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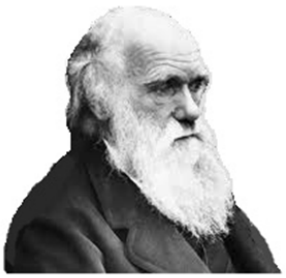

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Updates in management of gastro-oesophageal cancer related pain

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ABSTRACT

Gastro-esophageal cancer is one of the most common malignant tumours of the digestive tract. Pain is common in these cancer patients, particularly in the advanced stage of disease when the prevalence is estimated to be more than 70% contributing to poor physical and emotional well-being. The objective of this review is to illustrate the incidence of Gastro-esophageal cancer and demonstrate different methods to control pain related to Gastro-esophageal.

***Keywords*:** Gastro-esophageal cancer, WHO step ladder, acute pain, Interventional pain control

1. INTRODUCTION

Gastro-esophageal cancer is one of the most common malignant tumours of the digestive tract, and surgery remains the first-line treatment for gastric cancer patients [1, 2].

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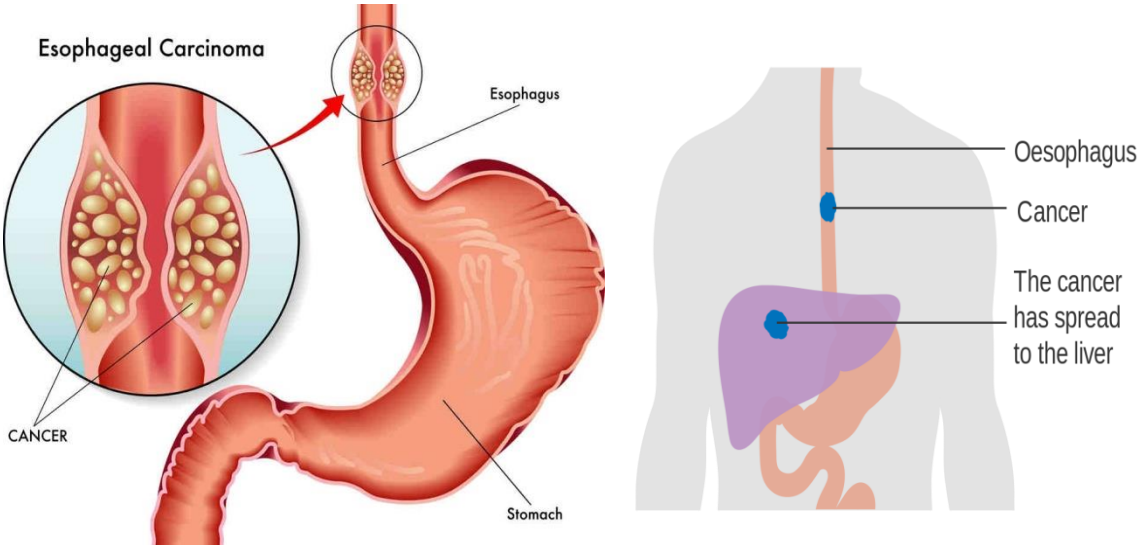


Although still relatively uncommon in Western countries, esophageal cancer is fatal in the vast majority of cases. In the United States, an estimated 16,980 new cases will be diagnosed in 2015, and 15,590 deaths will result from the disease (although many cases at the gastro esophageal [GE] junction may be counted as gastric cancer). The esophagus extends from the crico-pharyngeal sphincter to the gastro esophageal (GE) junction and is commonly divided into the cervical, upper- to mid-thoracic, and thoracic portions. This can be important, because histology and optimal treatment approaches may vary considerably according to the site of the cancer. It may not be possible to determine the site of origin if the cancer involves the GE junction itself.

Despite all advances in prevention, early detection, and newer, more effective treatment modalities, cancer in general remains one of the most debilitating and deadly diseases nowadays, and is the second leading cause of mortality of all Americans [3].

The sheer potential for suffering from cancer can be a horrifying experience for anyone bearing this diagnosis, while pain is probably one of the most frightening of all cancer symptoms for patients and their families (Valdimarsdottir et al 2002; Winslow et al 2005). According to statistics published by the American Cancer Society in 2002, “50%–70% of people with cancer experience some degree of pain” [4], which usually only intensifies as the disease progresses.

Pain is common in cancer patients, particularly in the advanced stage of disease when the prevalence is estimated to be more than 70% [5], contributing to poor physical and emotional well-being. The most comprehensive systematic review indicates pain prevalence ranging from 33% in patients after curative treatment, to 59% in patients on anticancer treatment and to 64% in patients with metastatic, advanced or terminal disease [6].

Pain has a high prevalence earlier in disease in specific cancer types such as pancreatic (44%) and head and neck cancer (40%) [7].

Increased survival with either life-prolonging treatment or curative treatment results in increased numbers of patients experiencing persistent pain due to treatment or disease, or a combination of both [8]. Approximately 5%–10% of cancer survivors have chronic severe pain that interferes significantly with functioning [9].

Despite guidelines and the availability of opioids (the mainstay of moderate to severe cancer pain management), under treatment is common. European studies [10] confirmed these data from the United States, showing that different types of pain or pain syndromes were present in all stages of cancer and were not adequately treated in a significant percentage of patients, ranging from 56% to 82.3%.

According to a systematic review published in 2014 [11] using the Pain Management Index (PMI) [12], approximately one-third of patients do not receive appropriate analgesia proportional to their pain intensity (PI).High prevalence has also been documented in haematology patients at diagnosis, during therapy and in the last month of life [13].

These data reinforce the recommendation that patient with advanced or metastatic cancer require management within an integrated system for palliative care [11]. Cancer-related pain may be presented as a major issue of healthcare systems world-wide: 14.1 million new cancer cases and 8.2 million deaths occurred worldwide in 2012, based on GLOBOCAN estimates [14] and incidence will be > 15 million in 2020, based on projections [15].

Suboptimal pain control can be very debilitating. Patients and their families tend to be under great distress after the diagnosis of cancer. Although many of these patients carry a very poor prognosis, prompt and effective pain control can prevent needless suffering, may significantly improve the quality of their lives, and may potentially spare families the feeling of helplessness and despair [16].

Less than half get adequate relief of their pain, which negatively impacts their quality of life. The incidence of pain in advanced stages of invasive cancer approaches 80% and it is 90% in patients with metastases to osseous structures [17].

Assessment of pain

Initial and ongoing assessment of pain should be an integral part of cancer care and indicates when additional comprehensive assessment is needed .The regular self-reporting of PI with the help of validated assessment tools is the first step towards effective and individualized treatment. The most frequently used standardized scales and are the visual analogue scale (VAS), the verbal rating scale (VRS) and the numerical rating scale (NRS) [18].

Assessment of the pain descriptors improves the choice of therapy.

There are two types of pain: nociceptive pain and neuropathic pain.

a) Nociceptive: caused by ongoing tissue damage, either somatic (such as bone pain) or visceral (such as gut or hepatic pain); or
b) Neuropathic: caused by damage or dysfunction in the nervous system, such as in brachial plexopathy or in spinal cord compression by tumors [19].

Nociceptive pain

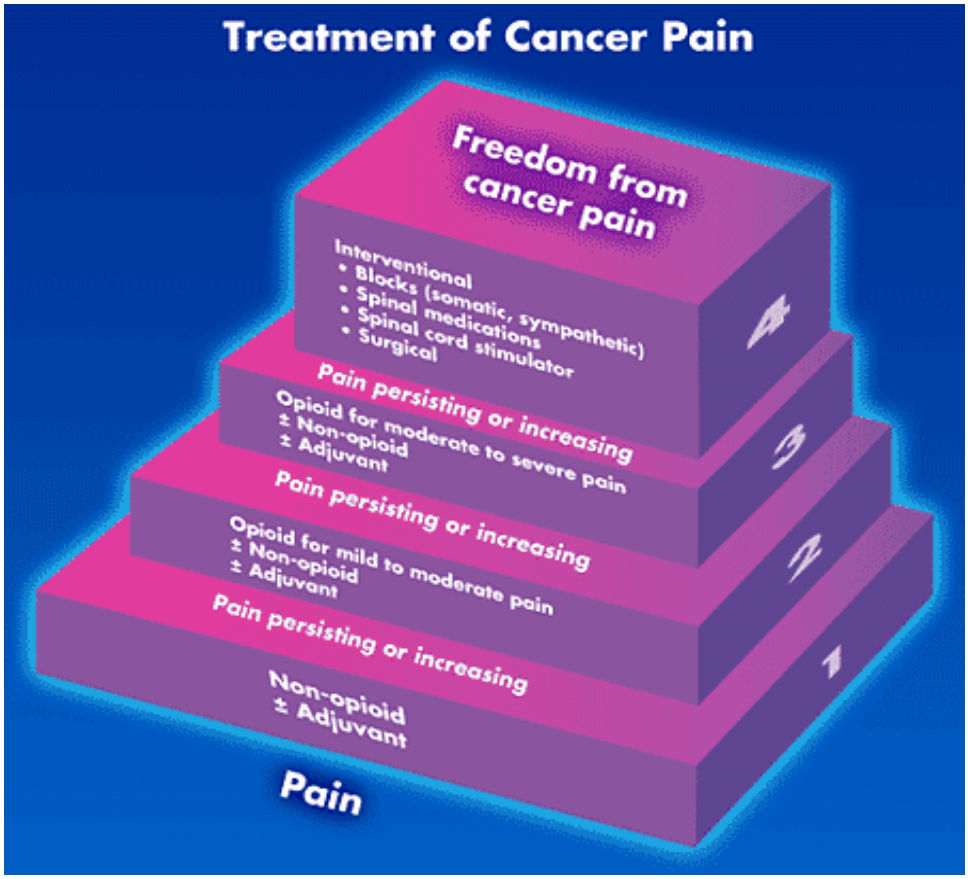
Stimulus is transmitted by peripheral nerves from specialized pain receptors, called nociceptors, whose function is to report any injury, which in cancer patients is usually secondary to invasion of tumor into bone, joints, or connective tissue.

Nociceptive pain can be somatic (usually sharp or dull well-localized aching or squeezing sensation), visceral (usually poor-localized deep pressure-like sensation), and associated with invasive procedures, ie, lumbar puncture, biopsy, surgical intervention.

Neuropathic pain

On the other hand, results from mechanical or metabolic injury to the nervous system itself, either centrally or peripherally, and is generally associated with mishandling of incoming somato-sensory stimuli. In patients with advanced cancer this can be a result of tumor infiltration of nerves or nerve roots, as well as iatrogenic in nature as a result of exposure to chemotherapeutic agents (ie, vinca alkaloids) or radiation therapy. The etiology of cancer pain is multi-factorial. It may arise due to cancer itself due to release of inflammatory mediators or due to metastases to distant tissues including bones and neuronal tissue and cancer treatment. Sensory neurons are degenerated after chemotherapy and lead to neuropathic pain [20].

'By any reasonable code, freedom from pain should be a basic human right, limited only by our knowledge to achieve it' Ronald Melzack [21]. It is the basic duty of all healthcare professionals to relieve pain, and the most important indication for treating pain after surgery is humanitarian [21]. Acute pain is an important fear for most patients and influences their recovery and overall experience [22].



Pain management may improve quality of life at any stage of cancer, so managing your pain is our priority. Our experienced pain management team cares for you throughout your treatment, to help reduce your pain and help you get comfortable. We use a variety of modalities to treat and control pain, including:

- Prescription medications
- Implanted pain pumps

- Nerve block therapies
- Physical therapy
- Acupuncture and auriculotherapy
- Massage therapy
- Relaxation techniques and guided imagery
- Chiropractic treatment

probably the most widely used are the guidelines developed by the World Health Organization (WHO) 20 years ago, which include the 3-step "analgesic ladder" designed to facilitate and standardize pharmacologic cancer pain management and advise physicians worldwide how to better provide pain management to their patients

Treatment choices for cancer pain

The type of pain experienced influences the choice of medications and their use. Some of the factors that influence the treatment choices include:

- The location of the pain
- The severity of the pain
- The type of pain – such as sharp, tingling or aching
- Whether the pain is persistent, or comes and goes
- What activities or events make the pain worse
- What activities or events make the pain better
- Current medications
- How much current medications ease the pain
- The impact the pain has on lifestyle, such as poor quality of sleep or loss of appetite.
- Types of medications for cancer pain relief

Some people respond better to certain pain-killing medications than others, so treatment is always individual.

Pain relief can be provided by a range of medications, including:

Aspirin-like drugs

– these medications are used for bone pain, and pain caused by inflammation (such aspleurisy). Some people experience stomach problems, such as indigestion and bleeding, with this type of medication. Aspirin itself is generally avoided, because it is too hard on the stomach if taken regularly.

Paracetamol

– is important in cancer pain control. It is usually well tolerated, doesn't affect the stomach and won't thin the blood. It is helpful to reduce fevers and relieve bone pain, and is often used along with opioids.

Opioids

– such as codeine and morphine. Some of the side effects may include nausea, vomiting, drowsiness and constipation. There is no danger of addiction if taken for pain relief purposes.

There are several newer opioids available, so one can usually be found to suit. Many people worry about taking opioids, because they are afraid to become addicted or think they should wait until they are very ill before they use these drugs. Evidence shows that it is far better to find a suitable opioid and use it regularly from the time when your pain becomes constant. This makes it easier to maintain the activities and interests you enjoy.

Different forms of pain-relieving medication

Helpful relaxation therapies include meditation, massage, taichi, yoga and hypnotherapy. Pain-relieving medication can be administered in different ways, including:

Tablets or syrups

– These can be taken by mouth and are simple to use. However, if nausea or vomiting is a problem, tablets or syrups may not be practical.

Injections

– Injections into the skin are painless, effective and quick acting. Continuous infusions under the skin may be set up and maintained at home, using a small portable pump.

Intravenous injections

– Medications are administered directly to the bloodstream via a slender tube (Catheter) inserted into a vein. this method works quicker than tablets, syrups or regular injections, but it isinconvenient for long-term administration for people who are at home.

Spinal injections

– Medications are administered though a small catheter in the back (epidural catheter). This procedure must be performed by an anaesthetist. Generally, this type of pain relief is offered when other methods fail

In comparison to parenteral opioid pain therapy alone, TEA provides superior analgesia after esophagectomy [23, 24] and is considered by many surgeons and anesthesiologists to represent the “goldstandard” with regard to postoperative pain control after thoracotomy in general. However, for technical and safety reasons, not all patients are suitable candidates for the placement of thoracic epidural catheters. For patients in whom TEA is not possible but epidural analgesia per se is not contraindicated, lumbar epidural analgesia (LEA) may represent a compromise approach for analgesia after thoracoab-dominal esophagectomy though pain control postoperatively is inferior to that obtained by TEA [25].

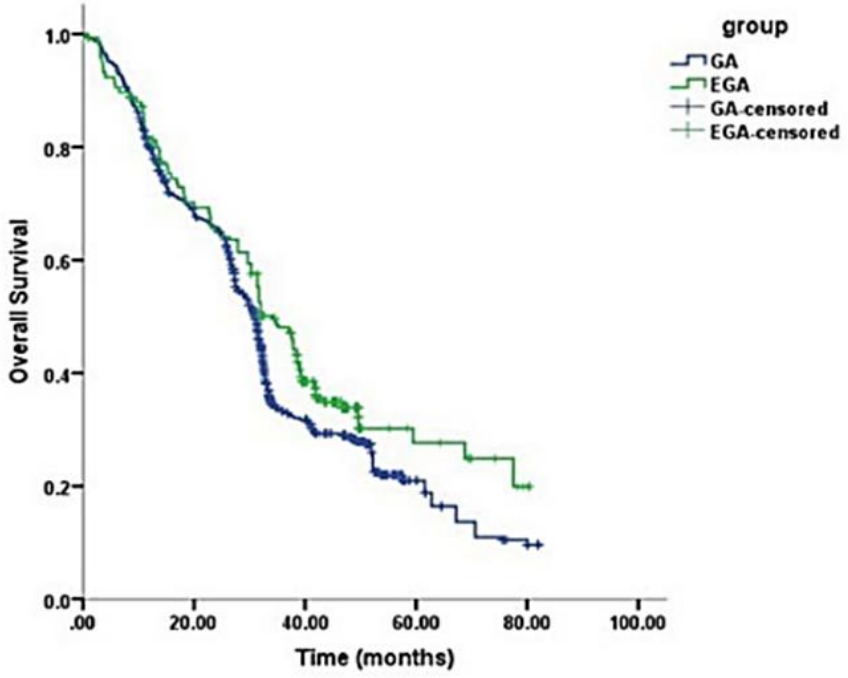
A variety of nonneuraxial techniques have been studied and recommended for postthoracotomy pain control; the most promising of these include intrapleural, intercostal, and paravertebral approaches. Intercostal nerve catheters in combination with patient controlled analgesia (PCA) have been compared with TEA producing mixed results [26, 27].

Intrapleural and thoracotomy wound catheters have also been utilized, though rigorous comparison to standard therapies are lacking [28, 29]. Paravertebral blockade has shown promise as an alternative therapy [30] with analgesic efficacy comparable to that of TEA by randomized trial [31] and meta-analysis [32] and with a favorable side-effect profile [32] and has been advocated as a superior modality by several authors [33, 34]. Whether paravertebral

analgesia will replace TEA for postthoracotomy pain may depend on the identification of outcome advantages that have thus far been ascribed only to TEA.

Specific epidural management strategies should ideally consider the dermatomal range of incision(s), the impact of incisional pain on respiratory function, the likelihood and impact of respiratory depression, and the intraoperative impact of an epidural induced sympathectomy on hemodynamic status.

Since the thoracoabdominal esophagectomy requires both thoracotomy and laparotomy incisions, any plan for postoperative pain control should address this fact. A variety of management strategies have been reported, but most centers which perform transthoracic and thoracoabdominal esophageal surgeries utilize a multimodal approach to pain management including preoperative placement of a thoracic epidural catheter unless contraindicated, intra- or postoperative bolus and infusion of a dilute local anesthetic such as ropivacaine or bupivacaine along with fentanyl or hydromorphone. An additional epidural bolus of preservative free morphine may provide a wider neuraxial spread and may provide synergism with the infused local anesthetics, but requires postoperative respiratory monitoring because of the possibility of delayed respiratory depression. Whether to bolus or infuse epidural local anesthetics pre- or intraoperatively has been a subject of debate among anesthesiologists. Arguments that a preemptive initiation of analgesia might provide better acute and chronic pain control have been based largely on theoretical considerations. Results thus far are mixed, suggesting that preoperative dosing of epidural catheters may produce better acute pain control [35, 36]. Although acute pain after thoracotomy has been shown to predict chronic pain [37], the efficacy of preemptive epidural analgesia on preventing chronic postthoracotomy pain is not supported by a recent meta-analysis [36].



Kaplan-Meier survival curves for patients with and without epidural use (univariate P , 0.0001*).

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