FAST FACTS AND CONCEPTS #97
BLOCKS OF THE SYMPATHETIC AXIS FOR VISCERAL PAIN
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Background
The sympathetic nervous system spans the length of the axial skeleton. Most of the plexi and ganglia are readily accessible to percutaneous interruption. In the palliative care setting, the most common indication for interrupting the sympathetic axis via a “nerve block” is to control visceral pain arising from malignancies of the abdominal and pelvic viscera. Visceral pain is often described as a deep, squeezing pain that is difficult to localize and characterize. When it is recalcitrant to meticulous pharmacologic and behavioral therapy, or if the patient is intolerant to pharmacotherapy, consultation should be sought to either a pain specialist or interventional radiologist for consideration of neurolytic procedures. Potential advantages of a neurolytic procedure, compared to spinal and epidural anesthetic techniques (see Fast Fact #98), include cost savings and avoidance of hardware (e.g., catheters, tubes, pump), which can be cumbersome, are subject to malfunction, and pose an infection risk.

Types of Nerve Blocks
The following have an established record in well-selected patients:

- **Celiac plexus block (CPB).** Used for upper abdominal pain—most commonly from pancreatic cancer. It is also appropriate for pain involving the GI tract from the distal third of the esophagus to the transverse colon, the liver and biliary tract, the adrenals, and mesentery. There have been over 25 controlled studies assessing the utility of a CPB. The data suggest CPB can improve analgesia, decrease opioid consumption, and decrease opioid-induced adverse effects compared with conventional analgesic treatments.

- **Splanchnic nerve block:** The splanchnic nerves are formed by sympathetic pre-ganglionic fibers from T5 to T12 of the thoracic spine. Visceral pain from structures innervated by the celiac plexus can be treated with a splanchnic nerve block as well. Hence, a splanchnic nerve block can be a viable alternative to CPB when there are regional distortions of the celiac plexus anatomy (e.g., tumor burden, adenopathy, or prior surgery).

- **Superior hypogastric plexus block (SHPB).** Applicable to malignant pain of the gastrointestinal tract from the descending colon to the rectum, as well as the urogenital system. There is less robust data evaluating SHPB for visceral pain, with one study showing a decrease in pain intensity and less morphine consumption when SHPB was utilized.

- **Ganglion impar block (GIB).** The ganglion impar innervates distal structures of pelvis including the vulva, rectum, anus, sacrum, perineum, and coccyx. A study of 15 patients found a 3-point reduction in visual analogue pain scales lasting 3 months with a reduction in opioid dose consumption.

- **Inferior hypogastric plexus block:** the inferior hypogastric plexus innervates the pelvis, perineum, and genitals. Because it is more difficult to access and prone to complications due to its presacral location, it is utilized less frequently than a GIB. Several small studies have shown a short-term benefit in select patients with pelvic or genital pain.

Procedure
Most sympathetic plexus blocks are performed with the patient in the supine or prone position. They are intravenously hydrated and sedated in a sterile, closely monitored setting such as an operating room. Prior to insertion of a fluoroscopic needle, local anesthetic is infiltrated for patient comfort. The procedure needle is then positioned properly utilizing fluoroscopy, CT (Computed Tomographic), or endoscopic ultrasonic guidance. Once in place, a local anesthetic solution is first injected to “test” the block. If the small dose of local anesthetic provides adequate pain relief in the absence of motor or sensory deficits, it is indicative of a successful block. A subsequent “neurolysis” procedure usually can be performed days later with 50-100% ethyl alcohol, 6-10% phenol, or radiofrequency ablation. Pain improvement from neurolysis typically lasts 3 to 6 months, at which point the procedure can be repeated if indicated.

Complications & Side Effects
Side effects—referable to loss of sympathetic tone—include transient hypotension (30-60% of cases) and increased intestinal motility leading to diarrhea which is usually temporary. However, often the diarrhea is preferred over opioid induced constipation. Complications include needle injury to visceral, neural, and vascular structures; pain at the injection site; and failure to obtain an analgesic response. Contraindications to these procedures include bleeding diathesis and local infection.
Post-Procedural Management Crucial to the success of sympatholysis is proper patient selection and technical skill. Sympathetic blocks are not a panacea and generally do not obviate the need for ongoing pharmacological management of residual pain. However, in select patients they can substantially improve analgesia and quality of life and may allow for opioid dosage reduction. Note: attempts at post-block opioid reduction should be done with care to avoid unmasking existing nociceptive/neuropathic pain and precipitating opioid withdrawal.

References


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