

Intercostal Nerve Block 肋間神經阻滯

Background

The intercostal nerves are part of the pathway that conveys pain signals from the chest wall and the abdomen to the brain. By blocking the signal conduction along these nerves, the pain arising from these areas can be reduced.

How does intercostal nerve block work?

The pain signals along these nerves may be attenuated by one of the following methods:

1. Applying local anaesthetics along the course of the nerve. The onset of pain relief is rapid and may last for hours. Steroid may be added to reduce the inflammation and swelling of the nerves. This may prolong the duration of pain relief.
2. Injecting agents like alcohol or phenol will destroy and render the nerve non-functional for up to several months.
3. Applying local heat (radiofrequency) or cold (cryotherapy) treatment through a small metal probe placed near to the nerve. This will destroy and render the nerves non-functional for up to several months.

The block may not work if the area of pain is extensive, or if the diseases have affected the nerve itself. Repeat blocks may be necessary for lasting relief.

The Procedure

- The procedure is usually done in the operating room under sterile condition.
- The procedure is usually performed under local anaesthesia. Sedative agent may be administered
- A small cannula is first inserted into your vein.
- You will lie either on your back, on your sides, on your front or sit upright.
- Please keep still during the procedure to avoid any complication.
- After disinfecting the skin, the doctor will insert a small needle.
- X-ray (with contrast) or ultrasound may be used to confirm correct needle position.
- For radiofrequency or cryotherapy, a small metal probe will be inserted instead of needle and after confirming the position, the tip of the probe will be heated up or cooled down to either heat or freeze the nearby tissues for about 1 minute.
- After procedure, an adhesive bandage will be applied.
- The injection takes 5 to 10 minutes each nerve, and longer if more than one nerve are blocked.
- After the procedure, you may feel numb over the area supplied by the nerves temporarily.

Risk and Complications

Generally, the procedure is safe. Like all other procedures, side effects and complications could occur, although in most cases these are uncommon and not serious. However, serious and potentially life threatening complication could occur in rare occasions.

Common risks and complications

- Pain at needle insertion site.
- Allergic reaction to medications and contrast injected, but serious reaction is rare
- Increase pain

Uncommon risks and complications

- Adverse effects related to steroid use are usually self-limiting because it is usually used in a low dose. These include facial flushing, insomnia, nightmares, nervousness and increased glucose level in diabetes. Whether low dose steroid leads to avascular necrosis remains controversial.
- Significant bleeding and hematoma formation
- Local anaesthetic related convulsion, arrhythmias or death.
- Pneumothorax. (Introduction of air into the cavity between the chest wall and the lungs due to needle puncture leading to shortness of breath. In severe cases a chest tube is inserted to drain the air. However most cases are mild and spontaneously resolve with oxygen treatment.)
- Nerve injury to the intercostal nerves during injection. There may increase pain and sensitivity over the affected area.

Rare risks and complications

- Bacterial infection
- Other organ damages or infections

Before the Procedure

- You may be requested to fast for at least 6 hours before the procedure.
- You should inform the medical staff of any past allergy, medical conditions and medications that you are taking, especially blood thinning medication (e.g. warfarin, clopidogrel).
- Ask your doctor whether you should continue your regular medication on the day of the procedure.
- Inform your doctor or nursing staff if you are, or think you may be pregnant.
- If you feel unwell on the day of procedure, please inform the Hospital to postpone the procedure.

After the Procedure

- You may resume oral intake only after being assessed by the nursing staff.
- If sedative has been used, you should avoid operating heavy machinery, signing legal documents or drive for the rest of the day.

- You should be accompanied by a family member or friend.

Follow Up

- A pain clinic follow up appointment will be arranged.
- In case there are any serious adverse effects or complications after the procedure, you should seek urgent medical advice.

Remarks

This is general information only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information please contact your doctor.

*Reference of occurrence rate

Very common	Common	Uncommon	Rare	Very rare
1 in 10	1 in 100	1 in 1000	1 in 10,000	1 in 100,000