

Cervical epidural anesthesia: Is it a safe alternative for mastectomy?

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Mastectomy for carcinoma breast is usually done under general anesthesia. However, there is growing interest to do this surgery under regional (cervical epidural and upper thoracic) anesthesia. The advantages are less intra-operative blood loss, less intra-operative surgical stress and better postoperative analgesia. All these factors help to decrease morbidity and mortality in such patients.

Cervical epidural anesthesia (CEA) involves the administration of local anesthetics (LA) into the epidural space resulting in the block. CEA has been used for carotid artery, thyroid, breast, airway, upper limb and other head and neck surgeries.

The reason for choosing CEA in most comparative studies involved assessment of physiological parameters of respiration and circulation including: circulatory hemodynamics and heart rate variability, spirometry parameters, diaphragm function and combination thereof.

Cervical epidural space (CES) extends from the fusion of spinal and periosteal layers of the dura mater at the foramen magnum to lower border C7. The CES itself contains fat, the dural sac, blood vessels and connective tissue. CES is narrow with a width of 3-4 mm as compared with 5-6 mm in lumbar spine. Among the various methods of epidural space identification, hanging drop (HD) method and loss of resistance (LOR) technique were most commonly used for locating the CES. Access to the CES can be made with the patient sitting, prone or in lateral decubitus.

Most studies observe side effect of CEA. CEA in patients can decrease tidal volume, forced vital capacity, forced expiratory volume in the 1st second (FEV1) and vital capacity (VC). The effects on the circulatory system result from the sympathetic blockade along with changes to baroreflex sensitivity. Heart rate decreases from the blockade of cardio-acceleratory fibers and also reflexively from diminished venous return through intracardiac stretch fibers. Variable decrease in arterial pressure, ejection fraction and cardiac index can also be observed. The most common and possibly an expected side effect of CEA is bilateral sensory and motor block of upper extremities.

Considering the potential procedural risks, and its effects on cardio-respiratory systems, the practice of CEA suggests an unnecessary patient exposure, which could be easily avoided by better anaesthetic and analgesic choices. The evidence and observations suggest that the clinical use of CEA must have a strong rationale—mostly supported by unique patient demands and surgical requirements and CEA is a safe alternative for mastectomy, in extensive carotid artery surgeries and possible oral-hypopharyngeal cancer surgeries.

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