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Introduction

Dear Colleagues,

The **24th Panhellenic Congress of Regional Anaesthesia, Pain Management & Palliative Care** (PARH.SY.A), is happening soon. It's the biggest scientific event of the year, attracting over 400 professionals from the fields of pain management, regional anesthesia, and palliative care. Physicians showed great interest, submitting 101 abstracts, with 84 being accepted.

This year, PARH.SY.A is excited to announce a new initiative: for the first time, the congress proceedings will be published as a supplement in the new journal "Advancements in Health Research" (https://www.ahr-journal.org/site). The Hellenic Society of Pain Management and Palliative Care (PARH.SY.A) believes this will encourage more research in these important fields. The book of abstracts will also include free presentations from invited speakers.

The Congress has gained attention from colleagues across Greece, and we are proud to contribute to the growth of regional anesthesia, pain management, and palliative care in our country.

We extend our gratitude to all committee members who served as reviewers and faculty for the congress. They have generously shared their time and expertise to help.

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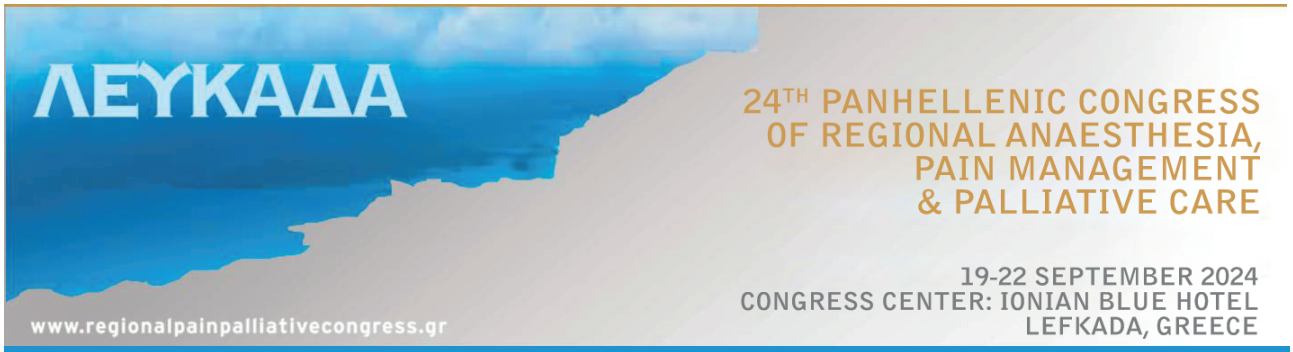

MAIN LECTURES

THE ROLE OF OPIOIDS IN THE TREATMENT OF CANCER PAIN: THE 2023 ASCO GUIDELINES

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Opioids are the mainstay of treatment for cancer pain. The purpose of the ASCO (American Society of Clinical Oncology) guideline was to provide guidance on the use of opioids to manage pain in adult patients induced by cancer or its active treatment. ASCO Expert Panel reviewed the evidence from the medical literature and formulated recommendations for seven clinical questions of interest. Opioids should be offered to patients with moderate-to-severe pain induced by cancer or active anticancer treatment. It is no longer mandatory to use weak opioids for the treatment of moderate pain. All strong opioids have similar efficacy, so the decision of which opioid is most appropriate should be based on availability, pharmacokinetic characteristics and cost. Methadone is an exception and should only be prescribed by palliative care or pain specialists. Opioids should be initiated at the lowest possible dose and as immediate release (IR) formulations given as needed (PRN) to establish an effective dose. The minimal clinically meaningful increase during the titration process is 25-50% of total 24h dose. Recommendations were provided on the prevention and management of selected adverse effects (constipation, delirium/neurotoxicity, endocrinopathy, nausea and vomiting, pruritus, sedation and respiratory depression, urinary retention) as well as on the use of opioids in patients with renal and hepatic impairment. The management of breakthrough pain was also covered as well as the question on when and how to perform opioid rotation.

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THE IDEAL PERIPHERAL NERVE BLOCK: HOW CLOSE TO APPROACH THE NERVE? WHAT IS THE EVIDENCE?

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In 2010, at the editorial of Regional Anesthesia and Pain Medicine journal, Joseph Neal and Denise Wedel wondered whether our "vision" was sharp enough to avoid peripheral nerve damage during ultrasound guided peripheral nerve blocks (PNBs). They concluded that, on the time being, it wasn't. They estimated that since, fortunately, only 4 out of 10,000 patients undergoing PNBs demonstrate a permanent nerve damage, approximately 70,000 patients per study group would be required to prove that a new technique could lead to a 50% reduction of damage incidence. Now, in 2024 such a study still doesn't exist and this is much expected in the resource-limited world of anesthesiology research. It is easily understandable that the more the needle approaches the nerve, the highest the block success rate will be. Common sense tells us that we shouldn't proceed intraneurally. But what is exactly an intraneural injection? And why do researchers perform intraneural injections suggesting that they are safe and lead to faster block onset and local anesthetics dose reduction, that means lower LAST incidence? On the other hand, do cadaver studies indicating, that intracluster injections may lead to damage to the paraneurium and nerve axons, have a clinical impact? It seems that the success rate and safety of PNBs is not measured by the nerve – needle distance but by the balance between proper training, clinical judgement and common sense. The ultrasound machine will not solve all of our problems, just like the nerve stimulator didn't, despite the fact that it was praised more back to the days that it was first introduced than the ultrasound is praised now.

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INFOGRAPHICS IN REGIONAL ANESTHESIA: THE NEW TREND

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Infographics are emerging as a powerful tool in the field of regional anesthesia, transforming how complex medical information is communicated and understood. These visual representations combine data, illustrations, and text to present information clearly and concisely, making them ideal for both educational and clinical applications. In regional anesthesia, infographics can streamline the learning process for medical professionals. By distilling detailed procedures and anatomical knowledge into visually engaging formats, infographics aid in the comprehension and retention of essential information. For example, an infographic on the brachial plexus block can illustrate the nerve pathways, the exact points for needle insertion, and the potential areas of anesthesia coverage, all in one cohesive image. This not only enhances learning for medical students and residents but also serves as a quick reference for seasoned anesthesiologists in practice. Moreover, infographics can improve patient communication and education. Patients undergoing regional anesthesia often have numerous questions and concerns about the procedure. Infographics can simplify these explanations, visually depicting how the anesthesia will be administered, what they might feel during the process, and what the expected outcomes are. This can alleviate anxiety and improve patient cooperation and satisfaction. In clinical practice, infographics can also assist in decision-making and procedural consistency. Standardized infographics for various regional anesthesia techniques can be posted in operating rooms and anesthesia workspaces, providing quick visual reminders of critical steps and safety checks. This promotes adherence to best practices and reduces the likelihood of errors. Furthermore, the digital nature of infographics allows for easy dissemination and accessibility. They can be integrated into online educational platforms, shared via social media, or included in digital patient education materials, ensuring wide reach and impact. In summary, infographics are revolutionizing regional anesthesia by enhancing education, improving patient communication, supporting clinical practice, and leveraging digital platforms for widespread accessibility. As this trend grows, the role of infographics in anesthesia is likely to expand, contributing to better outcomes and more efficient practice.

"SAWING OFF THE BRANCH WE ARE SITTING ON": BURNOUT IN PAIN AND PALLIATIVE CARE CLINICS

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Chronic pain patients treated in Pain Clinics, as well as those in Palliative Care Units and ICUs, usually experience high levels of distress. Under such circumstances of extreme human vulnerability, when the patient totally depends on the ability and sensitivity of caregivers, it is critical that those caregivers be able to carry this load without professional and personal exhaustion. However, this ultimate "supportive branch" is systematically sawed by inadequate or completely absent provision of psychological support for the caregivers. The result is increased prevalence of burnout and psychological distress. The universal nature of this phenomenon is reflected by three recent studies: All used, among other instruments, the Maslach Burnout Inventory. An Australian study [1] covered 58 multidisciplinary Pain Clinics (176 clinicians - MBI). It reported high levels of emotional exhaustion and depersonalisation in 21.6% and 14.2%, respectively. Low levels of personal fulfilment were reported by 18.8% of respondents. Common sources of stress for clinicians were difficult encounters with patients, their commonly reported sources of well-being were the collaboration and support within the multidisciplinary team. An American study [2] assessed burnout among acute and chronic pain anesthesiologists, and pediatric and cardiac anesthesiologists (1303 participants - MBI). Control groups were physicians of all specialties and a general population sample. Chronic pain physicians showed significantly worse scores than the other three subspecialties and the two control groups. Mental Health was negatively associated with emotional exhaustion and depersonalization in all groups. A Chinese study [3] was conducted among nursing staff in 5 ICUs (152 nurses, MBI). At initial assessment, MBI scores ranged between 131.63 - 133.43 (high burnout) and 69.96 - 70.07 (low quality of work life). Importantly, this study did not stop at simply commenting on these findings as the previous studies did, but actually completed a randomised controlled trial evaluating a Balint group intervention in half of the sample (8 weekly 1.5 hour sessions), the other half being a no intervention control group. The two groups did not differ in MBI scores before and at the midpoint of the intervention. After the end of the intervention, the MBI burnout scores in the Balint groups were significantly lower than the control groups (58.33±7.38 *vs.* 70.50±7.01).

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WHAT OUTCOMES CAN WE EXPECT REGIONAL ANESTHESIA TO INFLUENCE?

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The last decades have seen a dramatic increase in investigations into the ability of regional anesthetic techniques to affect outcomes beyond improved pain control. While many researchers have highlighted positive associations in respect to certain outcomes, others have not found a relationship between regional anesthesia (RA) and the occurrence of events following surgery. This presentation seeks to explore the reasons for the difference in findings and to discuss which outcomes can be reasonably expected to be influenced by the use of RA. For RA to be considered a meaningful intervention that can affect an outcome of interest, there needs to be: 1) a feasible underlying mechanism that can explain the interaction between RA and the outcome, 2) occur in a time frame that logically can be influenced by the RA procedure, and 3) cannot be subject to numerous other interventions that more likely explain the outcome. In this context, mechanisms that might improve outcomes are direct and indirect. Better pain control through the disruption of pain pathways

can mitigate the surgery induced stress response. The related sympathectomy associated with RA contributes to better blood pressure control and improved tissue perfusions as well as a reduction in the release of cytokines and stress hormones. These effects can therefore explain positive outcomes on cardiovascular complications, bleeding, infections as well as thromboembolic events. Indirect benefits might be related to the avoidance of airway instrumentation and the reduction in opioid consumption, therefore underlying the frequent findings of reduced respiratory sequalae. Given that these mechanisms are in effect as long as the RA intervention lasts, it seems logical that RA is most likely and directly able to affect events within hours to days of the surgery. The ability of RA to affect perioperative complications (1) therefore can logically be expected to affect resource utilization measures such as length of stay, cost and utilization of expensive services such as intensive care units and readmissions to emergency rooms. Longer-term outcomes, such as physical therapy related events or mortality weeks to months after the procedure lack a solid underlying mechanisms, are likely multifactorial in nature and subject to many other interventions more specifically targeted to affect these events. Indeed, most studies looking at long-term outcomes fail to find a difference between patients receiving RA *versus* those who do not. The most likely explanation is that a feasible mechanism does not exists or the effect is small when other factors are at play. Claims that they might be explainable through the differential rates of perioperative complications begs the question why these complications are not the primary outcome of study. However, it is clear that given the relatively low incidence of these outcomes, studies, especially prospective ones, would require large numbers of patients and are thus expensive and rarely feasible. In conclusion, RA is associated with intrinsic and secondary mechanisms that can explain the impact on perioperative complications. It is therefore appropriate to expect a potential impact on events that can be mitigated by a reduction in the stress response, are related to RA induced sympathectomy, avoidance of airway instrumentation or the excessive use of systemically active drugs.

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PAIN CLINIC AT THE GENERAL HOSPITAL OF MYTILINI

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Effective communication among health care professionals of Pain Clinics and Palliative Care Clinics, is of particular importance in order to achieve effective function, patient safety and qualitive health care delivery. PARIS.SY.A, as a multimodal and experienced organization in the area of Pain Management and Palliative care, can contribute to improved medical decision making and to training of health professionals and patients, through successful team collaboration. Occasionally it is necessary for patients living in the periphery, to transfer to larger urban centers for specialized therapies such as radiotherapy. In that case Pain Clinics and Palliative Care Clinics of peripheral hospitals could exchange clinical data with PARIS.SY.A and other pain clinics, in order for the continuation of provision of pain and palliative care services, even when the patients are away from their permanent residence. Methods which can contribute to communication between peripheral clinics and PARIS.SY.A are: a) digital methods for availability and sharing of patient data securely, b) online patient databases, c) use of automated mail/notification systems in order to minimize errors in healthcare communication, d) communicating on professional social networks, which allows collaborations and educative conversations with a wider group of medical professionals. The use of medical guidelines, as those published by PARIS.SY.A for managing chronic neuropathic pain, since they are established by specialists in the field, form recommendations addressed to all clinical doctors and help in forming therapeutic medical plans and in delivering appropriate health care for special clinical cases. The use of registers throughout Greece, as for example The Neuropathic Pain Register made by PARIS.SY.A, helps to perform more effective monitoring and analysis of data and contributes to establish more accurate studies and consequent medical evolution. In order to achieve the empowerment of health care providers working in Pain and Palliative Care Clinics, continuing medical education is of great importance, having as a goal documented delivery of medical knowledge in context with medical evolution. The latter can be achieved with organized seminars as well as during conferences. Last but not least, the most important source of enhancing the function of Pain and Palliative Care Clinics, is through informing the public. This can be achieved by the collaboration of medical councils, pharmaceutical companies, public bodies and public authorities in order to ensure high level campaigns and events, targeted to capture the interest of the public eye and inform of means of improving life and death circumstances for the suffering patients.

PAIN CLINIC AT THE GENERAL HOSPITAL OF RETHYMNO

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The General Hospital of Rethymno, located in the center of the city, has been serving the entire prefecture, with a population of about 45,000, since 1946. The city itself has a population of 30,000. The Pain and Palliative Care Clinic began operating in November 2021, 75 years after the establishment of the hospital. Since then, the clinic has treated a total of 1,200 patients suffering from chronic pain. The establishment of this clinic in our hospital significantly contributes to the treatment of chronic pain, alleviating patient suffering, and enhancing the quality of life. It is important to note that chronic pain is a disease in its own right and should be treated as such. The aim of the pain clinic is to relieve patients' pain, improve their quality of life, maintain their mental health, and facilitate a quick return to daily activities. These goals are achieved through treatments such as invasive techniques, specialized medication, and psychological support. Pain is a sensation that arises from the activation of pain receptors in specific cells within organs such as the liver, pancreas, and bladder, as well as in tissues like muscles, ligaments, and bones. These receptors are activated following tissue damage, and the pain signal is transmitted through

a complex nerve pathway to the brain. Chronic pain restricts an individual's social and daily activities, causes insomnia, and impairs mental concentration. Over time, this often leads to depression, which affects many patients with chronic pain. Pain Treatment Methods: Specialized Medication. Invasive Pain Treatments: These are medical procedures performed in a hospital using fluoroscopic or ultrasound guidance with local anesthesia. The procedures typically last between 15 and 90 minutes, and patients usually leave the hospital within 2 to 4 hours. Admission and day hospitalization are required. These treatments include: Targeted Infusions and Invasive Pain Treatments: Targeted Infusions: Includes procedures such as epidural and caudal injections. Radiofrequency (RF) and Pulsed Radiofrequency (PULSED RF) Treatments: These involve applying radiofrequency energy to large joints (such as hips, knees, shoulders), the spine, peripheral nerves, sympathetic ganglia, tendons, ligaments, and muscles. These minimally invasive methods aim to destroy nerve cells (ganglia, sensory, or mixed nerves) by applying an electric field to biological tissue. This process, known as thermocautery or cold field, achieves denervation and helps relieve pain. Percutaneous Pulsed Neurolysis (TCPRF): TCPRF is a non-invasive, painless treatment that uses two percutaneous electrical nerve stimulation electrodes placed along the painful area to reduce chronic pain. Placement of Capsaicin Patches: The dermal capsaicin patch is applied by qualified personnel to the affected area and remains in place for about an hour. This patch contains capsaicin, a component derived from capsicum pepper. Its action involves desensitizing the nociceptors in the affected area. Nociceptors are cells that transmit pain signals from the site of injury to the brain, where they are perceived as pain. The indications for using capsaicin patches in pain treatment include: Peripheral Neuropathic Pain: Pain resulting from damage or injury to a peripheral nerve, such as intercostal neuralgia, meralgia paresthetica, or suprascapular neuralgia. Postherpetic Neuralgia: Pain resulting from a herpes zoster (shingles) infection. Back Pain: Including conditions such as sciatica. Nasal Blockade of the Sphenopalatine Ganglion This procedure involves the intranasal injection of a local anesthetic using a specialized device. It can be effectively used to treat and alleviate symptoms associated with: Migraine; Cluster headache; Trigeminal neuralgia; Lacrimal gland dysfunction; Various types of facial pain; Cancer-related pain in the nasal and pharyngeal regions. The Pain and Palliative Care Clinic adheres to modern international standards that focus on enhancing the quality of life for patients experiencing acute or chronic pain, as well as supporting those who care for them. Palliative Care provides a comprehensive approach to effectively alleviate pain and other related symptoms, whether caused by the disease itself or its treatment, and addresses the stress associated with chronic or life-threatening conditions. Depending on each patient's needs, additional specialists may be involved to ensure the most accurate, complete, and effective treatment. For this purpose, the Pain Clinic may collaborate with neurologists, orthopedic oncologists, rheumatologists, physiotherapists, psychiatrists, and psychologists. On April 6, 2024, during the Scientific Two-Day Conference on Pain Therapy & Palliative Care, the Hellenic Society of Pain and Palliative Care signed a memorandum of cooperation with the Management of the General Hospital of Rethymno. The goal of this collaboration is to ensure that 'no human being should live and die in pain.'

CRITICAL INCIDENT DURING CESAREAN SECTION

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A critical incident is any preventable mishap which leads to or could have led to an undesirable patient outcome. Critical Incidents during cesarean section occur rarely but they can become rapidly life-threatening to both mother and fetus. Etiological risk-factors vary, and may be related to: the surgical procedure per se and surgical complications, anesthesia complications, the placental-position/insertion, pregnancy pathology, maternal conditions, fetal conditions, anaphylactic reactions. Risk factors for critical incidents are also attributable to physicians' technical (procedural factors) and non-technical skills. Non-technical-skills (situational awareness, decision making, teamwork, leadership and the management of stress and fatigue) play an integral part in preventable critical incidents and their role could not be overemphasized. The obstetric anesthetist should be vigilant for any change in the maternal pathophysiological status or deterioration and intervene rapidly. Rapid diagnosis and subsequent prompt initial management are primordial in the successful outcome of critical incidents during cesarean section. The initial differential diagnosis should focus on whether the incident is obstetric-related (preeclampsia, obstetric hemorrhage, uterine rupture/scar dehiscence, amniotic fluid embolism, abruption etc.), anesthesia related (total spinal, LAST, airway management etc) or due to other conditions (medication errors, anaphylaxis, VTE, pulmonary embolism, undiagnosed cardiac problem etc). Assessment and management should be based on an ABCDE approach. Initial management consists of early: call for help, O2 supply and airway management, additional large IV access, left lateral tilt, ensuring blood availability, vasopressors and preparing for CPR. In case of cardiac arrest, perimortem cesarean section should be performed within 5 minutes. All obstetric anesthesia departments should have established critical incident management protocols and ensure adequate and regular training of their entire staff.

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PLANT BASED DIET AND CANCER RISK

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Cancer is a complex disease and one of the major causes of premature death worldwide (1). Smoking, alcohol consumption, an unbalanced diet and lack of exercise are the main risk factors (2). The World Cancer Research Fund (WCRF) assumes that 3–4 million cases of cancer worldwide might be avoided by adopting a healthier lifestyle (3). This would be of great importance for the cancer survivors as well. It has been suggested that approximately 30% of cancers can be prevented by a healthy diet (4). Internationally, the prevalence of following a vegetarian diet varies by country, but it is generally estimated to be less than 10% of the population. Protection by plant-based diets can be offered by beneficial plant constituents including fiber and micronutrients, also in part by the exclusion of meat which contains harmful substances such as saturated fats and carcinogens

and finally by weight loss or weight maintenance which may offer protection against the increased colorectal cancer risk associated with obesity. Whole foods plant-based diets have shown to significantly protect against breast, colorectal, prostate cancers, as well as additional cancers and other chronic disease states (5). Intake of fruits and vegetables and high fiber intake, has been associated with reduced risk of colorectal cancer in systematic meta-analyses and epidemiologic studies (6,7). Epidemiologic cohort studies in the U.S. and UK have provided high-quality evidence regarding the association of vegetarian dietary patterns with cancer risk (8-10). Taken as a whole, such results seem to support the idea that vegetarians have a modest but potentially important reduced overall cancer risk compared to their non-vegetarian counterparts. Currently, there is a vibrant interest in the sustainability of diets and a growing awareness of the need to focus on both human health and the health of the planet in formulating dietary guidelines.

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CHALLENGES IN PALLIATIVE CARE RESEARCH: MISSING DATA

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Palliative care, despite being a core activity of medical clinical practice, is often overlooked. Research in this field encounters challenges and difficulties, related both to the nature of the subject and the associated deterioration in patient functioning and high mortality rates. One of the main challenges is incomplete data collection. Missing data refers to information that is missing from a database, usually because it was either not collected at all or recorded incorrectly. Missing data are data that would contribute to answering a research question and that were intended to be collected based on the original study design. Proper data management is essential, to mitigate the missing data issue and thus ensure the reliability of research data in palliative care research: deleting missing records, replacing values with statistical methods or using sophisticated algorithms such as multiple imputation and the Expectation-Maximization algorithm are techniques that, when properly applied, may help address the problem. Careful and targeted study design is required. The study objectives should be aligned with the analysis that will follow, taking into account the events that often occur after randomization in such projects. Defining safety and efficacy endpoints can also contribute substantially to the successful conduct of a clinical trial in palliative care. The sensitivity of the analysis and transparency in reporting the methods of missing data management is paramount. This allows researchers to identify potential bias that may arise from missing data and ensures reproducible findings, enabling other researchers to benefit optimally from the study. Missing data are prevalent in healthcare research; one needs to follow current recommendations on how to reduce, handle and report missing data in palliative care trials, in order to minimize waste in clinical research and enhance its value for individuals, their families, and society.

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SPINAL CORD STIMULATION – GUIDANCE ON HOW TO REFER AND SELECT APPROPRIATE PATIENTS FOR GOOD LONG-TERM OUTCOMES

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Spinal cord stimulation has been shown to be effective in the treatment of neuropathic pain in many randomised clinical trials. In the UK, the evidence of clinical and cost effectiveness was considered by NICE (National Institute of Health and Care Excellence) resulting in publication of Technology Appraisal 159 in 2008. Following such a publication, one expects to see an increase of SCS procedures. Although SCS procedures in the UK have minimally increased, it has not kept pace with the increase of eligible patients. There are multifactorial reasons for this, not least capacity, but more importantly there remains uncertainty about the patients suitable for referral. Many eligible patients remain trapped with ineffective care incurring increasing health care costs, disability, poor mental health and loss of societal contribution. Clinical trials tend to have strict inclusion/exclusion criteria but real-world application involves a more heterogeneous population. There was little consensus of the factors that determine an appropriate or inappropriate patient for SCS referral and implantation. A multidisciplinary, international group was assembled in November 2018. Agreement was reached on the clinical variables to be used gathered from clinical evidence and debate. There were 330 clinical scenarios across 4 clinical areas. Each member individually rated each clinical scenario on a 1 to 9 scale of appropriateness. Using RAND UCLA Appropriateness Methodology (RUAM), the

first round was completed. A second meeting to revise the rating structure generated a total of 386 clinical scenarios which were again individually rated. Some clinical scenarios had strong consensus on appropriate and inappropriate selection for SCS and weaker or no consensus in others. Once the clinical or biomedical factors were considered, there was evidence review and discussion on the psychosocial variables that were consolidated into eight variables. A decision-making tool was designed that includes all absolute inclusion/exclusion criteria, clinical and psychosocial variables generating a score of appropriateness and panel recommendation – The E-Tool www.scstool.org. Validity has been tested with a retrospective study. A prospective study is in progress. The strengths of this tool is that it can be used for education of referrers, reduces variability between implant centres and supports the multidisciplinary team. Payer organisations prefer to see a more structured approach to SCS selection.

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LOCAL ANESTHETIC INFUSIONS AND CANCER PATIENTS

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Cancer care is multidisciplinary and surgical intervention occurs in 60% of the cases. Circulating Tumor Cells (CTCs) play a key role on the metastatic process as they escape from the primary tumor, enter the blood vessels and then extravasate to form a secondary tumor. This process is more pronounced during the surgical manipulation of the tumor. Chemotherapy does not start till up to 4-6 weeks after surgery and this delay is associated with worse outcomes. Therefore, an intervention that does not have the toxicity of chemotherapy, and that might attenuate the activation of the cellular and molecular events that are critical to the metastatic process during the perioperative period, presents a window of opportunity to improve outcomes that should not be missed. It is well known that local anesthetics have anti-inflammatory properties and that inflammation and cancer have common pathways. Our team has always been interested in identifying a mechanism by which local anesthetics would have an antimetastatic effect, and we have previously investigated the effect of the amide local anesthetics on known mediators that are involved in inflammatory signaling and play crucial role in cancer metastasis. Such mediators are: ICAM-1; Facilitates tumor cell adherence to the endothelium and subsequent extravasation - ICAM-1 expression is associated with a more aggressive tumor phenotype; SRC tyrosine protein kinase. Involved in signaling epithelial to mesenchymal transformation; promotes cell survival and mitogenesis.; effect on the cytoskeleton remodeling for cell migration; necessary for solid tumor metastasis. We have demonstrated *in vitro* in lung adenocarcinoma cells, a mechanism of the antimetastatic potential of the amide local anesthetics involving the inhibition SRC Kinase signaling pathway and ICAM- 1 phosphorylation. Pancreatic ductal adenocarcinoma (PDAC) is an aggressive malignant disease with a 5-year survival rate of <10%. It is well established that activation or elevated expression of the SRC tyrosine kinase is frequently observed in PDAC and is associated with a poor prognosis. As such we decided to conduct a study on the effect of lidocaine infusions on pancreatic cancer ("Lidocaine Infusions in Pancreatic Cancer: Translational Studies in a Preclinical Model and Human Subjects"). It will be presenting results from our *in vitro*, preclinical, *ex vivo* and our ongoing human clinical trial. The human study is a double blind placebo controlled randomized clinical trial. We are evaluating the effect of lidocaine infusions in the biology of the CTCs isolated from PDAC and genetically engineered KPC mice with PDAC. We have also conducted *in vitro* experiments with various pancreatic cell lines. During the manipulation of the tumor even with non-touch techniques there is release of CTCs. Our hypothesis is that if lidocaine infusions attenuate SRC activation and phosphorylation in the CTCs they will render them less aggressive and unable to go through the endothelial barrier of the blood vessels and form metastatic sites. We expect that we will prove our hypothesis that lidocaine infusions have an effect in the biology of the tumor cells by attenuating SRC activation and we are also studying other molecules that contribute in the metastatic process. Subsequently we can perform a study to evaluate survival in those patients. The goal is to establish a practice to help with the management of cancer patients perioperatively, and to demonstrate the additional beneficial role of lidocaine infusions apart from their anti-hyperalgesic and anti-inflammatory properties.

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PERSONALISED THERAPY: THE RELATIONSHIP OF MEASUREMENT RELIABILITY AND CLINICAL RESULT

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The modern clinician as well as the modern researcher must be up-to-date with the latest scientific developments in order to practice evidence-based medicine. In the scientific literature, the term "statistically significant" is used to denote experimental or clinical relevance. Despite its wide use, the above term is very often used incorrectly. If something is statistically significant, it does not necessarily mean that it is also clinically significant. The statistical significance measurement quantifies the probability that the study results are due to chance (a P value less than 0.05 indicates that the probability of the study results being due to chance is less than 5%). LeFort suggests that "clinical significance should reflect the extent of changes, whether these changes make a real difference in the person's life, how long the effect lasts, how well the person accepts it, cost-effectiveness, and ease

of implementation". Reliability is also an issue in health sciences. The critical approach to measurement size is being sidelined in favor of quick recipes for statistical analysis that have slowly but surely replaced the careful weighting of expert opinion and judgment, as well as reliability analyses. Reliability studies quantify the measurement error in experimental or clinical situations and should be interpreted as a continuous result. Assessment of measurement error is useful for the design and interpretation of future experimental studies and clinical interventions. Reliability and clinical relevance are inextricably linked, as measurement error should be taken into consideration in the interpretation of minimal detectable change and minimal clinically important difference. A researcher must evaluate the results of studies with critical thinking and therefore apply them to the practice of evidence-based medicine.

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INDIVIDUALIZED THERAPEUTIC EXERCISE

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A physician specializing in the treatment of pain takes a detailed history and, with a clinical examination and additional tests, diagnoses the cause of the pain. In the planning of the treatment, accompanying diseases are considered, and in some cases, it is considered appropriate to be evaluated by doctors of other specialties. Then, in addition to the initial pharmaceutical or any other treatment recommended, depending on the condition, therapeutic exercise is also recommended. Therapeutic exercise is effective in different conditions associated with chronic pain, such as chronic low back pain, fibromyalgia, osteoarthritis, rheumatoid arthritis, and migraines. In the chronic phase of pain, when the patient has overcome the acute phase of pain, the aim of the therapeutic exercise is to avoid relapses, but also to improve the functionality of the whole body (muscular system, balance, and other systems). In this phase, it may also be the dominant therapeutic intervention, as the other treatments have already (partially) exhausted their main effect, in the acute phase. The personalization of the program is essential. Age, sex, co-morbidities, work, and mental state must be considered. Individualized approaches in chronic pain may have better outcomes than more general "exercise-fits-all" exercise models. Patients with pain and reduced functional capacity should gradually join a special program of therapeutic exercise, with intensity and quantity personalized, to confer clinical benefits to their health. The planning of the program at this stage must be done with the cooperation of the physiatrist and the physical therapist. Also important is therapeutic exercise with targeted exercises in chronic pain self-management programs.

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OPTIMIZATION OF NEUROPATHIC PAIN TREATMENT: ANALYSIS OF DRUG INTERACTIONS AND SIDE EFFECTS FOR CLINICAL BENEFIT COMBINED THERAPY AIMING AT QUALITY OF LIFE

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The treatment of neuropathic pain constitutes a complex clinical challenge due to the variety of mechanisms involved and the differing patient responses to pharmacotherapy. Optimizing treatment requires a careful analysis of drug interactions and side effects to achieve the maximum possible clinical benefit. Drug interactions are a critical factor in the management of neuropathic pain, given that many patients take multiple medications to treat their symptoms. The coexistence of drugs can lead to enhanced therapeutic effects or, conversely, to unwanted actions. For example, combinations such as pregabalin with duloxetine or gabapentin with tricyclic antidepressants can offer better pain relief due to their different mechanisms of action. However, it is important to monitor patients for possible interactions that may affect efficacy or increase the risk of side effects. The analysis of side effects is equally important for selecting the appropriate pharmacotherapy. Side effects can affect patients' quality of life and lead to non-compliance with treatment. Recognizing and managing side effects is crucial for maintaining treatment effectiveness. For example, medications such as pregabalin can cause dizziness and fatigue, while duloxetine may be associated with gastrointestinal disturbances and increased blood pressure. Awareness of these side effects allows clinicians to adjust the dose or choose alternative therapies to reduce unwanted effects. Optimizing the treatment of neuropathic pain through the analysis of drug interactions and side effects leads to personalized medical practice. Each patient has unique needs and responses to treatment, and adjusting pharmacotherapy can maximize clinical benefit. The use of personalized treatment regimens, considering drug interactions and potential side effects, can significantly improve patients' quality of life. This is achieved by providing more effective pain relief and reducing the negative impacts of treatment. Optimizing the treatment of neuropathic pain requires a comprehensive approach that combines the analysis of drug interactions and side effects. By carefully evaluating these factors, clinicians can develop personalized treatment plans that offer the maximum possible clinical benefit, improving patients' quality of life and enhancing compliance with therapy.

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NON-INVASIVE NEUROPHYSIOLOGICAL METHODS IN THE PREDICTION OF POSTOPERATIVE PAIN AFTER MAJOR THORACIC SURGERY

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The identification of neurobiological markers of pain is essential for developing personalized therapeutic strategies. Non-invasive techniques such as electroencephalography (EEG), pupillometry, and nociception level (NOL) monitoring offer valuable perioperative insights. This study investigates the correlation of these methods with post-thoracic surgery pain, focusing on preoperative alpha EEG oscillations (Peak Alpha Frequency, PAF), pupillometry, and NOL's predictive capabilities. The study involved adult patients undergoing major thoracic surgery. Pupillometry was performed using the NPi-200 pupillometer to measure contraction velocity (CV), maximum contraction velocity (MCV), contraction percentage change (CH%), and dilation velocity (DV). Ambient light was measured with a commercial luxmeter. Scalp EEG was collected preoperatively using a 7-electrode EEGrid-headset. Data were processed using EEGLAB and FieldTrip, including preprocessing, frequency decomposition, and estimation of sensorimotor PAF. NOL data from the PMD-200 system were analyzed. General anesthesia was standardized and opioid doses were calculated. Pain was assessed using an 11-point NRS at PACU, DN4 questionnaire, and NRS scale at one- and three-months post-surgery. Pupillometry results from 19 participants demonstrated strong correlations between PACU parameters and DN4 scores at one- and three-months post-surgery. Additionally, NRS scores at one and three months were significantly correlated with PACU pupillometry. Conversely, no significant associations were found between NOL or EEG data and pain outcomes. Immediate postoperative pupillometry strongly correlates with chronic and neuropathic pain at one- and three-months post-thoracotomy, suggesting its predictive potential for long-term outcomes. However, preoperative PAF and intraoperative NOL did not correlate with postoperative pain, emphasizing pupillometry's utility in personalized pain management, and warranting further validation with larger cohorts.

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CIRCADIAN CLOCK SYSTEM: A CHRONOPHARMACOLOGICAL APPROACH OF PAIN TREATMENT

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The vast majority of physiological and behavioral functions in mammals are characterised by daily oscillations, controlled by the endogenous circadian clock. Consequently, the pharmacology and toxicology of the drugs also oscillate according to the same 24-hour clocks: Oscillation in the physiological systems (gastrointestinal, immune, endocrine, cardiovascular, renal), define circadian pharmacodynamics, while daily oscillation in the necessary proteins for either drug absorption or metabolism, define circadian pharmacokinetics. Almost 20% of our transcriptome and proteome is under endogenous clock control. The circadian system is formed of molecular clocks in the peripheral tissues, hierarchically organized, under the surveillance of the "central pacemaker": the suprachiasmatic nucleus, located in the anterior hypothalamus. The clock genes modify nociception, determine human chronotypes and sensitivity to acute and chronic pain. The main inflammatory mediators, the immune cells and neurotransmitters, they all show clear circadian variations. Melatonin and Glucocorticoid hormone, critical regulators of circadian rhythm, determine the time-dependent difference in opioid release and modulate the analgesic effect of morphine by modifying the expression and binding capacity of μ-opioid receptors. Daily variations of the gastric pH, gastrointestinal mobility, rhythmic elimination of the hepatobiliary system and glomerular filtration, critically change the metabolism of the drugs. Regarding all these physiological fluctuations and their interactions with genetic polymorphisme, age and heterogeneous diseases, chronopharmacological approach appears to be an ideal forthcoming target in order to increase the efficacy and reduce the side effects of pain treatment.

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EARLY INTEGRATION OF PALLIATIVE CARE IN ONCOLOGY

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Cancer patients, despite major advances in anticancer therapies in recent decades, continue to experience a significant increase in both mortality and morbidity [1]. Cross-sectional studies have shown that cancer patients report an average of 8-12 different symptoms [2] and most of them are underdiagnosed and ultimately undertreated. In addition to the burden of physical symptoms, these patients have other unmet supportive care needs, such as psychological burden and the need for information and defining the treatment plan. The need for supportive care is further strengthened by the increasing incidence of cancer worldwide with an aging population and by the fact that patients with advanced disease are living longer due to more effective treatments. According to the World Health Organization (WHO=World Health Organisation), more than 50 million people worldwide need palliative care during the year and their number will constantly increase due to the progress of Medical science and also due to the aforementioned aging of the population. Also, WHO estimates that only 2% of patients receive the Palliative care they need [3].

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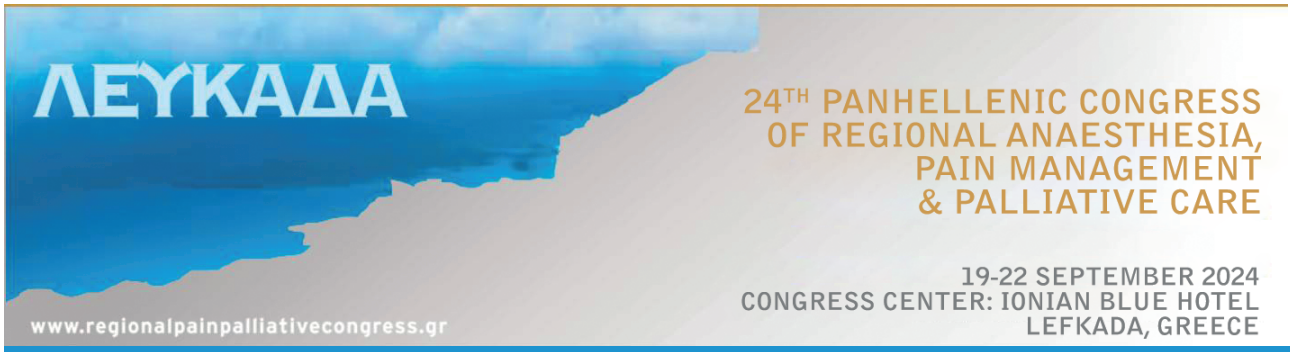

ABSTRACTS

TAP BLOCK FOR THE MANAGEMENT OF CHRONIC POST-SURGICAL PAIN AFTER APPENDECTOMY IN A PEDIATRIC PATIENT

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Chronic post-surgical pain (CPSP) is defined by IASP as pain lasting at least 3, 6 or 12 months after the completion of surgery, while the reasons for the transition of acute to chronic post - surgical pain are multiple. The transversus abdominis plane (TAP) block is used for anesthesia and analgesia of the posterior abdominal wall. The application of regional anesthesia techniques in a multimodal perioperative analgesic plan as well as for the management of chronic post - surgical pain in pediatric patients who have undergone abdominal surgery. A 15-year-old female patient underwent emergent open appendectomy. From her medical history, she had numerous allergies in antibiotics and food and in the past was treated for supra-ventricular arrhythmias, anxiety disorder and allergic bronchial asthma. Fifty days after surgery, she was readmitted to the Pediatric Surgery Department due to pain at the surgical site (NRS score of 7/10). Since the medical investigation did not reveal any other clear cause for the pain, it was determined that she was suffering from chronic post - surgical pain, and she was referred to the Anesthesiology Department for evaluation. A right TAP block was performed under ultrasound guidance using 13 ml of 0.2% Ropivacaine and 2 ml of Dexamethasone (4 mg/ml). The pain was reduced to a NRS score of 2/10 shortly after the block performance. Two days later, a treatment with the use of radio frequencies was applied. No complications were documented and the patient remained free of pain. PNBs are a valuable tool for anesthesiologists in managing perioperative pain within a multimodal analgesic plan. They also serve as a diagnostic and therapeutic approach for post - surgical pain, even in paediatric patients.

NALBUPHINE IN THE MANAGEMENT OF OBSTETRIC PAIN. A NARRATIVE REVIEW

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Nalbuphine is an alternative analgesic agent for the management of pain in obstetrics since the late 80's. It is FDA indicated for the management of moderate to severe pain when all alternative analgesic agents are insufficient. Nalbuphine is a kappa-opioid receptor agonist and a partial mu-opioid receptor antagonist with an analgesic potency that equals that of morphine (1:1). According to experimental data, kappa-opioid agonists are more efficient than mu-opioid agonists in the management of splanchnic pain that prevails in the first stage of labor. The aim of this narrative review is to showcase nalbuphine as an analgesic option in obstetrics. According to two recent meta-analyses, nalbuphine presents with decreased incidence of pruritus, postoperative nausea and vomiting (PONV), respiratory depression and extends the mean duration of analgesia with no increase in adverse reactions. In relation to labor pain, intravenous administration of nalbuphine can decrease the intensity of pain during uterine contractions and decrease opioid consumption with less adverse effects than sufentanil. Epidural administration of nalbuphine decreases the duration of the first stage of labor, provides faster onset of analgesia with less urinary retention when compared to epidural morphine. During the second stage of.acute labor, it can provide sufficient analgesia when regional analgesia in not feasible (dose <0.04 mgkg-1). Spinal administration of nalbuphine combined with hyperbaric bupivacaine for cesarean delivery, provides increased duration of analgesia with decreased sedation scores 30 minutes after administration and less rescue analgesic consumption when compared to fentanyl. Moreover, it can provide similar intraoperative analgesia to intrathecal morphine with decreased incidence of pruritus and PONV. To conclude with, nalbuphine presents as a safe alternative analgesic option during labor for the mother and the neonate especially in complex and challenging situations.

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ANAESTHETIC MANAGEMENT OF A PARTURIENT WITH SPINAL FUSION UNDERGOING CESAREAN SECTION: OPTING FOR REGIONAL ANAESTHESIA

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Scoliosis is a spine deformity, with a three-dimensional rotation of the vertebrae and distortion of the thoracic cage. Severe cases are associated with restrictive lung disease, hypoxaemia and cardiovascular compromise. Physiological changes that occur in pregnancy may further deteriorate respiratory function. Following a spinal fusion, epidural space anatomy changes arise. Implanted surgical materials, along with the postoperative scar tissue formation, may interfere with the needle of the regional anaesthesia and the normal spread of the local anaesthetic (especially during epidural anaesthesia), leading to inadequate block. We present the case of a 35-year-old 37-week pregnant woman (76 kg, 178 cm), who presented out of hours with symptoms of onset of labor and was posted for cesarean section, having consumed a full meal. She reported a history of 60-degree scoliosis at the thoracic spine. She had been bearing a brace for ten years during childhood and had subsequently undergone spinal fusion at the age of 16 years. She displayed no relevant medical documentation (*e.g.* surgery records, respiratory function tests), however her clinical examination did not reveal any obvious abnormalities other than the surgical scar. Following written informed consent, she underwent spinal anesthesia performed in the O3-O4 intervertebral space under aseptic conditions, in a sitting position, with a midline approach. A 27G needle was used and 13.5mg ropivacaine, 10mcg fentanyl were administered. Spinal anesthesia was considered as the best anesthetic option due to full stomach status and spinal fusion history. After a delay of approximately 15 minutes, a sensory block was established (T4 dermatome). The surgery was successfully completed, resulting in a healthy neonate and mother. To conclude, when it comes to parturient with operated scoliosis undergoing emergency or elective caesarean section, an individualized approach is recommended to decide the most appropriate anesthetic management, without overlooking subarachnoid anesthesia, as the optimal regional anesthetic.

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POSTPARTUM PAIN MANAGEMENT IN BREASTFEEDING MOTHERS IN THE EMERGENCY DEPARTMENT. LITERATURE REVIEW

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Postpartum pain management in the context of the Emergency Department (ED) is challenging. The changes that a woman's body undergoes during pregnancy and labor, which project to the postpartum period, are predisposing factors to the occurrence of painful syndromes. Pain management is troublesome due to the limitations imposed by breastfeeding. It is reasonable, therefore, for questions and concerns to rise regarding the optimal pain management of this population in the ED. The aim of this literature review is to document the most common causes of pain during the postpartum period and to summarize the pain management strategies recommended in the literature in the ED. There are only a few studies with strong evidence, as ethical and legal restrictions prevent or prohibit the conduct of randomized clinical trials – and consequently reliable systematic reviews and meta-analyses – in breastfeeding women. Nevertheless, there is a consensus proposed by the members of a Working Party established by the Association of Anaesthetists of Great Britain and Ireland and clinical protocols by the Academy of Breastfeeding Medicine about the analgesia during lactation. To summarize, the common practice of pain management, namely the application of the World Health Organization's analgesic ladder, seems to be relatively safe. Emphasis is primarily placed on non-pharmacological measures, which constitute the first line of pain management. The pharmacological pain management includes all recommendations and warnings from relevant authorities regarding their potential impact on the mother and the neonate, without completely rejecting the use of any analgesic agent. Invasive techniques are highly recommended when indicated, as they reduce the need for pharmacological analgesic agents. Finally, psychological support for breastfeeding women is of great importance since it has a beneficial effect on pain management, as pain is associated with anxiety and depression.

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SEDATION IN PAEDIATRIC PATIENTS UNDERGOING RADIOTHERAPY: THE EXPERIENCE OF A REFERENCE CENTRE

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The implementation of radiation therapy without the administration of sedation may be unattainable in children, due to their inability to cooperate[3,4]. Children's Hospital 'P. and A. Kyriakou' has the only public paediatric radiotherapy department in Greece. This study is a retrospective analysis of the pharmaceutical approaches and the complications that arose during the application of sedation[5]. The files of all patients who underwent sedation both for the planning of the radiotherapy and the following therapeutic sessions, for the year 2023, were collected and retrospectively analyzed. In addition to demographic data, vital signs during sedation, the administered drugs as well as the complications that occurred during sedation and resuscitation were recorded. Files of 24 patients,aged from 18 months to 11 years old were collected. In total, 24 treatment plans and 530 sessions were performed, with an average duration of 28.6 minutes. Sedation was induced and maintained with the use of intravenous agents and the depth of sedation was evaluated with the Pediatric Analog Sedation Scale (PASS). Sedation was induced with:midazolam (38.62%), fentanyl (57.76%), dexmetomidine (0.36%), ketamine (3.97%) and propofol (100%). Sedation maintenance was achieved with continuous infusion either of propofol

(66.61%) or a combination of propofol and dexmetomidine (33.39%). Mean vital signs' values were for heart rate 92.2bpm, saturation 99% and respiratory rate 20.3. Complications recorded were: apnea on admission (3.97%), bradycardia (1.26%), cough episode (0.9%), atrial extrasystoles (0.9%). Drug sedation in pediatric patients is a daily anaesthesia practice in our hospital. It is a safe technique, with a low frequency of complications which had no sequalae.

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SUCCESSFUL PERIPHERAL NERVE BLOCK- PSOAS MUSCLE BLOCK IN A REGIONAL HOSPITAL OF GREECE: CLINICAL CASE OF A VERY HIGH PERIOPERATIVE RISK PATIENT

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A 66-year-old patient comes to the hospital with a intertrochanteric left hip fracture. The patient had been hospitalized multiple times in the same clinic due to the presence of thoracic and lumbar spondylodiscitis. In addition, the patient presents a burdensome personal history which includes diabetes mellitus type 2, 3-vessels coronary disease, valvular disease, heart failure and CKF, conditions that classify him as a high perioperative risk patient, ASA IV. Considering the individual history of the patient as well as the needs of the surgery, the anesthesia chosen for this operation was the peripheral nerve block and more specifically the block of the iliopsoas muscle. After identifying the anatomical elements and with the help of a neurostimulator, the injection was made with 30 ml of ropivacaine 0.75%.

Results: The use of the peripheral nerve block of the iliopsoas allowed us to adequately manage a case with a burdened personal history and inability to apply spinal anesthesia, as well as any other form of anesthesia. Given that there is no ICU at the Florina's General Hospital, our options were to transfer the patient to a tertiary hospital or exclusive regional anesthesia, using a block. The block was considered successful, and we proceeded to the surgery without aerodynamic or hemodynamic deterioration, while the patient remained stable throughout the surgery, without pain and the need for any additional intravenous sedation. The patient's postoperative course was uneventful, without complications. According to the international literature, therefore, the peripheral nerve block of the iliopsoas, as well as the set of peripheral nerve blocks, provide prolonged postoperative analgesia and reduced use of adjunctive analgesics without clinical side effects, privileges particularly important in patients with a very high perioperative risk. The knowledge and application of peripheral nerve blocks is proven necessary and sometimes vital, as in our case.

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EVALUATION OF THE EFFECTS OF IV ADMINISTRATION OF DEXMEDETOMIDINE ON THE CHARACTERISTICS OF CENTRAL NEURAXIAL BLOCKADE IN ELDERLY PATIENTS UNDERGOING FEMORAL NECK FRACTURE SURGERY UNDER SPINAL ANAESTHESIA

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Dexmedetomidine, apart from its use in general anaesthesia to reduce opioid and hypnotic drugs requirements, is also used for sedation and as an adjuvant analgesic in regional anaesthesia techniques (spinal, epidural, peripheral nerve blocks). In this randomized, prospective comparative trial, 80 patients (38 women, 42 men), ASA I-III, aged 80-97 years, undergoing femoral neck fracture surgery under spinal anesthesia (Levobupivacaine 10 mg + Fentanyl 20 mcg) were included. After the spinal blockade was established, the patients were randomly allocated into two groups, group D and group N. Group D received Dexmedetomidine 0.3 μg/Kg IV in 10 min, followed by an infusion of 0.3-0.5 mcg/Kg/h, until moderate sedation was achieved, while Group N was the control group (did not receive sedation). The study goal was to record the following parametres: (a) speed of blockade onset, (b) duration and regression of motor and sensory blockade, (c) postoperative analgesic requirements for the first 24 hours, (d) time to first analgesic request postoperatively.

Results: There was no significant difference in the speed of blockade onset and the height of the sensory block between the two groups. In Group D, compared to Group N, there was a significant prolongation in the duration of motor blockade (4.13±15.55 *vs* 2.42±17.35 h±min, $p<0.05$), the sensory blockade regression by 2 dermatomes (4.54±39.21 *vs* 2.98±30.21 h±min, $p<0.05$), the time to first analgesic request (19.8±2.76 *vs* 4.16±1 h±min, $p<0.05$), as well as significantly lower post-

operative analgesic requirements in both the first and second postoperative day. The sensory blockade regression by 2 dermatomes, as well as the time to first analgesic request were significantly prolonged in women, compared to men in both groups.

Conclusions: The intraoperative IV administration of Dexmedetomidine, in combination with spinal anaesthesia, significantly prolongs the duration of motor and sensory blockade, the time to first postoperative analgesic request, and significantly reduces the postoperative analgesic requirements of patients during the first 48 hours after surgery.

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A MULTIMODAL ANESTHESIA TECHNIQUE COMBINING SEGMENTAL THORACIC EPIDURAL AND CONSCIOUS SEDATION: A CASE REPORT

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Patients with cardiovascular and respiratory comorbidities present a challenge for anesthesiologists, as general anesthesia can lead to complications. In this context and in the era of the opioid epidemic, regional anesthesia and analgesia combined with opioid-sparing conscious sedation techniques may be the best multimodal anesthetic approach. We present a case of a 64-year-old patient undergoing radical abdominal hysterectomy in combination with extended lymph node dissection due to cancer. Due to respiratory and cardiovascular comorbidities, the presence of a month-old persistent cough and the fact that the surgery had to be performed under an extended midline vertical incision, we decided on a combination of segmental epidural anesthesia and conscious sedation, thus avoiding general anesthesia while at the same time ensuring patient comfort and safety. A segmental thoracic epidural was performed, which ensured a T4 upper neurotome level, ropivacaine and sufentanil were administered epidurally, while, before the start of the operation, 0.1 mcg/kg dexmedetomidine, 0.1 mg/kg ketamine and 1 mg/kg lidocaine were administered as an intravenous bolus, followed by a continuous infusion of a mixture of dexmedetomidine 0.1 mcg/kg/h, ketamine 0.1 mg/kg/h and lidocaine 1 mg/kg/h throughout surgery. During the operation, the patient was relaxed, maintained spontaneous ventilation and was completely pain-free even during peritoneal traction and enteral manipulation. The surgical procedure was completed uneventfully and epidural analgesia via a PCEA pump was provided postoperatively. The postoperative course was unremarkable and the patient was discharged within a few days. In this case, we supplemented the segmental epidural technique with sedation via a mixture of dexmetomidine, ketamine and lidocaine used until now only in patients undergoing surgery under general anesthesia in opioid sparing protocols. This report highlights the importance of multimodal approaches in the case of demanding procedures in patients with comorbidities.

NALBUPHINE ADMINISTRATION FOR PRURITUS AFTER EPIDURAL MORPHINE ADMINISTRATION

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Opioids are the cornerstone in postoperative pain management. However, their administration comes with many adverse effects, with pruritus being one of the most common. The highest prevalence of pruritus is after neuraxial administration of opioids. Nalbuphine, as a partial agonist-antagonist of opioid receptors, seems to be very efficient in alleviating pruritus induced by opioids. A case of nalbuphine administration for the management of pruritus induced by epidural infusion of morphine is presented. A 49 year-old patient was subjected to an elective hepatic echinococcus cyst removal operation. An epidural catheter was placed for perioperative pain management with an continuous infusion pump of ropivacaine 0,2 mg/ml, at a rate of 5 ml/h and morphine 0,125 mg/h. At the first postoperative day, the patient complained about whole body pruritus. He was administered 1mg of nalbuphine and the symptom was alleviated for about 10 hours. The same happened during the second postoperative day. The third day the catheter was removed. Postoperative pruritus is one of the most common neuraxial opioid adverse effects. Many pathophysiologic mechanisms have been identified for its induction, and multiple pharmacological agents have been administered for its treatment, with various outcomes. Nalbuphine, as an μ-receptor antagonist and k-receptor agonist, has been proven to be effective in pruritus treatment, without affecting the analgesia requirements. Studies have documented that its preemptive administration at neuraxial blockade is associated with a reduction in pruritus prevalence postoperatively, compared with control groups. Also, nalbuphine has been compared with other medications administered for pruritus, with studies stating that it is more efficient in alleviating symptoms. However, its administration is not very popular among specialists, because this is an off-label use, so more studies are needed to prove its efficacy in opioid-mediated pruritus management.

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AXILLARY BRACHIAL PLEXUS BLOCK AS SOLE ANESTHETIC PLAN FOR ARM AMPUTATION BELOW THE ELBOW IN A PATIENT WITH MULTIPLE COMORBIDITIES

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Peripheral nerve blocks (PNBs) are widely used for surgical anesthesia as well as for acute or chronic pain management. The

PNBs offer significant benefits over neuraxial or general anesthesia, as the latter may lead to respiratory and cardiovascular complications. To encourage anesthesiologists to use PNBs, as an exclusive anesthetic technique, in cases where other anesthesia techniques are precarious.

Case Presentation: A 73-year-old male patient (ASA IV), presents with gangrene of his left arm and left arm amputation below the elbow is decided. From his medical history he suffered from lung cancer, had a cardiac pacemaker, single kidney, received medical treatment for arterial hypertension, dyslipidemia, hyperuricemia and atrial fibrillation. From his surgical history, he had undergone three surgical procedures on the afflicted arm with post - surgical admission to the ICU. His echocardiogram showed an Ejection Fraction of the left ventricle of 53% and a mitral valve stenosis. To ensure that the arm amputation could be performed without causing additional systemic harm and to avoid the need for post - surgical ICU admission, an axillary brachial plexus block was administered using 15 ml of 0.5% Ropivacaine. The patient remained hemodynamically stable throughout the perioperative period. After surgery, the patient stayed in the Post Anesthesia Care Unit for 30 minutes before being transferred to the Vascular Surgery Department, with no complications reported. The PNBs are a valuable alternative as a method of surgical anesthesia as well as a method of perioperative analgesia in a multimodal analgesic plan, for high risk patients, in order to reduce perioperative mortality and morbidity.

LOW DOSE REGIONAL ANESTHESIA FOR EMERGENCY SURGERY IN AN ELDERLY PATIENT

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Administering regional anesthesia to elderly patients poses a challenge for anesthesiologists. This paper presents a clinical case of an elderly patient who underwent emergency surgery with the administration of low-dose regional anesthesia. Additionally, a literature review was conducted on its use in similar cases. A 90-year-old patient was urgently admitted to surgery due to a hip fracture. The patient's medical history included several comorbidities such as amyloidosis, heart failure, atrial fibrillation, chronic obstructive pulmonary disease, gastroesophageal reflux disease, and iron deficiency anemia, for which he was on chronic medication, as well as recently diagnosed severe hypothyroidism. The anesthesia plan for the emergency surgery included 7 mg of levobupivacaine for intrathecal injection. The patient remained hemodynamically and respiratorily stable during the surgery and in the postoperative period and was discharged on the fifth postoperative day. Low-dose regional anesthesia was successful, showing excellent results regarding motor and sensory blockade, as well as the patient's cardiovascular and respiratory stability. Low-dose regional anesthesia remains a beneficial option for managing elderly patients with multiple comorbidities.

A QUESTIONNAIRE OF ESRA HELLAS ON TRAINING IN REGIONAL ANESTHESIA

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The field of regional anesthesia has been rapidly developing in recent years, with an increasing number of operations being performed using central and peripheral blocks. Continuous education for anesthesiology residents in this area is crucial. A total of 104 anesthesiology residents participated in the questionnaire. This included 29 first-year, 25 second-year, 24 third-year, and 26 fourth- and fifth-year residents. The findings revealed that the residents were generally familiar with subarachnoid anesthesia techniques, managing intraoperative complications (*e.g.*, hypotension, bradycardia, high spinal anesthesia), and evaluating the success of a block. However, 54.5% of respondents indicated unfamiliarity with different local anesthetics, and 63.5% were not familiar with hyperbaric solutions. Approximately two-thirds were knowledgeable about the preoperative discontinuation of NOACs and diagnosing epidural hematomas. Contrarily, 93% had no experience managing epidural hematomas at their hospitals. Regarding lumbar epidural experience, 50% of fourth- and fifth-year residents had performed fewer than 50 lumbar epidural anesthesias, and most had conducted fewer than 40 thoracic epidurals. For basic peripheral nerve blocks, one-third of respondents reported significant experience with axillary blocks, while 18.27% had no experience. For femoral blocks, 28% reported significant experience, whereas 44% had little to no experience. Regarding the transverse abdominis plane (TAP) block, 67% reported little to no experience. The Greek anesthesiology community has made significant progress in regional anesthesia training. An earlier study (2) highlights the substantial contribution of ESRA Hellas seminars in this regard. However, there remains a gap between theoretical and practical training in seminars and their application in daily clinical practice, which must be addressed through ongoing efforts.

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MULTIMODAL APPROACH TO POSTOPERATIVE HEADACHE

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Chronic headache can be managed by a variety of medications and procedures. Acupuncture has shown therapeutic effects in chronic headaches, significantly reducing their severity and frequency. A 21-year-old patient, with a history of familial glaucoma in the left eye which has undergone surgery three times,

presented to our Pain clinic with four years of periophthalmic pain localized in the area innervated by the first branch of the trigeminal nerve. The patient describes the pain as continuous, with an intensity of 9/10 on the NRS scale accompanied by sensitivity to touch, light and sounds. The pain was characterized as pulsating, with burning sensation and exacerbated by eye and head movements. The patient had been on daily treatment with pregabalin and escitalopram and has undergone various treatments in order to alleviate the pain, including injections with local anesthetic and transdermal patches with local anesthetic(lidocaine) around the affected area. These treatments provided only minor, temporary relief. The patient received four acupuncture treatments, each lasting 20 minutes, administered twice a week. Systemic acupoints with anti-inflammatory action and points targeting the first branch of the trigeminal nerve were used. The patient reported a decrease in pain intensity measuring 6/10 on the NRS scale and was able to reduce the dose of pregabalin. Currently, the patient continues to undergo weekly acupuncture treatments, which she states provide more lasting relief than previous treatments, without any side effects. Results. Acupuncture reduced the pain intensity and frequency of the headaches, improved the patient's overall quality of life and allowed for a reduction in the dose of her pharmacological treatment. Acupuncture should be considered as part of multimodal analgesia for patients dealing with chronic pain and chronic headaches as it improves quality-of-life markers and symptoms.

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MANAGEMENT OF CHRONIC PAIN IN A PATIENT WITH SYSTEMIC SCLEROSIS: CASE PRESENTATION

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Systemic sclerosis is a rare autoimmune disease characterized by progressive fibrosis of the skin and other organs, leading to vascular, nephrological, neurological, and musculoskeletal complications. Pain is a predominant symptom in patients with an incidence ranging from 63% to 85% for severe pain. The purpose of this study is to highlight the management of chronic pain in a patient with systemic sclerosis. A 41-year-old woman was referred to the Pain Clinic due to severe neuropathic pain (DN4 7) and stiffness throughout her body, especially in the left elbow and fingers. Clinical examination revealed palpable nodules on the left elbow and erosion of the right index finger, with skin hyperpigmentation, reduced mobility, and a "mouse nibbling" appearance. The patient was diagnosed with systemic sclerosis ten years ago. Due to the disease, she presented with heart failure (EF 30%), restrictive lung disease, and esophageal motility disorders, with dysphagia for solid foods. She is on aspirin, colchicine, and prednisolone, as well as rituximab for the underlying disease and paracetamol-codeine for pain management. The patient was initiated on pregabalin, duloxetine, and a combination of paracetamol-tramadol in titrated doses for 4 weeks, without satisfactory results (VAS 5-6). After replacing tramadol with tapentadol 100 mg twice daily, the patient experienced a 40% improvement in symptoms. Concurrently, mild physical therapy and exercise, as well as counseling psychotherapy, were commenced. Two months after starting treatment, the patient showed over 60% improvement in sleep quality, without significant systemic side effects, improvement in mood, and return to mild daily activities. In conclusion, systemic sclerosis often presents severe mixed chronic pain and high rates of depression. The management of chronic pain in these patients should be multidimensional, taking into account the systemic complications of the disease. Combining alternative therapeutic methods reduces the likelihood of adverse effects while optimizing therapeutic outcomes.

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A REVIEW OF PAIN MANAGEMENT IN NATURAL AND MAN-MADE DISASTERS

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In recent decades, there has been a global increase in disasters, both natural and man-made, with enormous consequences for materials and human lives. Anesthesiologists play a unique and significant role in such difficult and demanding environments. Apart from the safe administration of anesthesia, resuscitation, and management of the critically ill patient, they also deliver analgesia after trauma and after emergency surgical procedures.(1) To identify reports on the treatment of acute and postoperative pain in disasters, both natural and man-made, a query was conducted using PubMed, Google Scholar, and Medscape.

Predefined keywords were used to facilitate search. The investigation was limited to reports between 2010 to today and only articles with abstracts and full texts were selected. Choosing appropriate analgesia is a difficult and complicated process in unsafe environments. Limited resources in equipment, medicines and human resources make the work of the clinic difficult, which must act and organize its plan based on the characteristics of each patient, the type of surgery and the available resources. First, the treatment of pain can be done with local anesthetics through regional anesthesia and more specifically with blockages of peripheral nerves, a useful tool in the field.(2) Then as far as opioids are concerned their use is reduced while multimodal analgesia is becoming popular in the field. Recommended analgesics include acetaminophen, fentanyl, ketamine, and gabapentinoids.(3) Finally, ketamine is still widely used due to its pharmacokinetic and pharmacodynamic profile, its easy availability as well as non-respiratory suppression, especially useful in the field where oxygen administration is insufficient and there are no anesthetic machines to support the patient. Every patient, regardless of the environment in which he lives, has the right to proper medical care and pain relief. The lack of adequate pain control in the postoperative period can lead to many complications and delay the patient's recovery and mobilization.(3) Physical or inadequate postoperative analgesia can lead to the development of chronic pain and poor quality of life.

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ERECTOR SPINAE PLANE BLOCK IN A PATIENT WITH ALKAPTONURIA AND PERSISTENT PAIN

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Alkaptonuria is a rare autosomal recessive disorder of phenylalanine and tyrosine metabolism, characterized by the accumulation of homogentisic acid in the joints, causing inflammatory and degenerative damage, leading to serious chronic pain and reduced mobility up to disability. We present the case of a patient with alkaptonuria and persistent rachialgia. Sixty-nine years old male patient, suffering from alkaptonuria diagnosed 20 years ago, visited our Pain Clinic complaining of intense chronic rachialgia affecting his everyday mobilization and bedrest. The pain was mainly located posterior to and above the base of the left scapula, spreading from the paraspinal area to the posterior axillary line. It was not responding to NSAIDs, paracetamol and tramadol. He had undergone trigger point injections, resulting only to temporary relief. It was decided to proceed with an erector spinae plane block (ESP). Twenty milliliters ropivacaine 0.375% and 8 ml dexamethasone were administered at the level of T6 transverse process under ultrasound guidance. Pregabaline 50 mg qd was also prescribed. The patient reported instant pain relief. Twenty days later, he mentioned that the pain was further reduced, being able to perform simple physiotherapy exercises. A month later, the pain was further reduced and responded to paracetamol. ESP block, a relatively newly described block, was effective in this case. The possible mechanism of action was the blockade of the posterior rami of the spinal nerves innervating the erector spinae muscle, where the pain was arising from, and furthermore, the diffusion to the paraspinal region and the ventral rami that innervate the intercostal muscles where pain was present as well. Several mechanisms, still under investigation, have been suggested to explain the prolonged duration of the analgesic effect. It is shown that the ESP block could constitute a possible therapeutic method in similar cases.

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THE ROLE OF PIEZO CHANNELS IN MIGRAINE PATHOGENESIS AND TRIGEMINAL NEURONAL PATHWAYS

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The pathogenesis of migraine and other trigeminal pain syndromes remains enigmatic, posing significant diagnostic and therapeutic challenges. Recent literature suggests that PIEZO channels, a class of mechanosensitive ion channels, may unify these conditions. PIEZO1 and PIEZO2, key players in sensory transduction, are involved in processes such as touch sensation, proprioception, and nociception. Their potential role in trigeminal neurons and migraine pathogenesis offers new insights into meningeal nociception and pain. A systematic literature search was performed in across PubMed, Cochrane Library, and Scopus, following PRISMA guidelines. The search utilized MeSH terms: ("PIEZO" OR "PIEZO channels" OR "PIEZO1" OR "PIEZO2") AND ("Pain" OR "Migraine" OR "Trigeminal"). Inclusion criteria targeted original studies in English that explored the association between PIEZO1 and PIEZO2 channels with migraine or trigeminal neurons. Two authors independently screened the studies, with a third author resolving conflicts. The SYRCLE Risk of Bias tool was used to assess the quality of included animal studies.

Results: A total of 20 studies were included, highlighting the roles of PIEZO1 and PIEZO2 in migraine and trigeminal pain. Key findings include the activation of PIEZO channels leading to the release of migraine mediators such as CGRP, contributing to pain generation in the meninges. PIEZO1 functionality in trigeminal neurons was shown to enhance rapidly during migraine attacks, while PIEZO2 channels were implicated in the transduction of mechanical stimuli in trigeminal ganglion neurons, leading to headache, ocular or dental pain.

Conclusions: PIEZO channels are emerging as important factors in the pathogenesis of migraine and trigeminal pain syndromes. Their mechanosensitive properties and widespread expression in sensory neurons highlight their potential as ther-

apeutic targets. Further research is needed to fully elucidate their roles and develop targeted interventions for these debilitating conditions.

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TRANSCUTANEOUS PULSED RADIO-FREQUENCY IN CHRONIC MUSCULOSKELETAL PAIN MANAGEMENT

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Application of Transcutaneous Pulsed Radio-Frequency (TPRF) is a non-invasive technique in managing chronic musculoskeletal pain of several locations, as low and upper back, neck, shoulder, knee etc. In this study participated 32 pts of our Out-Patient Pain Clinic. Age 33-77y, 19 females 13 males. All of them undergone three (3) sessions of TPRF (Frequency 420 Hz), 20-30 min each session with an interval of one week. 17 pts treated for low-back pain, 6 pts for shoulder pain, 6 pts for sciatic and 4 pts for knee pain. Density of pain measured before and after the sessions, utilizing Visual Analogue Scale (VAS). 31 pts (97%) referred progress in pain relief while 1 pt. (3%) had no relief. Tree (3) pts (9%) referred complete remission from pain. 18 pts (56%) had a remission of ≥4 points in VAS while 10 pts (32%) had a progress of <4 points in VAS. No patient had a remarkable side-effect or other complication, except 6 pts (18%) who referred mild itching in the sites of lead patches with no skin irritation. In conclusion, there is evidence that in patients suffered of chronic musculoskeletal pain, application of Transcutaneous Pulsed Radio-Frequency (TPRF) is a safe, easy and effective technique in pain management.

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PAIN MANAGEMENT IN A PATIENT WITH POLYARTHRITIS DUE TO ALCAPTONURIA: CASE PRESENTATION

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Ochronosis (alcaptonuria) is a rare metabolic disease, with an incidence of 1 in 250,000 - 1,000,000 transmitted in a somatic recessive manner. It is caused by an enzymatic deficiency of homogenate 1,2-sulfoxygenase, leading to inadequate oxidation of tyrosine and phenylalanine and accumulation of homogenetic acid (HGA) in blood and tissues. Complications from the cardiovascular system with deposition in the heart valves, endocardium, coronary vessels, aortic sheaths. The diagnosis of the disease is most often made intraoperatively during open replacement of the aortic valve. We present a patient who presented postoperatively due to severe pain in all joints of the extremities and the lumbar spine. The findings on clinical examination included cyan-black staining of the auricular flaps, conjunctivae and horns, and limitation of range of motion of the major joints and spine, with spasm of the paraspinal muscles. Since the etiological treatment of the disease (ascorbic acid, nitisinone, protein-poor diet) is unsatisfactory, pain management of these patients is of colossal importance for maintaining their mobility and quality of life. Based on multifactorial analgesia, we recommended that the patient receive physiotherapy and start medication with paracetamol, tramadol, pregabalin and duloxetine in low doses, with close monitoring of renal function. At the next visit, the patient reported a four-point reduction in pain (NRS), improvement in mood and a mild increase in physical activity. Over the next three years the patient, with minor modifications to her treatment, remained at the same pain levels and maintained her mobility, with no deterioration in her renal function markers. Vigilance for this rare disease, in cases of generalized arthropathy, could prevent further complications in the vital organs and lead to early and focused screening of the patient's relatives.

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INVESTIGATION OF THE EFFECT OF TRANSCUTANEOUS VAGUS NERVE STIMULATION ON FIBROMYALGIA: CLINICAL TRIAL PROTOCOL

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Transcutaneous vagus nerve stimulation (tVNS) can help relieve pain in a range of clinical conditions. Modification of afferent signal transmission through the nucleus of the solitary tract (NST) has been proposed as the primary mechanism contributing to the reduction of pain intensity after tVNS. Fibromyalgia is an idiopathic chronic pain syndrome with few

effective and safe treatments. The pain and associated symptoms of patients with fibromyalgia can be improved by stimulation of the vagus nerve through modulation of autonomic and immune system functions. The effect of repeated tVNS sessions on fibromyalgia have not been thoroughly evaluated in randomized clinical trials. The aim of our study is to evaluate whether percutaneous stimulation of the otic branch of the vagus nerve in patients with fibromyalgia can lead to a reduction in pain intensity and improvement in quality of life. The study will include women on unchanged pain medication (or no medication) for the past 8 weeks whom their symptoms and pain are not controlled. Patients will be offered a 2-week treatment (14 30-minute sessions) in a randomised double-blind controlled trial. Patients will be divided into 2 groups (Group 1: suggested per os medication + tVNS stimulation, Group 2: suggested per os medication + sham tVNS). The study is designed to determine, whether tVNS is able to improve the symptomatology of pain and concomitant symptoms of fibromyalgia, using appropriately weighted scales. This study examines a novel and potentially effective way to address an important public health issue where prevalence is high in given groups, impact is multidimensional, and treatment options are limited. The aim of the study is to establish tVNS as a non-pharmaceutical treatment of fibromyalgia in clinical practice in the future.

Results: The clinical results obtained so far will be presented.

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BIOELECTRONIC MEDICINE AND PAIN

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A new approach, the Bio-electronic Medicine, for treating patients with various diseases via the application of electric waves to stimulate Vagus nerve (VN) has been developed a few decades ago. Neural reflexes are based on the ability of special molecules to produce electrical signs on aesthetic neurons that through intermediate neurons are transmitted to the Central Nervous System (CNS). CNS reacts by transmitting electrical signals regulating the function of organs or systems. Recently a new reflex called Inflammatory Reflex was recovered, which controls the immune system, through the connection of Vagus nerve fibers to the immune system. VN transmits signals from the brain to spleen, liver, gastrointenstinal truck and other organs. The fibers of VN in spleen, release nor-epinephrine, which attaches to T-lymphocytes, inducing the production of acetylcholine (Ach). Binding of Ach to macrophages results in TNF release. Acetylcholine action though, on macrophages, reduces, in a second step, the production of TNF by inhibiting two biochemical pathways. One pathway controls the action of NF-kB that induces the production of TNF from macrophages, while the other pathway regulates the excretion of IL-1 and other inflammatory molecules functioning as algogenic agents. Through Vagus electrical stimulation a number of diseases, such as, rheumatoid Arthritis, Inflammatory bowel disease, diabetes, obesity, irritable colon, headaches, Alzheimer and Parkinson Disease and possibly cancer, have been successfully treated. A number of experimental trials revealed that vagus stimulation may alleviate pain of: chronic neck disease, low back pain, postsurgical laparoscopic nephrectomy and tonsillectomy, headache, chronic pelvic pain Chronic bowel pain, muscular pain due to dystonia, musculoskeletal pain and other painful diseases.

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CLINICAL COMPARISON OF ETORICOXIB AND DEXKETOPROFEN TROMETAMOL IN ACUTE POSTOPERATIVE DENTAL PAIN

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Etoricoxib, a selective cyclooxygenase-2 inhibitor and dexketoprofen trometamol, a single isomer non-steroidal anti-inflammatory drug (NSAID), are available for the treatment of acute pain. Both are claimed to have fewer adverse effects than traditional NSAIDs. We performed a double-blind, randomized, controlled trial involving 45 outpatients undergoing surgical dental removal. Those who developed moderate pain within 4 h of the procedure were allocated to one of three groups: etoricoxib 30 mg peros (Group ET, n=12); dexketoprofen trometamol 25 mg peros (Group DE, n=17); or placebo (Group PL, n=16). Participants monitored pain intensity and pain relief for 24 h using visual analogue scales (VAS) and verbal rating scales (VRS). No significant difference was demonstrated between Groups ET and DE ($p<0,192$). Both drugs were significantly different compared with placebo ($p<0,001$). Rescue analgesia during the trial period was required by only 4 out of 17 subjects in Group DE, but 8 out of 12 subjects in Group ET. The median times to use of rescue medication were 140 (Group PL), 332 (Group ET) and 450 min (Group DE). Both drugs were well tolerated and adverse events reported were mild to moderate in severity. Etoricoxib and dexketoprofen trometamol are effective treatments for acute, postoperative, dental pain and are well tolerated. Dexketoprofen trometamol has a longer duration of action as a single dose and gave adequate analgesia for over half of that study group; patients in the etoricoxib group needed more rescue analgesia.

INTRAOPERATIVE ESMOLOL ATTENUATES POSTOPERATIVE PAIN AFTER INGUINAL HERNIA REPAIR. A DOUBLE-BLIND RANDOMIZED TRIAL

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Recent studies suggest a possible antinociceptive effect of esmolol. The aim of this study is to investigate the effect of an infusion of esmolol on intraoperative nociception, as well as on postoperative acute and chronic pain. In this interim analysis, 35 patients scheduled for inguinal hernia repair were randomized with identical blinded syringes to either the esmolol group, receiving a loading dose of 0.5 mg/kg of esmolol and maintenance dose of 50 mcg/Kg/min or to the placebo group, receiving saline. Intraoperative nociception as assessed by the percentage of anesthesia time during which NOL was <25 as well as postoperative acute and chronic pain with NRS and DN4 scores were analyzed. Intraoperatively, the percentage of time NOL was <25 was higher in the esmolol group *versus* the control group (p=0.007). The esmolol group demonstrated lower NRS scores on arrival to PACU than the control group at rest and during movement (p 0.019 and 0.015 respectively) and lower NRS scores at discharge from PACU than the control group at rest and during movement (p 0.037 and 0.014 respectively). More patients required additional analgesia in PACU in the control group *versus* the esmolol group (p=0.01). Cumulative morphine consumption in the PACU was lower in the esmolol group *versus* the control group (p=0.004). No effect of esmolol on chronic neuropathic pain was demonstrated. Intraoperative esmolol administration seems to decrease intraoperative nociception and to affect aspects of postoperative recovery by mitigating early postoperative pain levels and decreasing the need for opioid rescue medication following inguinal hernia repair.

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EPIDURAL ADMINISTRATION OF OXYCODONE FOR POSTOPERATIVE PAIN MANAGEMENT. A CASE REPORT

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Oxycodone, is a potent semi-synthetic opioid and there are limited data on its administration in regional anesthesia. Its onset of action after epidural administration is faster than morphine but its duration of action is significantly shorter. In this case report a 85-year-old male patient, with a malignant neoplasm of the transverse colon, underwent an elective open right colectomy. He had comorbidities for which he was under treatment (coronary artery disease, arterial hypertension, chronic obstructive pulmonary disease, dyslipidemia, benign prostatic hyperplasia). Due to the type of surgery, comorbidities and the analgesic needs, the placement of an epidural catheter was decided (L2-L3). The administration of 60 mg of lidocaine (test dose) followed and 100 mcg of fentanyl were administered 30 minutes before the surgical incision. Induction of anesthesia included intravenous administration of 100 mcg of fentanyl, propofol, rocuronium and maintenance with sevoflurane (1 MAC). Before surgical incision, another 100 mcg of fentanyl were administered intravenously and 37.5 mg of ropivacaine epidurally. Until the end of the operation, a total amount of 97.5 mg of ropivacaine were administered epidurally. The operation lasted 3 hours and the patient remained hemodynamically stable intraoperatively. Half an hour before the end of the operation, 2mg of oxycodone were administered epidurally. These were followed by 3 infusions of 1mg oxycodone solution with 18mg ropivacaine at 20, 30 and 50 hours postoperatively. The patient remained hemodynamically stable in the postoperative period, maintaining a satisfactory level of analgesia during the administration of oxycodone (NRS<3), without the need for rescue analgesic agents and without the occurrence of adverse effects. To summarize, epidural oxycodone is a very good option for postoperative analgesia, and data show that compared to epidural morphine, pruritus and postoperative nausea and vomiting are reduced. Although its strong analgesic effect has been proven, further studies are needed for the safety of its epidural administration in daily clinical practice.

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POSTOPERATIVE ANALGESIA WITH NALBUPHINE IN A PATIENT ON HAEMODIALYSIS TREATMENT. A CASE REPORT

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Nalbuphine is a partial agonist-antagonist of the opioid receptors and the advantages of its administration in contrast to other opioids are well documented by numerus studies. However, there are limited data about its administration in patients with end stage renal disease. A case of nalbuphine administration for postoperative analgesia in such a patient is presented. A patient with end stage renal disease on haemodialysis treatment underwent plastic surgery for reconstruction of his right lower limb stump, with concomitant amputation of his middle finger of the right hand, under general anesthesia. Intraoperatively he was

administered with 1gr of paracetamol and 400 mcg of fentanyl. The duration of the operation was 90 min. Postoperatively he suffered from severe pain (NRS 10). Tramandol was administered first (dose 100mg), without alleviating the symptom. The pain was markedly reduced after a total dose of 7 mg of nalbuphine (NRS<2). Management of postoperative pain in patients with end stage renal disease is challenging. Opioid administration, first line treatment for postoperative analgesia, should be done cautiously, as most of these medications, and their metabolites, are excreted in urine. In patients with end stage renal disease there is a danger of accumulation and emergence of adverse reactions. Nalbuphine has an advantageous adverse reactions profile compared to other opioids, due to its μ-opioid receptor antagonism. However, its administration in such patients has not been studied. Most of the references about nalbuphine are presented from studies in management of chronic pain and pruritus associated with end stage renal disease, where positive outcomes for alleviating the symptoms are documented. Management of pain in patients with end stage renal disease may be difficult. Nalbuphine could serve as an alternative medication, due to its advantageous adverse reaction profile. However, more studies for its use are needed for safe outcomes to be deduced.

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COMPARATIVE STUDY OF THE EFFECTIVENESS AND SAFETY OF INTRAVENOUSLY ADMINISTERED TRAMADOL OR NALBUPHINE FOR THE RELIEF OF ACUTE POSTOPERATIVE PAIN

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Effective relief of acute postoperative pain is one of the main goals of perioperative management of surgical patients. Ideally, drugs that provide effective pain relief with a low rate of adverse effects are required. In the anaesthesiologist's armamentarium, there are many pharmaceutical formulations available, which can be administered through different routes, for pain management during the perioperative period. Opioid analgesics are often used and represent a classic – traditional method for the treatment and management of moderate to severe postoperative pain. The primary objective of this study was to evaluate and compare the analgesic effectiveness, regarding postoperative pain, of two opioid analgesics administered intravenously immediately after emergence from general anaesthesia. Secondary goals were to study the onset time of each drug's analgesic action, the duration of the provided analgesia, and the reported adverse effects, attributed to their use. In this prospective, randomized, double-blind study, originating from the collaboration of 2 peripheral hospitals, 40 adult patients aged 24-64 years, ASA physical status I-II, undergoing scheduled laparoscopic cholecystectomy under general anaesthesia participated. The patients were divided into two groups and received intravenously, immediately after emergence from general anaesthesia and extubation, either 10 mg of nalbuphine or 100 mg of tramadol. Randomization and allocation of patients to the two groups were achieved using the random numbers method. The anaesthesiologist in charge for each patient (who was also in charge for recording the necessary parametres) did not know which of the two opioids was being administered. The intensity of pain was compared immediately postoperatively and for the next 4 hours using the visual analog scale for pain (VAS 0 to 10) between the two groups, as were the occurrence of complications, such as nausea, vomiting, itching, and respiratory depression. Patients underwent general anesthesia with a predefined protocol common to all, and immediately after endotracheal intubation, they received 8 mg of dexamethasone intravenously, and 30 minutes before weaning, they received 50 mg of dexketoprofen and 1 g of paracetamol. Immediate postoperative pain, at 5 and 30 minutes after extubation was significantly lower compared to the pain before the opioid analgesics administration in both groups (reduction in VAS score by 2.24±0.46/p=0.045 and 3.15±0.46/p=0.041 in the nalbuphine and tramadol groups respectively). Analgesic effectiveness at 5 and 30 minutes after administration of the two opioids was better in the tramadol group, while at 4 hours postoperatively, it was better in the nalbuphine group, with a statistically significant difference (p=0.031 and p=0.042 respectively). The incidence of nausea and vomiting in the nalbuphine and tramadol groups was 13.3% and 18.9% respectively, with no statistically significant differences between the two groups. Intravenous administration of both nalbuphine and tramadol provided effective postoperative analgesia after laparoscopic cholecystectomy. Tramadol led to earlier pain relief but had a higher incidence of postoperative nausea and vomiting compared to nalbuphine. Tramadol had a faster onset of action, with more satisfactory analgesia in the first 5 and 30 minutes compared to nalbuphine, while nalbuphine was characterized by prolonged analgesic action lasting more than 4 hours postoperatively. More studies with a larger number of patients are needed to achieve firm conclusions.

PARAVERTEBRAL AND ERECTOR SPINE BLOCK COMBINATION FOR POSTOPERATIVE ANALGESIA FOR THYMOMA RESECTION AND CHEST WALL *RECONSTRUCTION IN* COMPLEX CASE OF PATIENT WITH MYASTHENIA GRAVIS

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A 69 year old patient presented with history of myasthenia Gravis and thymoma resection surgery that was performed 20 years ago. Surgery was required due to recurrence of the tumor which infiltrated the chest wall. Other comorbidities included arterial hypertension and chronic AF. His medication included monoclonal antibodies, pyridostigmine, b-blocker, amiodarone and angiotensin receptor antagonist. Induction to anesthesia was uneventful and performed under full hemodynamic monitoring. A left double lumen tube #37 was used for tracheal intubation under bronchoscopic guidance for confirmation of the ideal position. Immediately after intubation an erector spine block at T4 level was performed with infusion of 20 ml ropivacaine 0.375% and dexamethasone 8 mg. TCI remifentanil and propofol was applied for maintenance of anesthesia. The incision was extended to the left side with a cross section of the ribs from the

sternum, excision of the sternum and the first two ribs from right side was performed. The duration of the procedure was 8.5 hours. A paravertebral block with 20 ml ropivacaine 0.375% was applied by surgeons under direct vision. The patient was then transferred to ICU for further management. Extubation occurred 24 hours postoperatively due to inability to wean from mechanical ventilation because of tachypnea and low tidal volumes with PS> 12 mmHg. Analgesia was satisfactory with VAS score maintenance below 2-3 for 72 hours postextubation. The patient due to her disease was prone to respiratory problems complications. Adequate analgesia was of major importance and was achieved with combination of two different regional techniques. Addition of dexamethasone prolonged the blockade. Application of paravertebral block by the opposite side contributed to a better analgesic effect. Efficient analgesia management enabled the successful weaning from mechanical ventilation, while avoiding respiratory complications.

ROPIVACAINE 0,375% COMBINED WITH DEXAMETHASONE FOR ERECTOR SPINAE BLOCK PERFORMED FOR POSTOPERATIVE ANALGESIA AFTER RIGHT ANTERIOR THORACOTOMY FOR BENIGN CHEST WALL TUMOR RESECTION

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Dexamethasone as an adjunct in a local anesthetic solution reinforces the quality analgesia and prolongs sensory blockade. Our patient, ASA II, 74 years old received general anesthesia and an erector spinae block (ESP) for benign chest wall tumor resection. TCI propofol and remifentanil was used for maintenance of anesthesia. Multimodal analgesia was based on fentanyl 250 μg, morphine 10 mg, paracetamol 1 gr and parecoxib 40 mg towards the end of surgery as per protocol. Injection of 20 ml ropivacaine 0, 375% and 8 mg dexamethasone for ESP block was performed via ultrasound guidance immediately after induction to anaesthesia. Intraoperatively, a low requirement of remifentanil infusion <1 ng/ml was observed. The patient was extubated immediately postoperative. VAS score was <3 +/- 1.5 for the next 48 hours. Systematic analgesic needs were met with the use of paracetamol every 6 hours and parecoxib every 12 hours. Tramadol 50 mg was administered upon request only 4 times. The combination of dexamethasone and ropivacaine offered a very satisfactory analgesic effect on our case with the reduction of analgesia demands on opioids postoperatively. Side effects of opioid use were not observed and as a result faster recovery was achieved.

RECTUS SHEATH BLOCK FOR POSTOPERATIVE ANALGESIA IN PATIENT WITH END STAGE RENAL DISEASE UNDERGOING EMERGENCY CONSTRICTED UMBILICAL HERNIA SURGERY

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Patients with chronic kidney disease are more susceptible to the sedative properties of opioids and prolongation of their action may be observed in combination with prolongation of emergence from general anesthesia. Patient aged 47 years presents at the emergency department due to constricted umbilical hernia. From the history the patient reports chronic kidney disease under dialysis, arterial hypertension under treatment and hospitalization one year ago due to West Nile virus encephalitis. Rapid sequence induction to anesthesia was performed with fentanyl 0.15mg, propofol 130 mg and rocuronium 100mg. Before surgical incision, rectus sheath block was performed bilateral under ultrasound guidance and 30 ml of Ropivacaine 0.5% solution was administered. Anesthesia was maintained with desflurane and intraoperatively remifentanil was used as an adjuvant analgesic agent. Before the end of the procedure which lasted 2 hours, paracetamol was administered for postoperative analgesia. The patient was extubated succesfully by the end of the surgery and the emergence was rapid with excellent level of consciousness. The quality of postoperative analgesia was satisfactory both on awakening and during the first 12 hours postoperatively with reported values on the VAS pain scale assessment consistently below 2-3.
Conclusions: Regional anaesthesia in patients with renal disease is a useful method that provides adequate analgesia contributing to a reduction of opioid requirements and thus avoiding systemic accumulation of these drugs.

MANAGEMENT OF CHRONIC POST-OPERATIVE PAIN AFTER OPEN INGUINAL HERNIA REPAIR SURGERY - CASE REPORT

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A 79-year-old male patient presents to our pain clinic reporting severe burning pain in the inguinal region. The onset of this pain was after a previous successful open inguinal hernia repair surgery 1 year ago. From his personal history, the patient presents Type 2 Diabetes Mellitus and Coronary Artery Disease. Chronic Post Surgical Pain (CPSP) is one of the main postoperative complications in open inguinal hernia repair surgeries, with a significant negative impact on postoperative recovery and the quality of life of operated patients. The purpose of this presentation is to highlight the difficulties of dealing with these patients. The patient had received several different analgesic preparations as well as multiple injections of local anesthetic at the incision site by the surgeon, without success. Considering the patient's clinical picture as well as his individual history, we decided to identify ilioinguinal and iliohypogastric nerves with the help of a neurostimulator and ultrasound and to inject locally with ropivacaine 0.75%. The infusion was considered successful, as the patient gradually over the next few days reported a minimization of the pre-existing groin pain. Chronic postoperative pain is a real problem in the perioperative care of surgical patients. More specifically, optimal management of chronic pain after inguinal hernia surgery should begin with a thorough clinical examination to rule out other causes of chronic pain and as well as any inguinal hernia recurrence. A stepped approach to treatment is recom-

mended. Initially, watchful waiting may be tried if it's tolerated by the patient, followed by systemic pain medication, escalating to blocks and surgery as a final option.

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OPIOID FREE ANESTHESIA IN SUBMUCOSAL RESECTION OF THE DEVIATED SEPTUM

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Opioid-free anesthesia is a modern trend in Anesthesiology, constantly gaining ground. The purpose of this study is to investigate a specific opioid-free analgesia regimen in ENT surgeries for submucosal resection of the deviated septum. All study patients received general anesthesia without opioids and always under the guidance of the nociception level monitor (NOL monitor). The analgesic regimen includes 100 mg of lidocaine, 50 mcg of dexmedetomidine and 25 mg of ketamine at induction of anesthesia. After the intubation, a drip infusion of a solution of 150 mcg dexmedetomidine and 50 mg ketamine is started, the flow of which is adjusted based on the NOL values, while before the start of the surgery an additional 25 mg ketamine, 50 mg-100mg lidocaine, 2500 mg magnesium, 1000 mg paracetamol and 50 mg dexcetoprofen. Maintenance of anesthesia is based on desflurane under BIS guidance. The final evaluation includes the assessment of the analgesic effect after awakening with the VAS score, recording patient satisfaction and, importantly, whether a rescue dose of fentanyl was eventually required intraoperatively to maintain the NOL between 10-25. The study enrolled 43 patients who received opioid-free anesthesia for submucosal resection of the deviated septum from May 2023 to March 2024. All patients had a VAS score of 0 to 2 upon awakening. All patients reported particularly pleased with the quality of anesthesia. 20 of the 43 patients had received general anesthesia in the recent past and described the current anesthesia as good or better. Finally, only 1 of 43 patients required a rescue dose of fentanyl to maintain NOL. Opioid-free anesthesia is a field that provides ground for a lot of study and in the future it seems that it will gain even more ground in Anesthesiology, especially after the recent opioid crisis that is becoming a global problem.

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NEUROPATHY IN ORAL CAVITY INDUCED BY COMMON CHEMOTHERAPEUTIC DRUGS: A NARRATIVE REVIEW

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Chemotherapy-induced peripheral neuropathy (CIPN) is a complication of cytotoxic chemotherapeutic agents like platinum compounds, taxanes, vinca plant alkaloids, thalidomide and cyclophosphamide, and its incidence largely varies; it depends mainly on chemotherapeutic agent, dose, and preexisting nerve damage. Oral and perioral chemotherapy induced peripheral neuropathy (OCIPN) is a type of CIPN that can be easily missed. This narrative review aims to present available data on OCIPN due to chemotherapy agent toxicity. The literature review was conducted, following SANRA guidelines, searching PubMed and Cochrane databases. Studies published until September 2023 were included while excluded were articles referring to neuropathy or neuropathic pain due to head and neck cancer, head and neck radiotherapy, oropharyngeal mucositis, infection or post-surgical pain. Platinum-based chemotherapeutics can cause orofacial cold sensitivity, trigeminal neuralgia, orofacial and jaw pain, tingling in the oral cavity and teeth hypersensitivity. Taxanes may induce numbness and tingling in in the oral cavity, tongue tingling and hot hypersensitivity. Vinca alkaloids have been reported to cause jaw pain, teeth, and lips pain and oral mucosa hyperalgesia; lower motor neuron facial palsy of the right side with deviation of the angle of the mouth as also been recorded. Immunomodulatory drugs cause numbness of perioral area, lips and tongue. Alkyliating agents induce tingling of the tongue, lips and cold hypersensitivity of teeth. OCIPN may be caused due to changes in cellular structure and function; alterations in membrane receptors, metabolism, intracellular signaling, neurotransmission and excitability are the main mechanisms involved. This narrative review aimed to collect all available data on OCIPN, however most data were collected from case reports. Chemotherapeutic drugs can cause OCIPN. Further prospective studies will shed more light on the exact prevalence, symptoms and responsible mechanisms. Physicians, dentists and other health care providers should be alerted and document OCIPN.

TITRATED ADMINISTRATION OF TRAMADOL DROPS FOR CANCER PAIN MANAGEMENT IN AN ELDERLY PATIENT WITH METASTATIC PROSTATE CANCER

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The use of tramadol for cancer pain management is a common practice with beneficial effects on patients, as it provides excellent analgesia with good duration of action, making it a second-line analgesic in the WHO pain management algorithm. We present a clinical case in which titrated tramadol drops were administered for managing chronic pain due to metastatic prostate cancer, in conjunction with a review of the existing literature. An 86-year-old male patient with a history of arterial hypertension presented to the pain clinic with chronic pain due to multiple bone metastases from prostate cancer (NRS: 8). The patient was on medication with antiandrogens as well as analgesic treatment with paracetamol or codeine/paracetamol. Upon presentation, he exhibited severe dysphoria, depressive mood, and refusal to eat. Titrated tramadol drops were administered in combination with paracetamol (starting with 50mg of tramadol and 1.5g of paracetamol/day, gradually increasing to 87.5mg of tramadol/day), and proper, balanced nutrition was recommended. The patient was also given the opportunity to communicate with the pain clinic via social media for adjustments to his medication, which contributed to the improvement of his mental state. At the follow-up appointments at 3, 6, 9, and 12 months, the patient showed significant improvement in cancer pain (NRS: 2), without any adverse effects from the analgesics, and a significant improvement in mental health. Oral administration of tramadol drops proved to be crucial in managing cancer pain in a patient with metastatic prostate cancer, highlighting its clinical role in cancer pain management. Even at lower doses than those typically described in the literature, it offers adequate analgesia while avoiding side effects such as nausea, vomiting, and dizziness. Finally, the ability of the patient to communicate with the clinic contributes to the improvement of his mental health.

MANAGEMENT OF NEUROPATHIC PAIN IN A PATIENT WITH TONSIL CANCER USING LIDOCAINE PATCHES

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Lidocaine patches are used for managing neuropathic pain. Based on existing literature, their use can be effective both in managing pain and in reducing opioid use among cancer patients. This paper is a case report of a patient with neuropathic pain successfully treated with lidocaine patches. Additionally, a literature review was conducted regarding their use in similar cases. A 54-year-old male patient visited the pain clinic 1.5 years ago, reporting pain at the lateral side of the neck following radiotherapy for tonsil cancer. The patient was taking pregabalin 500 mg/day and duloxetine 120mg/day. Additionally, he had undergone botox and corticosteroid injections, massage therapy in the area, and refused opioid intake. The NRS score remained at 4-5. As part of the multimodal analgesia, the patient was additionally recommended daily application of lidocaine patches to the same area, while continuing his other medication. After the third day of application, he reported significant pain improvement with an NRS score of 1-2. The patient also mentioned that if he discontinued the application of the patches for more than 2 days, the intensity of the pain increased. At the 3, 6, and 12 month follow-up, the patient showed consistent improvement and was fully functional. In conclusion, lidocaine patches constitute an additional tool in the anesthesiologist's arsenal for the multimodal management of neuropathic pain. Their use can be crucial in managing neuropathic pain.

ADMINISTRATION OF NALBUPHINE IN POSTOPERATIVE ONCOLOGY PATIENTS

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Analgesic effect and adverse effects of intravenous nalbuphine administration in postoperative oncology patients. We studied for a period of 6 months, from November 2023 to April 2024, patients admitted to the ICU after major oncological surgery (abdominal or urinary), who received civ nalbuphine for postoperative analgesia. We recorded the NRS pain scale 24 hours after the start of civ administration, if the patient received other concomitant analgesics, if rescue bolus doses were needed, and if there were adverse drug reactions. 30 patients participated in the study (56.6% male and 43.4% female), with a mean age of 67.28 years. All patients, in the context of multifactorial analgesia, received postoperative paracetamol 1x2 iv and dexketoprofen 50 mgx2 iv. The total daily intravenous dose of nalbuphine averaged 82.09 mg, with a mean 24-hour NRS of 2.45. Considering as extreme daily doses any value <30mg/d and >120mg/d and removing them from the calculation, the daily dose MO was 76.44mg and the NRS scale MO was 2.5. In addition, we recorded no adverse effects related to taking nalbuphine, and only 2 patients required an adjunctive dose of another opioid.

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HELLENIC SOCIETY FOR PAIN MANAGEMENT AND PALLIATIVE CARE: THE PARTICIPATION AND EMPOWERMENT OF THE REGIONAL PAIN & PALLIATIVE CARE CENTERS IN GREECE

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The Hellenic Society for Pain Management and Palliative Care (PARH.SY.A.) aims at improving the quality of life of patients with chronic pain, by promoting their palliative care (1,2). The objective of the present study was to evaluate the participation and empowerment of the regional pain and palliative care (P&PC) centers in Greece. PARH.SY.A. developed and sent a questionnaire to all regional P&PC member-centers (n=29). The questionnaire was structured in 4 sections: general information on the regional P&PC centers, their participation in and the fulfillment of the overall vision of PARH.SY.A., the support of the collaboration within the network between PARH.SY.A. and the regional P&PC centers, and the general satisfaction of the regional P&PC centers with the various activities undertaken by PARH.SY.A. In total, 27 regional P&PC centers com-

pleted the questionnaire. The participating centers reported that the objectives of PARH.SY.A. reinforced their own objectives at a "very high degree", in terms of "management of chronic pain, the pain experienced due to cancer, and accompanying burdensome symptoms" (92.59%), as well as in terms of "the development of chronic pain management guidelines" (88.89%). When asked to evaluate the existing tools used by PARH.SY.A., the highest usefulness was reported for the Annual Congress of Regional Anaesthesia, Pain Management and Palliative Care (100%), and for the development of Chronic Pain Management Guidelines (96.15%). The general satisfaction with the activities undertaken by PARH.SY.A., was measured on a scale from 1 to 10 (from non-existent to very high satisfaction). The activities with the highest scores were "open communication across all member-centers of PARH.SY.A." (8.73), and "highlighting the problems and investigating related solutions for the operation and institutional framework of the regional P&PC centers" (8.24). Based on the above findings, it appears that PARH.SY.A. supports the operation of the regional P&PC centers on several levels, while the information collected as part of this exercise will be used to drive further improvements in the collaboration within the network.

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THE MANAGEMENT OF FIBROMYALGIA IN COMBINATION WITH A RARE DISEASE. A CASE STUDY OF A PATIENT WITH CYSTIC FIBROSIS IN GREECE

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Chronic pain, combined with a rare disease, can significantly affect the quality of life of patients (1), even though the primary objective in such cases is the management of the rare disease (2). Our aim was to describe the outcomes of fibromyalgia treatment, in a specific patient with cystic fibrosis (CF). We used the full medical history of a 25-year old (born in 1999) patient with CF and fibromyalgia, that visited the Center of Pain Management & Palliative Care, at the Athens Medical Center. The physicians completed their clinical evaluation, while using specific questionnaire related to fibromyalgia (FIRST, PainDETECT & Visual Analogue Scale [VAS] Pain Scale). The patient has been experiencing CF-related symptoms since their birth, including regular respiratory infections and arthritis. The diagnosis of CF was confirmed in 2020, and following a serious respiratory infection in December 2022, the first signs of pain manifested. After the diagnosis of fibromyalgia in September 2023, the patients received duloxetine that improved the pain (trochanters & sacroiliac joints) to a great extent, but the numbness and burning in the quadriceps persisted. Following the initial visit at the Center of Pain Management & Palliative Care in November 2023, the patient was administered pregabalin (starting dose of 25 mg), and after continued treatment with pregabalin (with gradually increasing dose) and duloxetine, the pain was decreased drastically while the numbness completely subsided. In January 2024, the symptoms returned, and the dose of pregabalin was further increases to 100 mg. With continued to date treatment (pregabalin, duloxetine, clinical Pilates, and reflexology), the numbness in the quadriceps decreased significantly. Despite the significant disease burden associated with this patient, appropriate treatment resulted in the management of fibromyalgia, contributing to better quality of life.

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RECORDING IMPRESSIONS AND CONCLUSIONS FROM THE USE OF MEDICINAL CANNABIS IN PATIENTS OF OUR CLINIC

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Chronic pain is a multidimensional condition that causes physical pain and emotional stress to the body, significantly disrupting the everyday life of the person who suffers. Therefore, the treatment of chronic pain requires a multifactorial approach, including pharmacological, non-pharmacological and interventional techniques . In light of the recent opioid epidemic, medicinal cannabis has gained ground as a potential treatment for chronic pain. The recent introduction of medicinal cannabis in Greece has revived hopes and expectations in a portion of patients with chronic pain of various etiologies who no longer found relief with their medication so far. Several of them contacted our pain clinic asking to be informed and examined as cases suitable for the administration of medicinal cannabis according to the medical indications for its use. From the total of 18 candidate patients, we came up with 7 cases where we considered that the use of medicinal cannabis would be medically beneficial. The choice of cases beyond medical indications was influenced by the basic condition of whether patients were smokers as well as the economic factor, as the drug is not compensated by health insurance programs yet. Patients presented the following problems: 3 cases with diagnosis and clinical manifestation of multiple sclerosis, one patient with chronic pelvic pain, two patients with cancer at an advanced stage of disease and another patient with chronic post-traumatic and postoperative pain resulting from a serious car accident. Patients were recorded using pain and quality of life questionnaires during their clinical examination. All patients were given medicinal cannabis for use with the special vaping device at a starting dose of 150mg in the evening in the first phase. Minor modifications were made, to avoid synergy and side effects of the medication used by the patients without stopping it in the initial stage. Of the total of 7 patients, only 6 continued treatment. A patient with lung cancer reported difficulties in using the vaping device related to both functional reasons (advanced age) and subjective ones. The remaining 6 patients reported steady improvement in pain levels, sleep quality and spasticity reduction in 4 of the cases. Gradually, the doses of opioids they used on a regular basis were reduced, while one of the patients proceeded to discontinue opioids without recurrence of his symptoms. The observation and medical guidance of patients continues. The results are promising and show significant improvement in pain, quality of life, sleep and mood of the patients. Pain intensity and spasticity decreased during about three months of treatment with medicinal cannabis. The literature largely supports its effectiveness in treating chronic pain, and there is evidence that the endocannabinoid system plays a role in regulating pain and

analgesia. Observational studies that reflect the "real" impact of medicinal cannabis use individually for each patient and prescription over a long period of time can provide valuable information about the efficacy and safety of the drug that can further help physicians in clinical practice.

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THE GREEK NEUROPATHIC PAIN REGISTRY: EXPERIENCE AND NEXT STEPS

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Chronic pain is a prevalent medical condition in the European Union (1), while one of its most challenging types is neuropathic pain (NP) (2). Recently, the use of patient registries and the recognition of their importance has increased, and the first Greek NP Registry has already been developed since 2016 (3). Our aim was to review the value of this registry and describe the next steps for its continuation and evolvement. The Greek NP Registry comprises the first systematic effort of the Hellenic Society of Pain Management and Palliative Care (PARH.SY.A.) to record NP in Greece. Key variables collected to date include the aetiology of pain, the pain intensity, the patients' medical history and the therapeutic management of the condition. For the continuation of the registry, PARH.SY.A. intend to increase the number of variables collected in order to capture the overall socio-economic burden of NP. The case report forms will be enriched with questionnaires measuring the patients' quality of life, the healthcare resource use & lost productivity, as well as the caregiver impact. The first results of the registry (2,334 patients between 2016-2020) indicated that patients with NP are underdiagnosed and undertreated outside the specialists' pain clinics; while the implementation of the relevant treatment guidelines has resulted in spectacular clinically meaningful decreases in the pain scores. The new enriched case report forms will collect information that will aid the better understanding of the natural history of the condition, the treatment effectiveness, the identification of particular patient groups of interest (*e.g.* for inclusion in clinical trials), and the development of relevant evidence-based health policy. With the continuation and expansion of the registry, a wealth of information will be created for all relevant stakeholders (healthcare professionals, patients, pharmaceutical companies, health authorities), in order to improve the holistic management of NP.

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SHPENOPALATINE GANGLION BLOCK USING THE TX360 NASAL APPLICATOR FOR THE TREATMENT OF CHRONIC PAIN IN CASES OF TRIGEMINAL NEURALGIA AND CHRONIC HEADACHE

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Tx360 nasal applicator is a device intended for use to block the sphenopalatine ganglion (SPG) in patients with painful conditions affecting the head and neck region. It is a simple method that can be applied rapidly, even on an emergency department to treat acute pain. We present the results of two prospective observational studies in which SPG block was performed using the Tx360 nasal applicator, in patients with trigeminal neuralgia (NT) or chronic headache, as an add-on to their treatment. On a weekly basis, for a 6-week duration, 0.3cc of lidocaine 2% was delivered bilaterally in both nostrils in each patient. A total of 22 patients with conditions partly or completely drug-resistant, participated voluntarily after informed written consent in the two studies; 15 patients suffering either classical or atypical, V2 (maxillary branch) or V3 (mandibular branch) trigeminal neuralgia, with a mean VAS=8.20 during the pain episode, and 7 patients suffering chronic headache (2 cluster headache, 4 migraine, 1 atypical headache), with a mean VAS=7 were treated with the aforementioned method. Overall, patients in both studies appear to have benefited, with the majority of patients experiencing a reduction in VAS scores of 5 points on average. At the end of the 6-week treatment, 9 NT patients were symptom free and a total of 13 out of 15 exhibited a positive response to treatment. The favorable outcome had a mean duration of 1.9 months. Regarding patients with headache, 6 patients had a significant reduction in pain and this positive outcome lasted for a mean of 2 months. No patient experienced adverse events. Repetitive SPG block with the use of Tx360 nasal applicator appears to have a beneficial effect in patients suffering from TN or chronic headaches, particularly in cases resistant to medication. Further double-blind, randomized studies are needed.

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THE USE OF MEDICAL CANNABIS IN AN ELDERLY PATIENT WITH TRIGEMINAL NEURALGIA: PRESENTATION OF AN INTERESTING CASE REPORT

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Trigeminal neuralgia is a chronic neuropathic facial pain syndrome caused by the involvement of the trigeminal nerve. Its incidence is reported to appear approximately in 10 over 100,000 people. It is characterized by unilateral continuous or paroxysmal pain, with gradually increasing intensity, in the distribution of one or more branches of the trigeminal nerve. Medical cannabis, and specifically some of its products, such as cannabidiol (CBD) and delta-9-tetrahydrocannabinol (Δ-9-THC), have been studied for their effectiveness as adjuvant analgesics in conditions that cause chronic neuropathic pain. The purpose of this study is to present an interesting clinical case report regarding the potential analgesic efficacy of medical cannabis products, in an elderly patient with trigeminal neuralgia.

Case Presentation: We present the case of a 91-year-old patient with neuralgia of the second and third branches of the trigeminal nerve, attending the Pain and Palliative Care Clinic of the General Hospital of Rethymno-Crete, Greece. The initial diagnosis was made in 2013 by a neurologist, and the patient had undergone multiple pharmaceutical analgesic protocols, as well as interventional techniques, such as transcutaneous neurolysis and cyberknife surgery, with only temporary pain relief. Before starting medical cannabis treatment for the trigeminal neuralgia, the patient was receiving tramadol (20 drops, three times daily), pregabalin (450 mg daily), and carbamazepine (800 mg daily), without any substantial and satisfactory analgesic effect (VAS Score: 7-8). Additionally, his medications included anti-inflammatory drugs (dexketoprofen 25 mg, three times daily) once a month for 10 days, again without any satisfactory response. He also received tapentadol, throughout an initial dose titration period (initially 50 mg, twice a day), followed by a gradual increase in dose due to reduced effectiveness, up to 150 mg twice daily. The patient did not notice significant pain reduction, but instead experienced drowsiness, with several episodes of acute paroxysmal pain during the day. In an effort to relieve the pain, several injections of local anaesthetics were performed in the sphenopalatine ganglion, which were also accopmanied by negligible analgesic effectiveness. Throughout the treatment pathway, anorexia, significant weight loss, and severe impact on quality of life due to severe chronic pain were observed and reported. In this context, it was considered that the administration of medical cannabis, as an adjunct analgesic, could reduce the intensity of neuropathic pain, related to the underlying trigeminal neuralgia. With the initiation of vaporized cannabis (THC: 9%, CBD: 13%) and a dose titration within 15 days to up to 450 mg daily (150 mg x 3), we proceeded with a gradual reduction in the total dosage of tramadol and pregabalin and managed to discontinue tapentadol. Within 30 days, tramadol was replaced by vaporized cannabis (600 mg daily), and pregabalin was reduced to 150 mg per day. With the use of medical cannabis, pain reduction (VAS Score down to 2-3), reduction of drooling, and better mobility of the lower jaw were achieved. The patient also reported a better mood throughout the day, improved quality of life, restful sleep, and increased appetite. The use of medical cannabis in patients with trigeminal neuralgia can provide effective analgesia. It is noteworthy that its use in the elderly is tolerable without severe adverse effects. Further studies are needed to substantiate this conclusion.

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THE ANALGESIC EFFICACY OF TRANSCUTANEOUS PULSED RADIOFREQUENCY TREATMENT IN CHRONIC PAIN PATIENTS DUE TO DEGENERATIVE OSTEOARTHRITIS OF BIG JOINTS AND OF LUMBAR SPINE: OUR CLINICAL EXPERIENCE

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Musculoskeletal diseases are a leading cause of chronic pain in our societies, affecting millions of people annually. These conditions significantly impact patients' quality of life and cause substantial psychological, social, and economic distress. The most common underlying causes include degenerative osteoarthritis, fibromyalgia, rheumatoid arthritis, and osteoporosis. To manage chronic musculoskeletal pain, various pharmaceutical protocols, as well as invasive and non-invasive methods, have been employed. One such non-invasive method is Transcutaneous Pulsed Radiofrequency (TCPRF) Treatment. TCPRF is a pain-free, non-invasive method that uses two self-adhesive quadrant patch electrodes connected to a pulsed radiofrequency current generator, applied to the affected joint in an opposing configuration. The purpose of this study was to evaluate the analgesic efficacy of this non-invasive method (TCPRF) in the treatment of chronic musculoskeletal pain of the knee, shoulder and lumbar spine. The study included 30 patients attending the Chronic Pain and Palliative Care Clinic of the General District Hospital of Rethymno – Crete, Greece, aged 41 to 87 years (mean age 65 years). Of those, 80% (24 patients) were female and 20% (6 patients) were male. Selection criteria included the failure of pharmaceutical chronic pain management or/and the inability to undergo any surgical intervention, either due to severe medical comorbidities or patients' unwillingness to undertake surgery. A total of 90 sessions of transcutaneous pulsed radiofrequency treatment were performed on the 30 patients, with three sessions per patient, and at intervals of 10 days pers session. Patients' chronic pain evaluation was performed using the WOMAC Index Score (The Western Ontario and McMaster Universities Osteoarthritis

Index Score) on days 0, 10, and 20 before the first, second and third treatment application respectively. The analgesic efficacy of TCPRF in the management of chronic pain was evaluated and recorded as a percentage, based on WOMAC Score (WOMAC Index Score 100%: worst imaginable pain, WOMAC Index Score 0%: pain-free). Overall, 36.7% of patients suffered from degenerative lumbar spine osteoarthritis or chronic post-operative lumbar spine pain, 43.3% from degenerative knee osteoarthritis, and 20% suffered from chronic glenohumeral (shoulder) pain. The WOMAC Index Scores for all patients before the first treatment session ranged from 52% to 98% (mean 74%), before the second session from 27% to 92% (mean 58%), and before the third one from 21% to 71% (mean 44%). The WOMAC Index Score was also calculated according to the joint involved in the treatment. For patients treated for chronic osteoarthritis knee pain, the mean WOMAC Index scores were 82%, 53% and 40% prior to the first, second and third treatment session respectively. For those treated for chronic lumbar spine pain, the mean WOMAC Index scores were 74% before the first session, 60% before the second session, and 54% before the third session. For the patients treated for glenohumeral joint pain, the mean WOMAC Index scores were 68% before the first session, 52% before the second session, and 35% before the third one. Transcutaneous pulsed radiofrequency treatment may reduce joint pain and can have a positive impact on the management of chronic lumbar spine pain, degenerative knee mechanical pain, and degenerative glenohumeral joint pain. However, its mechanism of action is still not fully elucidated. More observational studies and prospective clinical trials, as well as multicentre studies are needed to establish the benefits of this method, and to create new protocols for following up with patients to obtain reliable results and firm conclusions.

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EFFECTIVE MANAGEMENT OF HEMODIALYSIS PATIENTS WITH SEVERE PAIN DUE TO OCULAR HERPETIC NEURALGIA FROM THE PAIN CLINIC OF LIMASSOL GENERAL HOSPITAL

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Presentation of 5 cases that were referred to the pain clinic of our Hospital, for the management of their severe pain, due to herpetic neuralgia, not effectively trated with the administered analgesics. All of the patients referred to our Pain Clinic had stage IV renal damage, undergoing hemodialysis, aged 67-82 years. Three out of five patients were hospitalized in the Nephrology clinic due to their severe pain. The other two patients with subacute ocular herpetic neuralgia (5 and 7 weeks respectively, after the appearance of the rash) received treatment, but without improvement of their symptoms (NRS score: 7-8). All patients were already receiving: antiviral treatment, gabapentin 300 mg/day, paracetamol 1000 mg/ three times a day and tramadol 100-200 mg/day (p.o or iv). Also, all patients had been previously examined by an Ophthalmologist. We modified the treatment gradually reducing the opioids. Furthermore we prescribed a complex of vitamins B and C and we performed 2-3 peripheral blockades of the supraorbital, suborbital, lacrimal, supratrochial nerves and blockade of the major and minor occipital, with LA Lidocaine 1% and Depomedrol. After performing the peripheral nerves blockades, the patients reported a significant improvement in their symptoms and gradually reduced the administered p.os treatment. In particular, the patients continued to receive only gabapentin after each dialysis session, for a period of 6 months. Herpes zoster is more common among older people and people with weakened immune systems. Hemodialysis patients are prone to infections due to their compromised immune status. Approximately 20% of these patients present with trigeminal distribution disease with a contralateral erythematous rash, with intense pain, burning sensation, itching, headache and allodynia. Adjunctive peripheral blocks in the region hold promise for effective management of acute and chronic pain symptoms in these patients.

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THE ROLE OF AUTOHEMOTHERAPY WITH OZONE AS AN EFFECTIVE TREATMENT FOR FIBROMYALGIA

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The objective of this study is to evaluate the effectiveness of autohemotherapy with ozone in the management of fibromyalgia (FM). 20 fibromyalgia patients were treated with 10 sessions of ozone hemotherapy (2 sessions per week) with a concentration of 30-60 mcgr/ml. The health condition of the patients and their pain intensity were evaluated before and after treatment, using Visual Analog Scale (VAS) and measuring the frequency of the fibromyalgia flares. All patients treated with ozone reported an improvement in sleep and everyday activities, a marked decrease in pain sensation, accompanied by decrease in VAS scores, as well as tender points, and a noteworthy decrease in frequency of fibromyalgia relapses. The autohemotherapy with ozone in patients with fibromyalgia showed an important decline of tender points and VAS score, as well as a decrease of fibromyalgia flares, facilitating the everyday life of the patients suffering from the disease. This treatment seems to reduce the everyday use of pain medications, diminishing harmful side effects. Further investigation should be carried out, including groups with more patients and clinical trials, to elucidate the effect of ozone therapy in patients suffering from fibromyalgia.

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MACHINE LEARNING METHODS IN PAIN MANAGEMENT

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The concept of Machine Learning (ML) is based on the use of algorithms of different levels to process input data. These algorithms aim to identify either how the input data leads to a particular output or to conduct relationships between the input data. The application of a global approach to finding effective pain treatment will contribute to the improvement of psychological and physiological parameters and most importantly the quality of life of the patient. Thus, the use of Machine Learning methods is widely introduced in a set of different studies and researches, with the aim of a more effective treatment of patients with acute and chronic pain. This mini review explores various ML applications in managing acute and chronic pain. The studies utilized ML to analyze various data types and explode useful knowledge about pain biomarkers and response to treatment. Indicatively, some of the key concepts of the studies examined are: 1) the analysis of electroencephalograms (EEG) using ML algorithms to identify biomarkers in patients undergoing total hip arthroplasty surgery and their response to opioid therapy [1] 2) the usability of ML methods in identifying key factors influencing pain expression by analyzing data from pain expression sensors and clinical factors in chronic pain patients [2] 3) the prediction of oncology patients' responses to specific treatments and the improvement of quality of life by using ML methods [3] 4) the performance of different ML algorithms and the relationship of the input data, in predicting the frequency of opioid consumption in chronic pain patients [4]. The ability to predict each patient's response, combined with the investigation of clinical and genetic factors, can help to draw many beneficial conclusions. The use of efficient Machine Learning algorithms in clinical practice will lead to enhancing the ability of practitioners to make more informed and accurate medication decisions for their patients based on personal genetic information.

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THE MULTIDIMENSIONAL PERSPECTIVE OF CHRONIC PAIN: A COGNITIVE – BEHAVIOURAL APPROACH

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In the last decade, the term mindfulness has become one of the most widely used in psychology. It refers to the ability to be in the present moment, intentionally, consciously and non-judgmentally. It is noteworthy that mindfulness is currently taught in more than 140 medical schools in North America, one of the aims being promotion of metacognitive awareness, improvement of well-being and deterrence of burnout in health workers. Reflecting the growing interest in the use of non-pharmacological approaches in the multidimensional management of chronic pain, we present an effectiveness evaluation of a cognitive - behavioral intervention based on the concept of mindfulness in chronic pain management. In the context of the goals of PARI.SY.A., the introduction of mindfulness in the country's Pain Clinics would have a twofold objective: The psycho-protection of health care workers who are consistently exposed to the stressors of treating Cancer and Non-Cancer chronic pain. Indirectly but efficiently, the psychoprotection of these caregivers leads to improved treatment of the highly vulnerable group of patients they care for. The second objective is directly linked to the care of these patients: A substantial body of recent research documents that patient instruction in mindfulness significantly contributes to the sensory and emotional facets of chronic pain. Given the shortage of staff and funding in the country's Pain Clinics, it is crucial that a plethora of web-based applications support mindfulness education for health care workers and the public.

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ZINC'S CONTRIBUTION IN PAIN MANAGEMENT (REVIEW)

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Therapeutic use of opiate analgesics is limited due to clinically significant side-effects. Enkephalins are endogenous potent analgesic, anti-inflammatory and anti-depressant agents, of short life-span though, due to quick degradation, exerted by

zinc –depended metallopeptidases, such as neutral endopeptidase (NEP) and aminopeptidase N (APN). Hence NEP and APN inhibitors may represent significant antinociceptive agents by enhancing the life-time and effects of enkephalins. Zinc containing molecules, like thiorphan and acetorphan, are potent NEP inhibitors in human plasma and cerebrospinal fluid (CSF). Active NEP and APN inhibitors, like RB101, have also been synthesized. This prodrug RB101, a mixed enkefalin- catabolism inhibitor, reveals no opioid tolerance/dependence, or physical dependence to NEP inhibitors, in rats, in doses producing potent analgesic effects, after continuous activation of opioid receptors by their endogenous ligands. NEP inhibitors, such as RB101, may also play a role in the management of depression during the opiate withdrawal syndrome. Cholecystokinin (CCK) receptor antagonists, such as RD-134.308, resulting in anti-depressant –like effects, are also reported to facilitate RB101 responses. In conclusion NEP and APN, inactivation and/or regulation, via zinc containing compounds, may emerge as future therapeutic perspectives against pain, holding less side effects or dependence characteristics, compared to opioid drugs.

DEPRESSION AND CHRONIC LOW BACK PAIN: THE EFFICACY OF COGNITIVE BEHAVIORAL THERAPY COMPARED TO OTHER THERAPIES. SCOPING REVIEW

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Low back pain is the main cause of disability worldwide. It is classified as chronic when it lasts 12 or more weeks. Often, it co-exists with depression. To manage this complex condition properly, treatment of both depression and back pain needs to be delivered at the same time. Cognitive behavioral therapy (CBT) is a form of psychotherapy which is used in order to treat chronic low back pain. The international literature was searched in the electronic databases: Pubmed, Google Scholar, Scopus, Science Direct and Embase. The search was limited to meta-analyses, systematic reviews and randomized controlled clinical trials of the last decade. Researches that were published in the English language with the full text available were chosen. After establishing additional inclusion and exclusion criteria, a total of 10 studies were selected. Seven randomized controlled clinical trials and three meta-analyses met the inclusion criteria and were included in this scoping review. Regarding pain intensity immediately after completion of treatment, most studies conclude that there is no statistically significant difference between cognitive behavioral therapy (CBT) and other interventions. The same applies to depression, although there is a study that shows the superiority of CBT. At follow-up both depression and pain intensity show greater improvement with CBT compared to other treatments in most studies. CBT shows a slight superiority over other interventions in the treatment of depression and the reduction of pain intensity immediately after the completion of the treatment, but that difference is not statistically significant. During the follow-ups, CBT appeared to have better results, with statistical significance. Further studies are needed to draw firm conclusions.

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PROTOCOL FOR TRIAL AND PERMANENT IMPLANTATION OF PERIPHERAL NEUROSTIMULATION ELECTRODES FOR THE TRETMENT OF CHRONIC PAIN

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Peripheral neurostimulation (PNS) is a neuromodulation technique. It is achieved by implanting a subcutaneous electrode in the area where the pain is located. The electrode is connected to a generator which is also implanted subcutaneously and generates electrical signals. This electrical stimulation, through complex mechanisms, alters the transmission of the pain signal to the brain. Trial procedure and permanent implantation of peripheral neurostimulation electrodes in 20 patients is described. In 3 patients, a peripheral wireless neurostimulator, *i.e.* a stimulator without an implantable pulse generator, was implanted and in 17 patients a fully implantable peripheral neurostimulation system was placed. The indication for the 17 patients was pain due to failed back surgery (FBSS). The indications for the 3 cases were peripheral nerve injuries after orthopedic surgery (peroneal nerve and brachial plexus). All patients were preceded by a trial implantation with a duration of 10 days and on positive response (at least 40% pain reduction), permanent implantation was performed. Electrode placement was performed with continuous ultrasound monitoring to achieve optimal placement depth and proximity to the peripheral target nerve. During both phases (trial and permanent implantation), anticoagulation was not discontinued in the patients receiving it. All 20 patients were given prophylactic intravenous antibiotics one hour before the procedure and continued to receive oral antibiotics for 10 days. The patients were not hospitalized and the entire procedure was performed with a one-day hospitalization. A permanent system was placed in all 20 cases as the trial was successful. During the follow-up period all patients were satisfied with the result of peripheral neurostimulation. No complications (hematoma or infection) occurred. For the implantation of peripheral neurostimulation systems it is possible to hospitalize patients during the day, no interruption of anticoagulation is required in patients receiving it, and prophylactic antibiotic treatment and ultrasound monitoring of electrode placement is required.

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DYSAUTONOMIA IN TWO PATIENTS WITH CRPS: 9 YEARS FOLLOW-UP

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Complex regional pain syndrome (CRPS) is a difficult chronic pain condition that is very challenging for both the patient and the algologist with often difficult therapeutic interventions. It usually affects the limbs but quite often extends to other parts of the body. It is characterized by intense and persistent pain, disproportionate to the initial damage or trauma, and patients with CRPS often have a co-existing disorder of the autonomic nervous system (dysautonomia). These were two patients aged 57 and 53 years. The first of them developed CRPS in the left upper limb after surgery for epicondylitis, during which the left radial nerve was injured at the elbow level. The second patient presented with CRPS after a fracture of the humerus, which was not immediately diagnosed and was operated on after 4 days after the patient's fall. The results of their follow-up over the past 9 years are reported. During the last 9 years both patients underwent numerous therapeutic interventions at various pain clinics. Specifically, the first patient in 34 and the second in 30 total interventions. They have undergone intravenous ketamine administration, neuromodulatory interventions, sympathetic blocks, neural blocks, radiofrequency catalysis and finally subarachnoid pump implantation. However, during the aforementioned period of time, there was a need for treatment of generalized dysregulation (neurogenic cyst, gastrointestinal, respiratory and cardiovascular disorders), which both patients presented. Complex periodic pain syndrome requires continuous medical care, adjustment of therapeutic procedures and careful monitoring for the emergence of new symptoms. Although it is not fully elucidated whether dysarthria is directly related to CRPS, studying such cases over a long period of time may lead to a common basis and prove their direct association.

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PULSED RADIOFREQUENCY NEUROLYSIS FOR THE MANAGEMENT OF CHRONIC PAIN IN END STAGE OSTEOARTHRITIS OF THE KNEE. TWO YEARS EXPERIENCE

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Pulsed radiofrequency neurolysis is a minimal invasive method, with a precise mechanism of action which has been used in a variety of chronic pain treatment cases. Aim of our study is to present the two years experience in the management of chronic pain due to knee osteoarthritis. The study included 30 patients, 18 women and 12 men, with age 56 to 91 with end stage osteoarthritis. Selection criteria of the patient to undertake the treatment was: long term waiting time until the final surgical treatment, reject surgical management and significant medical history with three or more co morbidities. All patients underwent the same protocol. The procedure included pulsed radiofrequency ablation for the superior medial and lateral geniculate and medial inferior geniculate nerve for (3) three minutes for each nerve at the temperature of 800 Celsius under fluoroscopic guidance. All patients were followed up and records were kept to evaluate the variation of the pain score (0-10) and stiffness score (0-20) for a short period of (4) four months. Complications such bruising, infection, inflammation, or edema were recorded. The pain scale scores were improved by a mean value of 3 points and the stiffness score by a mean value of 4 points. All patients record less need for analgesia medication. Twenty six out of thirty record improved night pain and sleep disorder, to repeat the pain protocol and recommend it as an efficient method to manage chronic pain. Finally had no records of complication (bruising, infection, edema, or inflammation). In conclusion the pulsed radiofrequency ablation is a safe method, efficient for managing chronic pain due to osteoarthritis in selected patients and easily replicable.

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SPINAL CORD STIMULATION FOR PAIN MANAGEMENT IN FAILED BACK SURGERY SYNDROME: OUR CENTER'S EXPERIENCE THROUGH A SERIES OF 20 CASES

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Effective management of chronic neuropathic pain following

failed spinal surgery is often challenging and underscores the need for alternative effective strategies, such as spinal cord neurostimulation. The purpose of this study is to present our center's experience with spinal cord stimulation (SCS) as a therapeutic option in patients with persistent neuropathic pain despite surgical intervention and conventional methods. We present a series of 20 patients with severe neuropathic pain (VAS >6, DN4 6-8/10) in the lower extremities following spinal fusion surgery, who were treated in our Hospital Pain Center over a period of 4 years (2020-2023). All underwent strong pharmacotherapy, alternative therapy programs (reflexology and acupuncture), and extensive physiotherapy for over 6 months. They presented severe pain, which adversely affected their quality of life and hindered most daily activities. All patients were treated with spinal cord stimulation. We recorded the duration of method application, its impact on pain intensity using the VAS scale (0-10), the DN4 questionnaire and changes in medication regimen. For the impact on their quality of life, we used the SF12 questionnaire before our intervention and 6 months afterwards. Duration of spinal cord stimulation therapy was over 6 months. Patients experienced reduction on the VAS scale (VAS <4) and on the DN4 questionnaire scores (DN4 <4/10). They reported notable improvement in quality of life, returning to daily activities previously impeded by pain, and a reduction in medication dosage. Spinal cord stimulation (SCS) proved to be a satisfactory therapeutic option for persistent severe pain following failed back surgery syndrome, effectively mitigating pain and enhancing patients' quality of life. Our aim is to approach international success rates and explore the long-term effectiveness of this method, providing a safe alternative therapeutic approach at a national level.

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INTRODUCING A NOVEL TECHNIQUE: MODIFIED CAUDAL EPIDURAL APPROACH FOR IMPROVED SUCCESS RATES

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Caudal epidural techniques are essential for providing effective analgesia in various clinical settings. However, challenges arise when the needle fails to advance further into the sacral canal, resulting in unsuccessful procedures. With this case series, we introduce a novel approach, termed the "modified caudal epidural", aimed at overcoming these obstacles and improving success rates. In the modified caudal epidural technique, when the needle encounters resistance to bone structure and fails to progress into the sacral canal, a small amount of contrast medium is injected, followed by fluoroscopic imaging. Observation of contrast medium advancement into the epidural space in lateral view guides the insertion of a Racz catheter after a slight change in the angle of needle insertion (reduction of degrees) and without the need for further needle advancement, facilitating unobstructed completion of the procedure. Here, we present a case series of 55 patients who received 90 caudal epidural injections over a period of 1 year while 28 of these injections (31%) were performed with the modified caudal epidural approach under fluoroscopic guidance in our pain clinic and a comparative analysis of our results with the existing literature. Our preliminary findings demonstrate a significant improvement in success rates, with the modified caudal epidural approach allowing for successful completion of procedures that would otherwise have been deemed unsuccessful (31%). By adjusting the angle (reduction of degrees) of needle insertion into the sacral canal, successful catheter placement becomes feasible, leading to desired analgesic outcomes for patients. The modified caudal epidural technique represents a promising advancement in epidural analgesia, offering a solution to challenges encountered during conventional approaches. By harnessing fluoroscopic guidance and adjusting needle insertion angles, this technique enhances procedural success rates and improves patient outcomes. Incorporating this approach into clinical practice has the potential to broaden the scope of effective pain management strategies.

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MULTIFIDUS DYSFUNCTION: CHANGING THE PARADIGM OF CHRONIC MECHANICAL LOW BACK PAIN

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Multifidus muscle (MF) is the key intersegmental stabilising muscle group of the lumbar spine. The muscle is filled with muscle spindles indicating its main proprioceptive function. Involuntary control automatically contracts to maintain stability.

Dysfunction is strongly associated with low back pain. Initial noxious insult due to injury/overload results in arthrogenic inhibition that may be self-limiting, but can result in chronic multifidus dysfunction and functional instability. Neuroplastic changes include altered motor control, cortical reorganisation and kinesiophobia. Poor mobility, fear-avoidance, central sensitisation result and the cycle continues. Multifidus dysfunction is identified by verbal cues from history, clinical examination (Multifidus Touch Toe Test, Prone Instability Test and Multifidus Lift test) and degree of multifidus atrophy on MRI scan (Grade 1, 2, 3). Implantable neurostimulation at L3 transverse process in chronic mechanical low back pain (LBP) patients (>14-year symptom duration) with MF dysfunction has been examined both in randomised sham controlled RCT and 5 year published cohorts (Reactiv8 B and PMCF cohorts). The results from long term follow up studies will be presented. For PMCF study at 5 years, 70% reached pain remittance (NRSPI <2.5), 55% had >15 decrease in ODI, and Quality of Life scores (EQ5D-5L) approached that of the normal population. There was progressive improvement over time. A cohort of CLBP patients with multifidus dysfunction can be identified. Restorative multifidus neurostimulation can significantly impact the clinical burden of mechanical chronic LBP in an otherwise intractable group. The effect is durable.

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