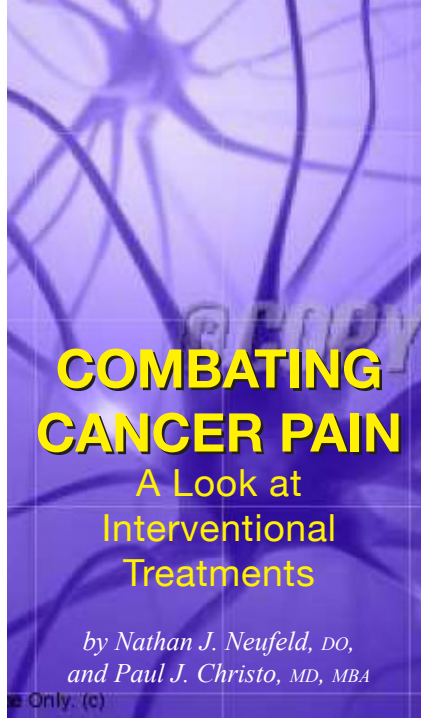


Unrelieved pain can affect all areas of a person's quality of life. Hence, interventional pain-relieving therapies can be invaluable in the quest for pain reduction among cancer survivors experiencing unyielding pain. In addition to oral medicines, interventional pain therapies like nerve blocks and pain pumps can be quite effective. These specialized procedures offer the opportunity for more powerful pain control, with few side effects.

Sympathetic Blocks and Neurolysis

The sympathetic nervous system can transmit pain from the head all the way down to the feet. Local anesthetics, like lidocaine, can be used to temporarily block pain from being felt in these sympathetic nerves.

To achieve long-term pain relief, a substance called a *neurolytic agent* can be injected near specific sympathetic nerves. The substance interrupts painful impulses that travel from the nerves to the brain. Although these nerves regenerate and the pain can return, people often report several



area of the anus or between the anus and the genitals.

Neuraxial Treatments These therapies target the spinal cord. By placing a medicine near pain-sensing nerves in the spinal cord, physicians can maximize pain relief while minimizing side effects.

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months of relief, and the injections can be repeated as needed.

A *celiac plexus block* is one of the most useful neurolytic injections. The celiac plexus is a group of nerves that lies deep in the abdomen. It relays pain from the pancreas, liver, stomach, spleen, and gallbladder. A celiac plexus injection may be considered if a person has inadequate relief of cancer pain originating in those organs.

The superior hypogastric plexus is a group of nerves that lies deep in the pelvis around the level of the bladder. A *superior hypogastric plexus injection* can help ease the pain of cancer in the bladder, rectum, prostate, testes, uterus, and ovaries. People with these cancers often describe discomfort in the pelvic region.

If a person experiences pain due to cancer of the rectum, anus, or parts of the vagina, he or she may benefit from a block of the *ganglion impar*, a small nerve bundle that lies in front of the tailbone. In these individuals, burning pain is often reported in the

pain. Doses of these medicines are even smaller than those used for the epidural space.

❖ **Implantable Pain Pumps** A small, electronic pump the size of a hockey puck is surgically placed underneath the skin in the abdomen, and then a catheter is connected to the pump, delivering very small amounts of medicine to the spinal cord. Because the medicine is delivered directly to the spinal cord, a much smaller dose is needed to alleviate pain than if you were to take medicines by mouth or intravenously. An external handheld device is used to adjust medicine doses.

❖ **Spinal Cord Stimulation** Although this is not a primary treatment option for cancer pain, there is growing interest in using this therapy to reduce cancer pain. Progress in microsurgery has enabled the implantation of sensors on the spinal cord to electrically stimulate the nervous system and alleviate chronic nerve pain. These devices deliver electrical impulses to the nerves of the spinal cord, inhibiting pain signals before they reach the brain

❖ **Epidural or Intrathecal Infusion** The *epidural space* surrounds the spinal cord. Blood vessels, fat, and lymphatic structures lie within this space, but no fluid is present. A small tube called a



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catheter can be placed in the epidural space, and small doses of medicines can be delivered to ease pain. People with severe cancer pain in the chest, abdomen, pelvis, and legs can get substantial pain relief from this therapy.

The *intrathecal space* contains the cerebrospinal fluid that bathes both the spinal cord and the brain. Local anesthetics, opioids, and other medicines can be placed into this space to effectively reduce severe cancer

and replacing them with a pleasant tingling sensation.

Vertebroplasty and Kyphoplasty If cancer has weakened the spinal bones, fractures can occur. These can be very painful. *Vertebroplasty* and *kyphoplasty* are treatments in which acrylic cement is injected into the fractured bone to provide stabilization and pain relief.

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