Comfort

Pain Mechanisms

Definitions

A-alpha fibers	Large, myelinated sensory nerve fibers that transmit sensation of soft touch to skin and vibration. A-alpha fibers have a lower threshold for activation and transmit signals more rapidly than smaller, or unmyelinated fibers.
A-beta fibers	Smaller, myelinated sensory nerve fibers that transmit sensation of light pressure to deep muscles.
Activation of neuronal action potential	The condition in which a stimulus causes a nerve fiber to begin to transmit a signal.
Allodynia	A condition in which pain is perceived after a stimulus that would not normally cause pain.
Ascending tracts	Nerve pathways that carry pain signals to the brain.
Behavioral pain dimension	Dimension that focuses on actions or behaviors exhibited by people in pain.
C fibers	Small, unmyelinated sensory nerve fibers that convey noxious information to the entral nervous system; conducts slowy.
Celiac plexus block	Use of local anesthetics or surgical procedure to block the nerves of the celiac plexus that normally carry pain information from organs in the abdomen.
Comfort	Emphasizing physical and psychological support or relief throughout the patient's end of life.
Cordotomy (surgical or percutaneous)	Operation to cut nerves in the spinal cord in order to stop them from transmitting pain signals to the brain.
Cortex	Outer areas/layers of an organ (i.e., the brain).
Counterirritation (DNIC)	A modulating stimulus affecting receptors near the pain site that lessens the intensity of pain.
Cure	Treatment of disease or illness with the intent to overcome it.
Delta fibers	Small, myelinated fibers that are important in the transmission of

acute pain.

Dorsal rhizotomy	Cutting or disabling of dorsal nerve root in order to stop transmission of pain.
Dorsal root entry zone lesion (DREZ)	Lesions created to block pain transmission at the entry point of nerves into the dorsal horn of the spinal column.
Efferent fibers	Nerve fibers that carry signals back to muscles and glands.
Epidural blocks	Injections of medication into the epidural space in the outer layers of the spinal cord to block pain.
Excitatory interneurons	Spinal cord cells that enhance transmission of nociceptive signal from first-order neuron to second neuron in spinal cord (projection cell).
Inhibitory interneurons	Spinal cord cells that block or inhibit transmission of nociceptive signal to brain. It is not transmitted beyond the first order neuron.
Intrathecal blocks or neurolysis	Injections of medication into the intrathecal space surrounding the spinal cord to block pain.
Lumbar blocks	Injections of medication in the lumbar region of the spine to block pain in the lower body.
Neuroablative procedures	Procedures that block pain pathways by destroying nerve tissue, sometimes using chemicals or thermal lesions.
Neurolysis	Destruction of nerve tissue.
Neuroma	Nerve tissue tumor.
Neuropathic pain	Pain resulting from damage to peripheral nervous or central nervous system tissue or from altered processing of pain in the central nervous system. (Cassell, 1982)
Nociception	The activation of primary afferent nerves with peripheral terminals that respond differently to noxious (i.e. tissue damaging) stimuli. Nociception may or may not be perceived as pain, depending on a complex interaction within the nociceptive pathways.
Nociceptive pain	Pain resulting from activation of primary afferent nociceptors by mechanical, thermal or chemical stimuli.
Noxious stimulus	Stimulus which is damaging to normal tissues.
Palliation	Treatment to relieve symptoms and distress of disease process or illness.
Preemptive Analgesia	Preventing pain bebore it begins.

Primary afferent nociceptors (PAN)	Nerve cell primarily responsible for for sensing and transmitting pain information.
Primary hyperalgesia	Increased pain sensation occurring at the site of the damaged tissue.
Projection cells	Second-order neuron responsible for transmitting action potential from PAN to third-order neurons in brain (Rostral ventral medulla or thalamus, predominately).
Quality of Pain	Nature or characteristics of the pain (e.g., shooting, stabbing, dull, burning).
Reticular activating system (RAS)	Connections in the brainstem that are involved with alertness and waking/sleep.
Secondary hyperalgesia	Increased pain sensation occurring at a site tissue is not damaged.
Sensitization	Increased sensitivity of a nerve fiber as a result of repeated stimulation.
Silent nociceptors	Mechancally insensitive nociceptors that become active when tissues are injured.
Somatic tissue	Skin, muscle, bone.
Stellate ganglion block	Injection of anesthetic into the nerves of the sympathetic nervous system in the neck.
Stimuli (chemical, mechanical, thermal)	Chemical, mechanical or thermal events that can cause pain to be transmitted.
Superior hypogastric plexus block	Use of local anesthetics to block the nerves of the superior hypogastric plexus that normally carry pain information from middle pelvic organs such as the bladder and uterus.
Sympathetic ganglia	Bundles of nerves of the autonomic nervous system connecting in the thoracic and upper lumbar spinal segments.
Thalamus	Portion of the brain where sensory impulses are processed before being relayed to the cerebral cortex.
Transcutaneous electrical stimulation (TENS)	Process of passing small electric currents through the skin to stimulate nerve fibers.
Transduction	Conversion of a mechanical, thermal or chemical stimulus to a neuronal action potential.
Visceral tissue	Thoracic, abdominal, pelvic organs.