might be a large nerve that the orthopedic surgeon can insert the catheter into. I have used it both in midfemoral amputations (sciatic) and forequarter amputation (brachial plexus) with good effect (unpublished). Rectus sheath catheters and TAP block catheters have been described in the same manner.

Securing the catheter There are many specific catheter fixation devices on the market. I prefer using histoacrylic glue which both acts to hold the catheter fixated to the skin a few cm around the insertion site, and prevent leakage of fluid around the catheter. Over the glued catheter I put a plastic film and finally secure all loose catheter and the filter with ordinary tape. Tunneling the catheter is a method that is used by many to secure it better.

New needles and catheters

In later years there have been introduced a few catheters that are designed not to be inserted through a needle. (Examples include Pajunk E-Cath, B Braun Contiplex C and Ferrosan Certa Catheter) That means that they don't glide that easily in and out of the point of skin insertion. Also the leakage is much reduced, altogether lowering the risk of catheter failure. Some have found these useful. Personally I have found that the technique of inserting these catheters is very different than the ordinary catheter through-the-needle approach that every anaesthetist is used to from epidurals. That difference would probably cause other problems instead, leading to more primary catheter failures, unless you do very many nerve blocks with those new catheter types and learn to master the technique.

Conclusion Nerve block catheters are tricky to master but can be effective.

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SP66 CHEMOTHERAPY INDUCED NEUROPATHIC PAIN. CLINICAL DIAGNOSIS AND TREATMENT

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Chemotherapy-induced peripheral neuropathy (CIPN) is a common complication in patients receiving chemotherapy and can be particularly painful. The pathogenesis of CIPN has not been completely understood, and strategies for CIPN prevention and treatment are still open problems for medicine. Approximately 50–90% of patients under chemotherapy are affected by CIPN and bear a high risk of chronicity (approx. 30–40%)[1] Pain due to oral-mucositis (OM) in head and neck cancer (HNC) patients receiving radiotherapy (RT)/chemoradiotherapy (CRT) can be nociceptive and/or neuropathic. Neuropathic pain (NP) often remains underdiagnosed and untreated.[2] There is significant heterogeneity among studies regarding the method for diagnosing peripheral neuropathy. Nerve conduction studies are the gold standard and should be performed in patients receiving platins and complaining of neuropathic symptoms post-treatment Diagnosis can be supported by patients' documentation of neurotoxic complaints and assessment of QoL, e.g., by using the European Organization for Research and Treatment of Cancer (EORTC), QoL Questionnaire-CIPN-twenty-item scale (QLQ-CIPN 20) . Pain Neurotoxicity Questionnaire and DN4 have been validated in Greek laguage and are usefull tools[3] [4] Pain is prevalent in patients with cancer and considerably undermines their quality of life, thereby making the development of a comprehensive pain management approach essential.

Approximately, 1/3 of cancer patients experience NP, usually mixed with nociceptive components, but also, as a single, autonomous entity it can be disease related or related to the acute or chronic effects of cancer treatment such as radiotherapy, chemotherapy, hormonal therapy, or one of the evolving approaches (e.g. immune therapies). Cancer treatments have become more effective; patients are living longer with cancer and there are more cancer survivors. However, side-effects (particularly neuropathy) have become more problematic. The key to the management of cancer-related neuropathy is a considered assessment, remembering not to miss the opportunity of reversing the cause of the pain with appropriate oncological management. According to the literature, 25%-60% of women treated for breast cancer, regardless of the stage, experience pain. Taxanes used in adjuvant therapy for breast cancer are neurotoxic, and thereby being a potential risk factor for persistent pain after breast cancer treatment (PPBCT) and sensory disturbances. The prevalence of neuropathic symptoms due to acute toxicity of oxaliplatin was estimated at 84.6%, whereas PN established after chemotherapy with platins was estimated at 74.9%. Specifically regarding pain, the reported prevalence of pain due to acute toxicity of oxaliplatin was estimated at 55.6%, whereas the reported prevalence of chronic peripheral neuropathic pain in PIPN(platin induced periferal neuropathy) was estimated at 49.2%.[5] Docetaxel as adjuvant treatment for breast cancer does not increase the risk of PPBCT, sensory disturbances in the surgical area or functional impairment, but increase the risk for peripheral sensory disturbances. Pain and other concomitant symptoms and side effects should be assessed with validated and reliable scales and questionnaires Young age, previous comorbidities (such as back pain, arthritis, arthrosis, and fibromyalgia), and combined treatment with axillary lymph node dissection, chemotherapy, and radiotherapy are risk factors for chronic neuropathic pain. Chemotherapy induced peripheral neuropathy (CIPN) has been widely reported in controlled and uncontrolled studies. On one hand, more patients experience the excellent outcomes of chemotherapy, with prolonged survival. On the other hand, increasing numbers of patients are unable to complete full treatment because of CIPN development. Long-term pain management is therefore a challenging treatment aspect for oncologists and pain specialists. Cancer survivors with severe pain should be seen by a pain specialist. Multidisciplinary rehabilitation and individualized pain management may improve quality of life in cancer survivors.

The intrinsic difficulties in performing randomized controlled trials in cancer patients, have traditionally justified the acceptance of drugs already known to be effective in benign neuropathic pain, for the management of malignancy- related neuropathic pain despite the lack of relevant high quality data. Review of available literature reveals that the management of Neuropathic Cancer Pain (NCP) and Chemotherapy

Induced Peripheral Neuropathy (CIPN) has changed dramatically in the past few years thanks to the improved perception of the problem, new therapeutic approaches and novel drugs. At present, variable agents are used to treat NCP[6] and CIPN, but despite the advances in pathophysiology understanding, management is still suboptimal. Intractable NCP and CIPN remains an important epidemiological, clinical and economical burden worldwide, posing significant societal impacts

Specific guidelines on the pharmacological treatment of NCP have been suggested by the European Federation of Neurological Societies (EFNS), with Gabapentin as firstline treatment and tramadol second line.[7]

From latest systematic review and recommedations for the pharmacological and non-pharmacological treatments for neuropathic pain[8] and painful neuropathy[9] we conclude that as first-line treatment SNRIs (duloxetine and venlafaxine), gabapentin and tricyclic antidepressants and topical lidocaine and transcutaneous electrical nerve stimulation specifically for peripheral NP The best available evidence for the management of painful diabetic polyneuropathy (DPN) is for amitriptyline, duloxetine, gabapentin, pregabalin and venlafaxine as monotherapies and oxycodone as add-on therapy (level II of evidence). Tramadol appears to be effective when used as a monotherapy and add-on therapy in patients with PN of various etiologies (level II of evidence).

As second-line treatment combination therapy (antidepressant combined with gabapentinoids), high-concentration capsaicin patches, botulinum toxin A specifically for peripheral NP.

Third-line treatment weak recommendation for spinal cord stimulation (failed back surgery syndrome and painful diabetic polyneuropathy) strong opioids (in the absence of an alternative) Psychotherapy (cognitive behavioral therapy and mindfulness) is recommended as a second-line therapy, as an add-on to other therapies.

Adjuvant Analgesic Drugs The widely-used adjuvants represent a major aspect in our NCP and CIPN armamentarium. These include gabapentinoids (gabapentin, pregabalin), antidepressants (TCAs, duloxetine, venlafaxine), Capsaicin 8% patch, Lidocaine 5% patch and other substances

An adjuvant analgesic is an agent, whose primary indication is other than pain, exerting analgesic effects in certain painful conditions. Not only are adjuvants important per se, but they also hold opioid-sparing effects.

Tricyclic Antidepressants (TCAs) TCAs are started with a low bedtime dose (10–25 mgr), which is gradually increased or titrated weekly, every 3–7 days (by 10–25 mgr/day), usually up to 150 mgr. Further dose increase is forbidden due to adverse effects

Other Antidepressants ,Selective Serotonin Reuptake Inhibitors (SSRIs) produce less side-effects and are better tolerated than TCAs. At present, in NCP and CIPN treatment there is insufficient evidence to support the use of SSRIs

Selective Norepinephrine Reuptake Inhibitors(*SNRIs) (Venlafaxine, Duloxetine*)The advantage of venlafaxine and duloxetine application in NCP treatment is that, apart from pain relief, they can serve a useful therapeutic role for clinical depression .Evidence to support venlafaxine and duloxetine for the treatment of CIPN from oxaliplatin- or paclitaxel-based regimens is promising. Unfortunately, direct comparisons between venlafaxine and duloxetine do not exist, so definitive conclusions about which agent is preferred cannot be made. However, the data with duloxetine , showed that it may be prudent to consider duloxetine first when choosing a SNRI for CIPN treatment.

Antiepileptic Drugs (AEDs) – *Gabapentinoids* (Gabapentin-Pregabalin)

Gabapentin is an AED, holding the broadest evidence for efficacy in NP treatment, due to central sensitization reduction Confirmation from basic experimental studies, employing animal cancer pain models, as well as from clinical ones, concluded that gabapentin is effective in treating NCP(6,9)) Side effects of gabapentin include somnolence, dizziness and less commonly gastrointestinal symptoms and mild peripheral oedema. All these effects require close monitoring and dosage adjustment, but usually not drug discontinuation. Pregabalin has been FDA approved for PHN and PDN and its action is similar to that of gabapentin, with a significantly greater affinity for the a2-δ subunit of voltage-gated calcium channels versus gabapentin. As far as the therapeutic role of pregabalin in CNP we have published a paper(10) , where we examined the results of the addition of pregabalin, in cancer patients whom pain had a NP component. We concluded that pregabalin prescription in NCP patients provided significant pain alleviation and minimized the need for rescue opioids, thus reducing opioid-induced adverse effects and tolerance.(*Topical Antineuralgics: 5% Lidocaine Patch, 5% Lidocaine Gel* Lidocaine patches have been used in NCP where allodynia (sensitivity to light touch) exists. It has also been used for central NCP in a patient with metastatic epidural spinal cord compression, offering new treatment options. *Capsaisin 8% Patch has been suggested for CIPN(1).*

Conclusions In conclusion, Chemotherapy Induced Peripheral Neuropathy is a complex pain problem that is often refractory to treatment. Its pathophysiology may involve diverse aetiologies, which can vary with the evolution and progression of the disease. **QoL is impaired in painful peripheral neuropathy and should not be neglected in clinical practice. Patients' pain management and subsequent impact on QoL should routinely be assessed and monitored.(11)**

Present therapeutic strategies rely heavily upon pharmacotherapy. Combination of drugs, with completely different mechanisms of action is the optimal approach. Multiple drugs have been used and studied for decades, their effect against CIPN are still controversial according to different antineoplastic agents due to the diverse manifestations among different antineoplastic agents and complex drug-drug interactions. In addition, novel therapies or drugs that have proven to be effective in animals require further investigation, and it will take time to confirm their efficacy and safety.

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SP67 POCUS GASTRIC ULTRASOUND

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Although gastric ultrasonography had been used for almost thirty years by gastroenterologists to evaluate gastric motility and emptying or to diagnose cancer of the gastric wall, it was only approximately ten years ago that the first publications appeared in the anesthesia literature about the perioperative use of bedside ultrasound to evaluate gastric content and volume. This new tool allowed and allows physicians to assess peri-operative patient aspiration risk and guide anaesthetic management. The exam mainly consists of two components. The qualitative component determines if a stomach is empty or contains clear or thick fluid or solid contents. If deemed necessary, the quantitative component of the exam determines how much clear fluid is present and uses for this purpose a validated mathematical tool to estimate total gastric fluid volumes.[1] It is however essential to keep in mind this model has been validated for clear fluids only.

A detailed framework (I-AIM model) was described that presents every conceptual step for the indications (I), acquisition (A), interpretation of gastric ultrasound (I) and the medical decisions (M) concerning anesthetic management to be taken from the obtained information, (https://www.gastricultrasound.org/en/extra-material/faq/#downloads).

For the extended technical aspects of the scanning and sonographic presentations of different stomach contents, we refer to two review articles or the abovementioned website.[3,4] In breve, the epigastrium of the patient is scanned sagittaly with a low-frequency abdominal transducer in the supine and right lateral decubitus position. The aorta and left lobe of the liver serve as anatomical references. This way a cross-sectional view of the antrum of the stomach -which is the most amenable part of the stomach to be scanned- is obtained.

The indications for using gastric PoCUS are the clinical scenarios in which prandial status is uncertain or gastric emptying is possibly delayed. [4] This can be patients who for whatever reason have not followed the fasting guidelines or have an unclear history (language barrier, cognitive dysfunction, children…) or patients with chronic kidney disease, multiple sclerosis, diabetes….

The question that needs to be answered is -as for most point-of-care techniques- a dichotomous one. Does this patient have a pneumothorax, does that lady have a pericardial tamponade? In this case the question to be answered is: does our patient have an 'empty' or a 'full' stomach? A definition of 'full' is the presence of content that goes beyond what can be found in fasted and healthy patients. This is the presence of clear fluid in excess of baseline gastric secretions being > 1.5 mL/kg clear fluid or the presence of thick particulate or solid content. The volume of gastric contents is an important determinant of regurgitation but the cut-off value of 1.5 mL/kg that confers a 'full' stomach and unacceptable aspiration risk is a topic of an ongoing debate and beyond the scope of this short update.[5]

Over the last decade, there has been an ever-rising number of publications on gastric point-of-care ultrasound. The initial focus was on the technique's development and characterising it in terms of validity, namely is it assessing what it intends to assess and in an accurate way. The reproducibility of the results (reliability) and application in clinical practice (interpretability) were to follow. Gastric PoCUS was investigated in different patient populations: adult, paediatric, morbidly obese, chronic renal failure, diabetes, elective, urgent and emergency surgery. More especially the obstetric population has attracted a huge interest as demonstrated by the large number of publications. Studies have focused on gastric emptying throughout the pregnancy but have focused on term patients and during labour.[6]

Other studies have focused on preoperative drinking policies with different timings and regimens (carbohydrate rich, protein enriched). Testing more liberal drinking policies may help us improve patient comfort, alleviate the effects of starvation, and retain safe gastric volumes. Especially in the paediatric population, the work by Frykholm and Andersson from Sweden has led to modified and more liberal fasting guidelines in children.[7]

Although many aspects that are essential to investigate this new tool have been studied, there are aspects that remain to be evaluated such as the education and implementation into curricula, cost-effectiveness, its role before tracheal extubation because the focus has been in most cases on its preoperative use and other interesting pathways such as its possible application in evaluating enteral feeding in the intensive care environment.

Gastric PoCUS is an exciting new tool that can be added to the armamentarium of the anesthesiologist, but it needs to be seen as an adjunct that increases the safety margin within anesthetic management, together with appropriate medical history and physical exam and it is not meant as a replacement for the fasting guidelines that have an excellent track record.

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SP68 DURAL PUNCTURE EPIDURAL: A 'HOLE' LOT BETTER? IS THIS THE HAPPY MEDIUM WE WERE HOPING FOR?

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