy may be affected in women (uncommon).
 - Impotence in men
2. Side effects of contrast
 - hives, itchy, flu-like symptoms, and other anaphylactic reactions
 - Steroid cover may be necessary for the patients who have allergic history.
 - The overall adverse reactions related to iodine-based non-ionic contrast medium is below 0.7%. The mortality due to reaction to non-ionic contrast medium is below 1 in 250,000.
 3. Procedure-related death is rare.
 4. If hemostasis is not achieved, further surgical operation may be needed.

** The risks listed above are in general terms and the possibility of complications is not exhaustive. Please understand that even though all procedures are carried out with utmost professionalism and care this does not rule out the possibility of complications arising.

Pre-procedure Preparations

1. The procedure and possible complications will be explained by the doctor and a consent form must be signed prior to the procedure.
2. Please inform the doctor and nurse all your past medical history, previous surgical operations, current medication and any complication with drug or anaesthesia.
3. Several drugs, herbs and supplements which influence coagulation ability need to be withheld.
4. No food or drink six hours before procedure. For emergency, no food and drink is allowed.
5. Blood tests are performed to assess coagulation profile and renal function. Correction with transfusion of blood products may be needed before the procedure.
6. Please inform our staff if you are or might be pregnant, or you breastfeed your baby.
7. Shaving to puncture site may be needed.
8. Steroid may be prescribed for patients with allergic history.
9. Prophylactic antibiotic is administered.
10. Intravenous access is established.
11. Please change into a surgical gown after removing all clothing including undergarments, dentures, jewellery and contact lenses.
12. Please empty your bladder before the procedure.

Post-procedure Instructions

1. You are checked often for possible bleeding from the puncture site, sensation and circulation of your lower limb, any breathing difficulty and abdominal distention you may have.
2. Please inform the nurse immediately if pain or bleeding from the puncture site, decrease sensation of the punctured leg, difficult breathing, abdominal distention or any other discomfort.
3. Bed rest and limited movement of affected limb for at least 24 hours until hemostasis of the puncture site has been achieved. Do not remove the compression dressing which is used for bleeding control.
4. Intravenous infusion is continued. You may resume diet if your condition is stable.

Should there be any enquiries or concerns, please consult the attending doctor.

Under the professional care of the doctor, you will gradually recover. We wish you all the best during your treatment and recovery.

If you have any questions after reading the entire leaflet, please write them down in the spaces provided in order for the doctor to further follow-up.

Compiled by Union Hospital Operating Theatre (OT) Governance Committee

The above information is for reference only, please enquire your physician for details
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