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Signa Vitae

Conference Report

21st Panhellenic Congress on Regional Anaesthesia, Pain Management and Palliative Care

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21st Panhellenic Congress on Regional Anaesthesia, Pain Management and Palliative Care Abstract Reviewers

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Abstract

The **Hellenic Society of Pain Management and Palliative Care (PARH.SY.A.)** has the pleasure to announce that the **21st Panhellenic Congress on Regional Anaesthesia, Pain Management and Palliative Care** is taking place this year from **16 to 19 September 2021** at the Wyndham Grand Crete Mirabello Bay Hotel in the beautiful city of **Agios Nikolaos** in the island of **Crete**, **Greece**.

The Congress is co-organized in collaboration with ESRA HELLAS and the A' Anaesthesiology Department, Pain Relief & Palliative Care Unit, Faculty of Medicine, University of Athens.

The Congress is held under the auspices of the European League Against Pain (EuLAP) and the Medical School, University of Athens, Greece.

Following the success of the 20 previous Congresses in Greece since 2000, the Congress Scientific Committee has worked hard to create an impressive Scientific Program, with emphasis on its educational character that will best fulfill the purpose of promoting education in Regional Anaesthesia, Pain Management and Palliative Care.
The main topics of the Congress are:

- Lessons learned from the pandemic COVID-19
- Neuropathic pain and the patient
- Self-management of Musculoskeletal Syndromes
- New Algorithm for Visceral Pain
- Cannabinoids: the solution to pain therapy or the next epidemic?
- Interventional Techniques and Chronic Pain. When and how effective are they?
- Genetic Therapies in Chronic Pain
- Palliative Care and Serious Health Related Suffering
- Pain & Palliative Care Centers: the cancer patient's shelter
- Palliative Care at the emergency department
- Thrombosis in the Oncology Patient: what the Anesthesiologist should know
- Modern Minimally Invasive Surgery and Chronic Postsurgical Pain
- WHO: New Guidelines for the Management of Chronic Pain in Children and Teenagers
- Nerve Entrapment Neuropathies
- The promising new peripheral nerve blocks and their applications in the paediatric patient
- VGF: Biomarker and Potential Objective for the Treatment of NP
- Redefining the position of Regional Anaesthesia in the 21st Century
- Regional Anaesthesia and Day Care Surgery. Challenges and Unresolved Issues
- Optimal Regional Anaesthesia-Analgesia for Knee Surgery: Current Trends and Future Perspectives

The Congress is honored by the presence of worldwide distinguished speakers, including Professor **Agis Tsouros** Past Director of the Division of Policy and Governance for Health and Wellbeing of WHO (Regional Office for Europe – Copenhagen, Denmark) and Professor in School of Public Health in University of Boston – USA, Professor **Stefano Coaccioli** EuLAP President, Professor **Thomas Volk** ESRA President, Professor **Giustino Varrassi** Paolo Procacci Foundation President and W.I.P. Immediate Past President, Dr. **Alain Delbos** ESRA Past President and Chair of ESRA Scientific Committee, Dr. **Patrick Narchi** ESRA-France President and Chair of ESRA Ambassador Program, Professor **Antonella Paladini** (L' Aquila University) and Professor **Robert Van Seventer** Past President of World Society of Pain Clinicians.
It is a great pleasure to welcome you all in the beautiful island of Crete, Greece, in an environment in full compliance with all Covid-19 measures as required by Greek health authorities.

Chair of PARH.SY.A.	**Chairs of the Organizing Committee**	
Athina Vadalouca	**Ioanna Siafaka**	**Maria Kokolaki**
Associate Professor of Anesthesiology and Pain Therapy, University of Athens	Professor Emeritus of Anesthesiology and Pain Therapy, University of Athens	Anesthesiologist, Director Anesthesiology Department & Pain Relief Unit, "Sismanogleio-Amalia Fleming" General Hospital, Athens, Greece

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Signa Vitae

1. ABSTRACTS OF FREE PAPERS

I: Palliative Care & Pain

01. Management of palliative care for oncology patients and ICU nursing staff attitude towards death

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Introduction: As nurses come into daily contact with terminal patients, the management of palliative care, and the attitude of the nursing staff towards death is an issue that is of great concern. In Greece, in contrast to countries abroad, the management of palliative care and the attitude of the nurses towards death have not been adequately researched.
Purpose: The purpose of this study is to investigate the management of palliative care for oncology patients in the ICU, as well as the attitude, perception and behavior of nursing staff towards death.
Material-method: The study population consisted of 100 nurses working at Theagenio (Cancer Hospital of Thessaloniki). Two questionnaires were used in the study: The DAP-R questionnaire on the perception and behavior of nursing staff towards death and the Frommelt questionnaire (FATCOD) on end-stage patient care.
A study was also conducted on 30 end-stage oncology patients at the ICU of Theagenio, in order to investigate their management of palliative care.
Results: The results of the study show that the duration of hospitalization of patients in the ICU is significantly related to protein intake and GCS. Patients who received a low protein content in the ICU survived less than those who received a higher protein content, while patients with low GCS at the time of admission to the ICU died in a shorter period of time. Regarding the attitude of nurses towards death, Greek nurses generally seem to have a less positive attitude compared to the international research. In addition, a statistically significant difference was found in the attitude of nurses towards death, in the acceptance but also in the avoidance of death, linked to the level of their education.
Conclusions: Intensive care can prolong the death process of end-stage patients, as the chance of survival or return to a life of tolerable quality is minimal to zero. For this reason, it may be preferable for these patients to spend the last days of their lives in a familiar environment.
The attitude of the nursing staff towards death and palliative care could be improved not only with specialized knowledge and training, but also by preparing the nurses to face death.

02. Palliative care: Words or touch in the pre- intubation phase of critically ill Covid 19 patients

Flampouraris Vasileios.[1,*], Kalinoglou Sotirios.[1], Kandreviotou Stella.[1], Niaka Anastasia.[1], Dimitriou Georgios.[1], Kokolaki Maria.[1]

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Background-objective: We recorded our clinical experience with Covid 19 patients.
Material and methods: We conducted a study of 154 Covid 19 patients (38 to 84 years old), ASA I, II, III. We recorded palliative care, words or touch in the pre-intubation period of Covid 19 patients inside the rooms of the various clinics. The priorities were: to define the management of these patients, based on:
1. To confirm that everything will be fine. (integrated care model, fear of death).
2. To maintain dignity based on individual respect.
3. To attempt transferring Covid 19 patients to an ICU.
4. To inform relatives and friends. (communication skills).
5. To inform correctly so that to gain us confidence for the subsequent medical care of Covid 19 patients.
6. Support for palliative care.

- All patients felt mental exhaustion before intubation.
- Need palliative care, to pass Golgotha.

Results: All patients in the pre- intubation phase need palliative care. It is an expression of the true human attitude to care immediately for Covid 19 patient who is no longer breathing. Help me doctor, I can’t breathe. Palliative care is only provided in words, because touch is not possible with the scary protective equipment, the clothing worn by

the anaesthesiologist.
Conclusions: The experience is unprecedented, unique. But we can also say: educational. We learned communication skills based on continuing education of the Greek society of pain and palliative care.

03. Ethical dilemmas in managing severe burns: Is there a place for palliative care?

Eleni Diamantaki[1,*], Vasileia Nyktari[1,2], George Papastratigakis[1], Georgios Stefanakis[1], Periklis Vasilos[1], Dimitrios Kouvidakis[1], Alexandra Papaioannou[1]

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Introduction: Despite advances in treatment strategies, patients with severe burns rapidly develop complex metabolic changes and multiorgan failure, compromising survival. Severe burns are the ones complicated by major trauma or inspiratory injury, chemical or electrical ones and generally any burns in adults occupying >20% of body surface area, except for superficial burns.[1]
Methods: The presentation of ethical dilemmas in the management of a critically ill burn patient in the emergency department (ED).
Results: A 31-year-old patient was admitted to the ED with 2nd and 3rd degree burns >80% of the total body surface after a tank explosion with hot water and chemicals. Initially presented in full awareness, without wheeze, in hypoxia, hemodynamically unstable with constant unbearable, agonizing pain. A multidisciplinary team consisting of anesthetists, emergency physicians, ENT, intensivist and plastic surgeon was immediately gathered. Some members of the team raised the issue of delayed anesthesia and endotracheal intubation so that the patient could speak to his family who were on the way, as his imminent death was considered almost certain. However, immediate intubation was performed. The patient eventually died 4 hours later in ICU after marked hemodynamic instability and multiorgan failure.
Conclusion: During management of patients with predicted high mortality, immediate decisions are often required to enhance even minimum chances of survival. These decisions often do not consider the real benefit and wishes of the patient at that moment, which raises some ethical dilemmas. Triage of patients for palliative care without transfer to a specialised burn centre is a difficult decision, especially in the absence of both legal framework and a pre-recorded “medical will” of patients, where the goals of care based on their values and wishes are clear.

04. Relationship between depression, anxiety, and pain perception in diabetic neuropathy

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Introduction: Diabetic neuropathy is a common complication of diabetes, occurring in 25–50% of patients, with pain partaking in the clinical picture of about half of the patients. At the same time, there are many studies confirming the high prevalence of mental disorders in diabetes patients, and recent research signifies the bidirectional relationship that seems to exist. In this review, we examined the existing literature regarding the role of anxiety and depression in diabetic neuropathy.
Methods: Utilizing PubMed as our search engine, we performed a search of the existing literature of the last decade. The key-words used were “depression” “anxiety” “pain” and “diabetic neuropathy”. This search led us to 189 results, and out of those 13 were found to correlate with our criteria and were used in this paper.
Results: From the analysis of the existing literature we cite studies concluding that people with depression are more susceptible to the development of diabetes. Moreover, anxiety and depression are correlated with complications and higher prevalence of painful neuropathy. In diabetic patients, symptoms of anxiety and depression are independently connected with more pain. At a pathophysiology level, disorders in the cellular function of the CNS, such as central sensitization and changes in neuroglia, are noticed both in neuropathic pain and depression.
Conclusions: This review highlights the connection between pain and depression in patients with diabetic neuropathy, with emphasis on the effect of anxiety and depression in neuropathic pain. With the association with the pathophysiological pathways and the clinical phenotype further researched, new goals in the prevention and the treatment of pain in diabetic neuropathy can be studied.

05. Efficacy, tolerability and safety of cannabinoids for management of pain in adult patients

with multiple sclerosis: A systematic review and meta-analysis

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Objective: Conduction of a systematic review and meta-analysis to determine the clinical efficacy, tolerability and safety of cannabinoids in adults patients with multiple sclerosis and intractable pain.
Methods: Our review was performed according to the PRISMA guidelines. Pubmed, Scopus, Cochrane Library databases and ClinicalTrials.gov, EudraCT registries were searched for double-blind RCTs, involving adults with any form of multiple sclerosis and intractable pain. We included studies with cannabinoids of any type, dose or route of administration versus any control group. Risk of bias was assessed with Cochrane Risk of Bias 2 tool and certainty of evidence was rated according to GRADE approach. Review Manager 5.4 computer program was used to conduct our meta-analysis.
Results: 6 trials, including 798 patients, were analyzed. Cannabinoids were superior to placebo for reducing pain intensity with statistical significance [MD = –0.48 (–0.88 to –0.08)]. Instead, overall withdrawals and frequency of adverse events showed a statistically significant increase in the cannabinoid groups [RR = 1.63, (1.05 to 2.52), NNTH = 19 (8 to 200) and RR = 1.32 (1.12 to 1.55), NNTH = 6 (3 to 16) respectively]. No statistical significant difference has been found on serious adverse events frequency. Short-term trials with small size and studies investigating THC/CBD spray (up to 120 mg/120 mg per day), showed a significant reduction in pain (0.90 and 0.86 points on NRS 0–10 scale respectively).
Conclusions: Cannabinoids have never been administered as monotherapy and always administered by titration to treat intractable pain of various types in patients with multiple sclerosis. Our findings were based on a small number of trials and patients. Therefore certainty of evidence has been rated as moderate. Oromucosal spray THC/CBD (up to 120mg/120mg daily) is most likely to be used, in patients with multiple sclerosis and pain resistant to conventional analgesics, initially for short term treatment in future clinical practice.

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II: Chronic Pain I

06. Audit of patients of the pain clinic of the University Hospital of Heraklion with neuropathic pain during the period 2019–2020

Emmanouela Koutoulaki[1,*], Amalia Mathioudaki[2], Vasileia Nyktari[1,2], Georgios Stefanakis[1], Periklis Vasilos[1], Stavroula Ilia[2], Georgios Frantzeskos[1], Alexandra Papaioannou[1,2]

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Introduction: Neuropathic pain is caused by a lesion or disease of the somatosensory system and affects 7–10% of the population [1–3]. The aim of this study was the analysis of patients referred with neuropathic pain to the University Hospital of Heraklion pain clinic (2019–2020) in terms of characteristics, underlying disease, treatment and response to treatment.

Methods: Patients diagnosed with neuropathic pain (Pain Detect questionnaire) were recruited. Pain intensity was assessed using NAS. Data were in the form of qualitative or quantitative variables and were expressed as frequencies and % frequencies. The x^2 test was used to detect statistically significant differences in percentages or correlations between the categorical variables. Statistical analysis was performed using IBM SPSS Statistics 26.0 (IBM Corp., Chicago, IL, USA). Acceptance limit was set to $\alpha = 0.05$.
Results: 120 patients (age 64.0 ± 15.1 years, men 55.8%, cancer history 50%) were included. Merely neuropathic pain occurred in 43.3% of patients. Patients were allocated into two groups: benign pain group —with herpes zoster (23%) and spine diseases (14%) as the most frequent causes—and malignant pain group (mainly due to gynaecological, breast or lung cancer). The groups did not differ in the main symptoms—burning (46.7%), allodynia (23.3%), hyperalgesia (28.3%)—nor in the pain location (most often in lower extremities and pelvis). Both groups experienced sleep disorders—poorer sleep quality in malignant pain (36.7% vs 16.7%)—and poor psychological state (33.9% in benign, 28.8% in malignant pain). NSAIDs use was more common in benign (58.3% vs 15.9%, $p < 0.001$), while antidepressants more common in malignant pain (61.7% vs 28.3%, $p < 0.001$). Both groups reported reduction in VAScore >30% following initial treatment and a corresponding reduction in further modification.
Conclusions: Most patients with neuropathic pain were >50 years old, reported a burning sensation and experienced effects on quality of life (quality of sleep, psychological state).

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07. Efficacy of iv infusion of magnesium sulphate and dromperidol on the management of neuropathic and somatosensory chronic pain - a two pain center study

Ioannis Chronakis[1], Eirini Chainaki[2,*], Nektaria Polaki[3], Ioanna Siafaka[4], Athina Vadalouka[4]

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Introduction: Droperidol as a medicine has unique properties and it has been successfully used as analgesic, antipsychotic, antiemetic and as a sedative [1]. It is an antagonist for d2-dopamine, serotonin, histamine, and nicotinic and muscarinic cholinergic receptors. It is also a dose-dependent agonist/antagonist of GABA receptors and an agonist of a2 adrenergic receptors. Moreover, is a sodium channel blocker such as lidocaine and potentiate μ opioid receptors. Its multi-receptor action justifies its use as analgesic, antiemetic and antiphycotic medication [2]. Magnesium seems to function as an antagonist for NMDA receptors and it has been used for relief of acute and chronic pain [3, 4]. The aim of the current study is the evaluation of the efficacy of droperidol and magnesium co-administration on the patients with chronic pain
Method: All patients that attended the pain clinic for chronic pain and aged over 18 years old were included in the study. Patients with atrioventricular block any grade and patients with chronic renal failure were excluded from the study. All included patients received droperidol to the dose 2.5 mg maximum and 1 gr magnesium sulphate iv. DN4 questionnaire was used to assess the presence of neuropathic pain. VAS scale and NPS scale were used to assess the intensity of pain before and after the administration. Change in the pain scales calculated as a percentage.
Results: 48 patients included in the study. 23 of them had neuropathic pain. There was a 40–50% reduction of the intensity of pain after iv administration of droperidol and magnesium. There weren't any complications.
Conclusions: The co-administration of magnesium and droperidol can relieve neuropathic and somatosensory pain. Long-term evaluation is needed.

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08. Shpenopalatine ganglion block using the Tx360 nasal applicator for the treatment of trigeminal neuralgia: A pilot study

Athanasia Tsaroucha[1], Christina Orfanou[1,*], Aikaterini Melemeni[1], Nikolaos Fyrfiris[2], Kassiani Theodoraki[1]

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Background: Sphenopalatine ganglion (SPG) is located within the pterygopalatine fossa, being the only ganglion outside the cranial cavity. Trigeminal neuralgia (TGN) is currently considered as an indication for SPG block, especially in medication-resistant cases. The aim of this observational study is to assess the effectiveness of the SPG block for the treatment of trigeminal neuralgia, using a noninvasive transnasal approach, by delivering local anesthetic with the alternative device Tx360 nasal applicator.
Methods: This study concerns patients suffering drug-resistant TGN. In addition to their medication, these patients received SPG block, using the Tx360 nasal applicator in order to deliver 0.3 mL of xylocaine 2%, bilaterally, once a week, for 8 weeks. Eight patients presented with either classical or atypical, V_2 (maxillary branch) or V_3 (mandibular branch) TGN, partly or completely drug-resistant, having VAS = 8–9, under drug treatment, with no clinical improvement.
Results: All patients reported significant pain relief, VAS = 5–6 (3 patients since the first application) and decrease of daily pain episodes. Specifically, after completing therapy, 6 patients were completely symptom-free, 1 reported significant clinical improvement regarding pain intensity and number of pain episodes and 1 patient reported no improvement at any disease level. Favorable outcomes have lasted for up to 3 months for each case. No significant adverse events were noted to any patient.
Conclusions: Preliminary data extracted from this pilot study suggest that repetitive SPG block with the Tx360 nasal applicator may constitute an easy, rapid, safe and efficient treatment of trigeminal neuralgia. Further relative double-blind, randomized studies are required in order to draw solid conclusions.

III: Regional Anaesthesia I

09. Double and single edge sign hydrodissection: An experimental study

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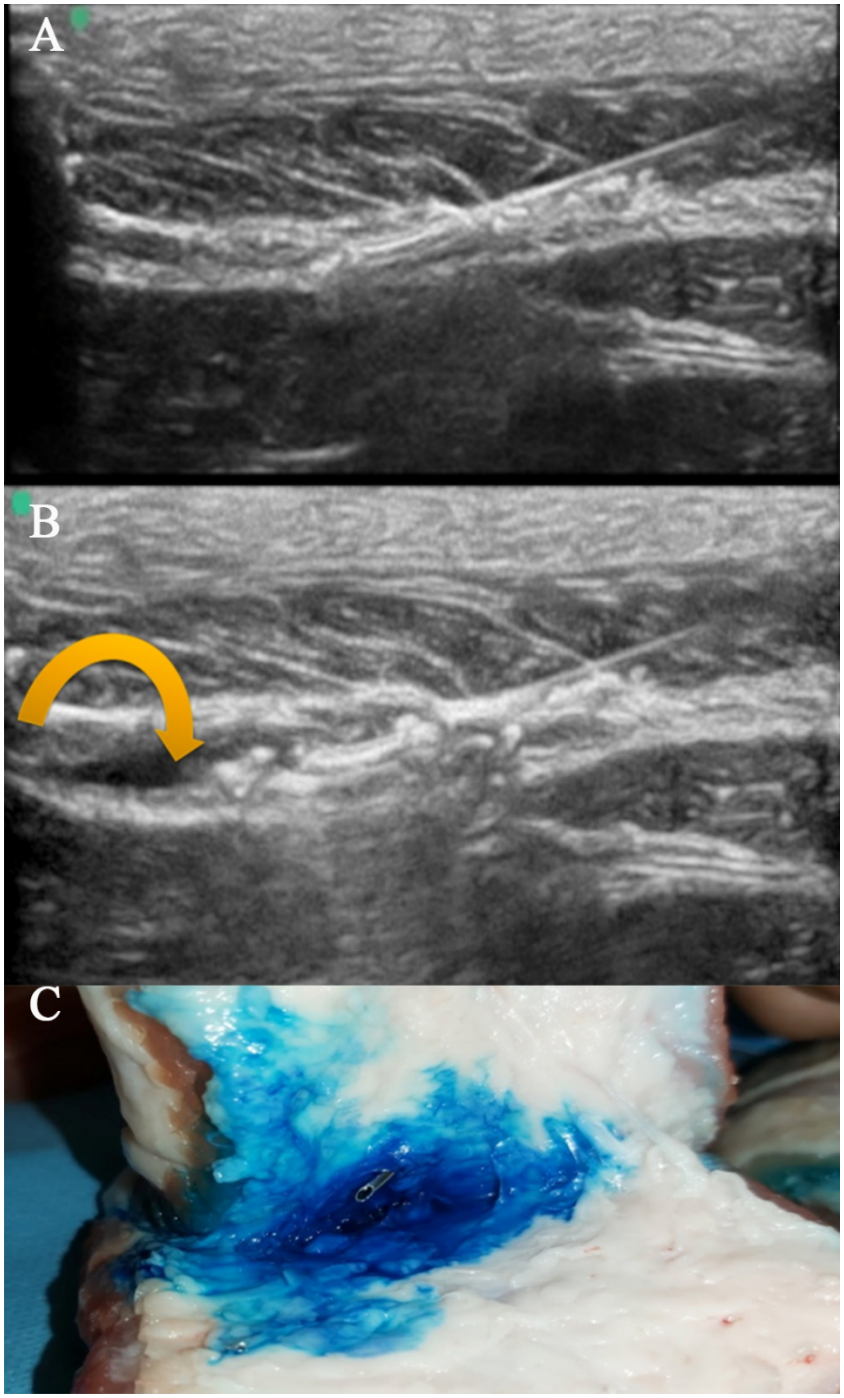
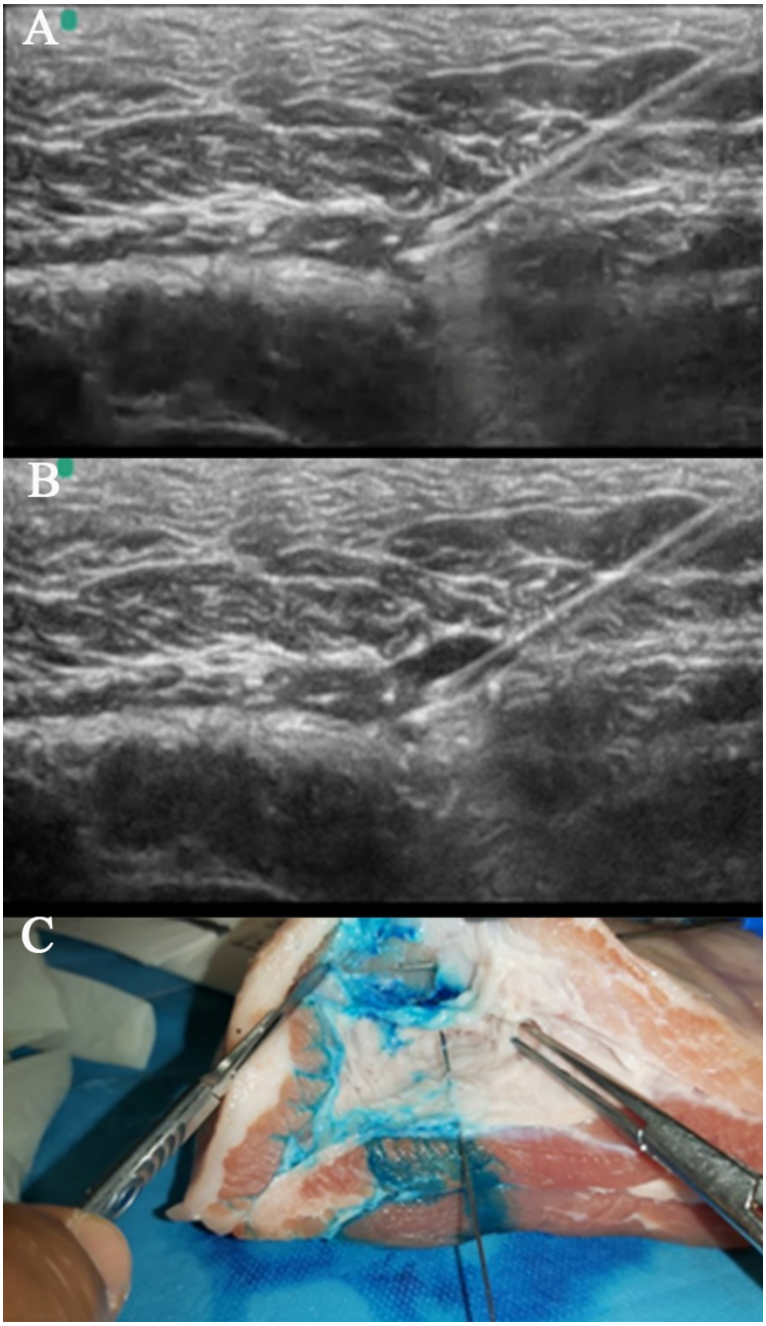
Introduction: Achieving correct hydrodissection in fascia plane blocks increases their success rate. With the use of ultrasound, it exceeds 80%, which is still far from 100%. This experimental study addresses the causes that lead to an approximate 20% failure probably due to the injection of the local anaesthetic between epimysium and fascia and not between fascia and fascia, as it should be. This leads to the corresponding ultrasound images: double-edge (correct sign) and single-edge (wrong sign).
Method: The experiments were conducted with abdominal aponeurosis of dead pigs with the use of ultrasound and ejection with the use of epidural needles. First, the analogue sonographic images were generated and then, the surgical exposure of the tip of the needles and the distribution of the local anaesthetic was performed.
Results: When the Fig. 1a,b were captured showing the right placement of the needle and the correct hydrodissection (double-edge) that was obtained, the Fig. 1c was acquired by carrying out the surgical exposure of the tip of the needle between the fascia.



When by mistake the Fig. 2a was considered to be correct and the hydrodissection was exucuted, the Fig. 2b (single-edge) was generated with the local anaesthetic between epimysium and fascia like it is revealed in the Fig. 2c of the surgical exposure of the tip of the needle.



Conclusions: The picture of double-edge is important for the successful injection of the local anaesthetic. In the contrary, the picture of the single-edge leads to the accumulation of the local anaesthetic between epimysium and fascia and the potential failure of the block.

10. Ropivacaine toxicity after surgical wound local infiltration in a patient with renal failure

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Aim of study: is to present case of ropivacaine toxicity after surgical wound infiltration.
Case report: Female 49-year-old patient, with chronic renal failure, underwent kidney transplantation from living donor. Her medical history, revealed hypertension. No known allergies were mentioned. She had had laparoscopic cholecystectomy and placement of peritoneal catheter. She also had dental surgeries under local anaesthetic without any complications. Preanaesthetic examination was normal, apart from the expected.
Patient was intraoperatively haemodynamically stable. During reperfusion, there was no remarkable haemodynamic instability (Blood Pressure (BP): 140/70 mmHg, Heart rate (HR): 62 bpm). Before closure, surgical wound was

infiltrated with ropivacaine, 0.375% 20 mL. 18 minutes later, BP and cardiac output-CO were abruptly decreased (mean BP – MBP <55 mmHg and CO dropped from 7.1 to 2.5 L/min). H1, H2 receptor antagonists and crystalloids were administered iv, and noradrenaline infusion maintained MBP between 70–80 mmHg. Cardiac ultrasound was normal and troponin count was negative. Surgical wound was reopened for investigation, which did not reveal haemorrhage. One hour postoperatively, patient was stabilized, extubated, and was transferred to ICU for observation, without any sympathokinetic drugs' infusion. Post-awakening, she complained about tongue numbness. Two months later, as renal function was normal, she was scheduled for peritoneal catheter removal. Ropivacaine 0.357% 10 mL was administered for wound infiltration. Milder decrease in BP and CO 20 min later, was immediately managed with noradrenaline iv infusion. Post-extubation, the patient reported metallic taste that raised furthermore initial suspicion of ropivacaine toxicity.
Conclusion: Ropivacaine wound infiltration has been probably the reason of decrease in MBP and CO (local anaesthetic toxicity) in this case. International literature review was not conclusive, apart from cases of prolonged ropivacaine duration, in renal failure patients [1, 2]. Further observation of similar cases is necessary to confirm ropivacaine toxicity after wound local infiltration.

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11. Peripheral nerve block for leg amputation in a high risk patient: Case report

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Introduction: Peripheral nerve blockages have many advantages which make them very useful in anaesthetic practice. The purpose of this presentation is to high light the effectiveness of peripheral nerve blocks in high risk patients.
Methods and material: It is a case report and we use data from our clinic. A 68 year old male patient came to our hospital with osteomyelitis of his left foot. He has a medical history of hypertension, type 1 diabetes and coronary heart disease with acute myocardial infarction 25 days ago. According to the ASA classification was: IV E. Peripheral nerve block suggested to him which he accepted. We use posterior approach of the sciatic nerve in the iliac fossa. Ropivacaine 5 mg/mL (total 40 mL) was given. For nerve detection we use a 22 g needle 50 mm and a nerve stimulator. For the saphenous nerve 7 mL of Ropivacaine 5 mg/mL was given with subcutaneous infiltration from the tibial tuberosity to the posterior surface of the tibia. ECG, pulse oximetry, non –invasive blood pressure applied before the block until discharge from the operating theatre. O2 2 L via a nasal catheter and midazolam 2 mg was given to him.
Results: Complete nerve block was achieved 20 minutes after the injection of the local anesthetic. The duration of the operation was 90 minutes. For the first 24 h postoperatively, the patient received only Paracetamol 1 gr/6 hours and his pain according to the Visual Analogue Scale was 0–2.
Conclusion: In high risk patients peripheral nerve blocks are safe and alternative methods to general anesthesia or central nerve blocks. Minimal systemic effects, adequate analgesia in the immediate postoperative period, are some of their advantages.

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12. The effectiveness of Bilateral Erector Spinae Plane Block in reducing perioperative opioid administration in patients undergoing Laparoscopic Cholecystectomy

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Introduction: Laparoscopic cholecystectomy (LC), is one of the most common surgeries performed in general surgery. Most of the times, LC is accompanied by moderate to severe postoperative pain. Erector Spinae Plane Block (ESPB) is an innovative trunk block which has been used as a method of postoperative analgesia in various clinical procedures. In this study we evaluated its effectiveness as a method of perioperative analgesia, seeking to investigate whether it is effective in reducing perioperative opioid administration in patients undergoing LC.
Methods: This is a double-blind, randomized, controlled, prospective study. 60 patients were randomized into Group C (ESPB with N/S 0.9%), Group D (ESPB with ropivacaine 0.375%, dexmedetomidine 1 γ/kg) and Group R (ESPB with ropivacaine 0.375%). ESPB was performed bilaterally before induction of general anesthesia, with ultrasound guidance. Statistical analysis included ANOVA, two-way ANOVA for repeated measures, Kruskal-Wallis and Spearman tests.
Results: All patients remained hemodynamically stable during their hospitalization, without major complications. Statistical significance was found to exist regarding total perioperative remifentanil consumption between all three Groups. Median morphine consumption, NRS pain scores and mobilization time of the patients was found to be significantly less in patients of Group D compared with patients of Group C and in patients of Group R compared with patients of Group C. However, there was no statistically important difference between Groups D and R. Satisfaction scores were found to be statistically higher in patients of Group D when compared with patients of Group C.
Conclusion: ESPB performance with administration of ropivacaine or a combination of ropivacaine and dexmedetomidine in patients undergoing LC, is an innovative, safe and simple method which contributes to the amelioration of the quality of perioperative analgesia, avoiding the complications arising from opioid administration and thus, achieving multimodal analgesia.

13. Epidural blood patch in the management of the syndrome of spontaneous intracranial hypotension: An effective therapeutic approach

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Background: Spontaneous intracranial hypotension (SIH) is a rare syndrome characterized by heterogeneity of presentation and prognosis, which can occasionally result in serious complications, such as the formation of subdural hematoma (SDH). This case series aims to emphasize that SIH remains a diagnostic and therapeutic challenge; it can present with a far broad clinical spectrum of symptoms, can lead to SDH and if conservative treatment fails, an epidural blood patch (EBP) is a viable treatment option. Although the exact aetiology of SIH is not known, it is believed to be due to cerebrospinal fluid (CBF) leak or a low CBF pressure.
Case report: Three patients (two males and one female) with age ranging between 38-53 years old who presented with complaints not only of an orthostatic headache, but with a variety of symptoms of SIH, including the formation of two SDHs in one of them, were included in this series. These patients did not respond to conservative management and subsequently, given the clinical and radiological evidence of SIH, were referred to the Anaesthesia Department for an EBP. The exact site of the CSF leak was identified with imaging modalities, including magnetic resonance imaging (MRI) of the brain and spinal cord, prior to the EBP. All three patients were subjected to an EBP with an 18-gauge epidural needle placed into the middle epidural compartment at the T12–L3 level. A total of between 30–43 mL of autologous blood was collected from the patients' left basilic vein and was injected into the epidural space under strict aseptic conditions. Two lumbar (L1–L2, L2–L3) and one thoracic (T11–T12) EBPs were performed on the three patients. All patients reported complete resolution of symptoms following the EBPs, while MRI imaging improved substantially.
Discussion: This report describes three cases of SIH with CSF leak originating from the cervical, the thoracic and the lumbar level. The EBP restored CSF volume and relieved the patients' persistent symptoms. MRI helps in showing indirect signs of low volume of CSF, though it may not be possible to find the actual site of leak. In conclusion, EBP is a well-accepted and beneficial treatment modality for SIH when conventional measures fail.

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IV: Regional Anaesthesia II

14. Comparison of two different local anesthetic infusion methods (with or without opioids) for epidural analgesia after cesarean section delivery

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Aim: The aim of this study was to compare the efficacy and safety between ropivacaine 0.25% and ropivacaine 0.2% combined with a 0.025 mg/kg morphine regimen, administered as a continuous epidural infusion for analgesia after cesarean section delivery.
Materials and methods: We compared 55 parturient women undergoing a cesarean section delivery with a combined spinal-epidural technique. All women received intrathecally 2–2.3 mL ropivacaine 0.75% combined with 0.3 mL fentanyl through a G27 needle. An epidural catheter was inserted immediately after spinal anesthesia. Two hours after the onset of spinal anesthesia a ropivacaine 0.25% continuous epidural infusion (7 mL/h) was administered in group A whereas a ropivacaine 0.2% combined with 0.025 morphine epidural infusion (7 mL/h) was administered in group B. The degree of motor and sensory block (using a Bromage and VAS score 1–10) were evaluated immediately after, 2 h, 4 h, 8 h and 12 h after the onset of continuous epidural infusion administration. We also evaluated all patients' blood pressure (BP) and heart rate at the same time intervals.
Results: There were no statistically significant differences in hemodynamic parameters, sensory block or analgesic effect between the groups however there were differences in motor block (Bromage score in group A 0.7 ± 0.5 vs 0.2 ± 0.4 in group B, $p = 0.002$).
Conclusion: The use of a local anesthetic and morphine combination in group B provided efficient epidural analgesia accomplishing a lower motor blockade compared to group A.

15. Comparison of two different methods for labor analgesia depending on the mode of epidural infusion administration (continuous or intermittent)

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Introduction: The use of a local anesthetic solution with opioids as a continuous epidural infusion administration during labor is controversial. It is considered to prolong the second stage of labor and to increase the total delivered dose of anesthetic, without improving the analgesia in comparison with the usage of the same solution in intermittent bolus doses, periodically. This study is designed to compare these two techniques.
Materials and methods: In this study, 60 parturient women were included. Labor analgesia started with a single bolus dose of 10 mL ropivacaine 0.1% administered epidurally in both groups. Group A was, subsequently, given epidurally Ropivacaine 0.15% with Fentanyl 2 μgr/mL in continuous infusion with a rate of 10 mL/h throughout labor, while Group B was given the same dose per hour but in two bolus doses of 5 mL administered every 30 min. In both groups, we had the possibility of additional bolus doses of 5 mL of the same solution with a lock out interval of 20 min. The total dosage received, the duration of the 2nd stage of labor, the method of delivery (assisted or not, Cesarean section), the motor activity (using the Bromage scale) and the pain intensity (using the VAS 1–10, every 20 min) were evaluated.
Results: No statistically significant differences were observed in the duration of labor (one way ANOVA), in the Bromage score and in the method of delivery between the two groups (x^2 test). No differences were also observed in the recordings of pain intensity between the two groups (two-way ANOVA for repeated measurements), but in some specific instances Group A presented higher VAS score, although the total dosage of local anesthetic received was greater in this group compared to group B (180 mL vs. 162 mL, $p = 0.04$).
Conclusions: The use of intermittent epidural bolus doses compared to a continuous infusion technique is associated

with lower total consumption and periodically better pain management.

16. Comparison of colloid preloading and continuous infusion of norepinephrine versus crystalloid co-loading and continuous infusion of norepinephrine in the prevention of maternal hypotension

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Background and goal of study: Spinal anesthesia for cesarean section can be frequently complicated by hypotension, with untoward effects for both the mother and fetus. Recently, norepinephrine has been shown to be effective in maintaining blood pressure in obstetric patients. Another technique widely used to prevent hypotension is fluid administration. Current evidence suggests that the combination of fluid administration and vasoconstrictive medications should be the main strategy for prevention and management of hypotension. The aim of this randomized study was to investigate the combination of a norepinephrine infusion and colloid preloading versus the combination of a norepinephrine infusion and crystalloid co-loading for the prevention of maternal hypotension during elective cesarean section under combined spinal-epidural anaesthesia

Materials and methods: One hundred parturients were randomized to receive either 6% hydroxyethyl starch 130/0.4 5 mL/kg before spinal anesthesia (colloid preload) or Ringer's Lactate solution 10 mL/kg starting with intrathecal injection (crystalloid co-load). Both groups were also administered norepinephrine 4 μg/min, starting simultaneously with the administration of the subarachnoid solution. The primary outcome was the incidence of maternal hypotension (SBP <80% of baseline). The incidence of severe hypotension (SAP <80 mmHg), total dose of ephedrine administered as well as maternal side-effects and the acid-base status and Apgar score of the neonate were also recorded

Results: There were no significant differences in the incidence of hypotension (13.7% vs. 16.3%, $P = 0.933$ or severe hypotension (0% vs. 4%, $P = 0.238$) between colloid preload and crystalloid co-load groups, respectively. The median [range] ephedrine dose was 0 [0–15] mg in the colloid preload group and 0 [0–10] mg in the crystalloid co-load group ($P = 0.807$). There were no significant differences in maternal side-effects or neonatal outcomes between groups

Conclusion: The incidence of hypotension during elective cesarean section is low and comparable when a norepinephrine infusion is used in combination with either colloid preload or crystalloid co-load, with perhaps a marginal superiority of colloid preload in the prevention of severe hypotension. It appears that the optimal regimen for prevention of maternal hypotension is a combination of fluids and a prophylactic vasopressor like norepinephrine.

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17. Prevention of hypotension during elective cesarean section with a combination of colloid co-load and a continuous infusion of a vasoconstrictive agent: A comparative randomized study

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Background: Spinal anesthesia is considered the anesthetic technique of choice in cesarean section but it can be frequently complicated by hypotension, with occasionally serious consequences for both the mother and fetus. One of the standard techniques used in the prevention of maternal hypotension is the administration of a continuous phenylephrine infusion. However, phenylephrine can lead to baroreceptor-mediated reflex bradycardia with untoward consequences for the maternal cardiac output. Nowadays, noradrenaline has been proposed as an alternative agent in this context, since due to its additional weak dose-dependent β-action, it can be associated with an inferior incidence of maternal bradycardia and thus of propensity to decrease the cardiac output. Colloid co-hydration has also been proven to be an effective technique in the prevention of maternal hypotension. This double-

blinded, prospective randomized study aimed to investigate whether the addition of a fixed rate phenylephrine infusion or noradrenaline infusion to a colloid co-hydration regimen results in better maternal hemodynamic status or in a more favorable metabolic profile in the newborn as compared to the administration of colloids alone without any vasoconstrictor during elective cesarean section under combined spinal-epidural anesthesia.
Materials and methods: One hundred-twenty parturients were randomized to either phenylephrine 50 μg/min (group P) or noradrenaline 4 μg/min (group N) or placebo (group C). All infusions had been prepared in identical syringes and the infusion rate was 30 mL/h in order to ensure the "blindness" of the study. As soon as the spinal injection started, all groups were administered 10 mL/kg of hydroxyethyl starch (HES) solution simultaneously with the onset of vasoconstrictor infusion. The primary end-point of the study was the incidence of maternal hypotension (SAP <80% of baseline). Additionally, maternal hemodynamics at specific time-points were recorded using non-invasive technology (Edwards Lifesciences ClearSight System) as well as the incidence of reactive hypertension, bradycardia, the requirement for bolus vasoconstrictor administration and the fetal acid-base status, the umbilical venous and arterial blood gases and the newborn Apgar score.
Results: The incidence of maternal hypotension was higher in group C than in group P and also higher in group C than in group N ($p = 0.024$ and 0.073, respectively). The need of bolus administration of vasoconstrictor was higher in group C than in group P and also higher in group C than in group N ($p = 0.001$ and 0.003, respectively). The incidence of bradycardia was higher in group P than in group N ($p = 0.018$). The incidence of reactive hypertension was higher in group P than in group N and also higher in group P than in group C ($p = 0.029$ and 0.005, respectively). The need of modification of the infusion rate was higher in group P than in group N and also higher in group P than in group C ($p < 0.001$ και $p = 0.002$, respectively). The fetal pH of the umbilical vein was higher in groups N and P than in group C ($p < 0.001$), the fetal pO2 of the umbilical vein was higher in group N than in group C ($p = 0.023$) and fetal blood glucose concentration was higher in group N than in group C ($p = 0.025$) as well as in group N than group P with no statistical significance. Higher systematic vascular resistance index (SVRI) and higher SAP were observed at specific time-points in group P versus the other two groups. Finally, post-delivery Apgar scores were similar in all groups.
Conclusions: The combination of a fixed-rate infusion of noradrenaline with the co-administration of colloid seems to be the most effective in the obstetric management of the parturient during cesarean section under regional anesthesia since it ensures maternal hemodynamic stability and a favorable metabolic profile in the newborn. This regimen seems to be superior to either a combination of colloid co-administration with a fixed rate of phenylephrine or to the administration of colloid alone without any vasoconstrictor agent. The higher concentration of fetal blood glucose in group N might be due to a catecholamine-induced glucose metabolism activation and due to a β-receptor-mediated decrease of insulin release.

V: Chronic Pain II

18. Sphenopalatine Ganglion Block (SPG) for the treatment of migraine

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Aim: Migraine is the second most common form of headache after tension headache. Migraine affects 11% of the population, and is 3 times more common in women than in men. Studies have shown that migraine affects the functionality of patients at a rate of 53.7%. Aim of this study is to describe the effectiveness of SPG blockade in a female patient with chronic persistent migraine.
Methods & material: We used data from our clinic. The patient came to our clinic with severe migraine (VAS pain 10) for more than two years. Her history reports migraine worsening in the last two years (>15 episodes per month). The pain is localized unilaterally is high intensity and with pulsating character. She also refers nausea, vomiting and dizziness with pain. After the remission of acute pain the patient describes cognitive dysfunction, depression and weakness. Her medication was Paracetamol 1 gr every 6 hours, Sertraline 100 mg daily, Amitriptyline 25 mg daily and Rizatriptan10mg for crisis treatment. SPG blockage was suggested to her for treatment which she accepted. Lidocaine 2% 0.6 mL to each nostril administered via nasal catheter (TX 360).
Results: A total of 4 treatments were applied (1 every 30 days). At the end of the first treatment the patient reports pain relief after 15 minute VAS pain 6. The only side effect was tearing. She gradually reduced her medication. She only retain Rizatriptan. She was also start prophylactic treatment of migraine with Propranolol. At the end of the four treatment the patient reports VAS pain 0, without any episodes of acute pain and she return to her normal activity.
Conclusions: SPG blockage is a simply effective and painless method to treat chronic migraine, without any serious side effects.

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19. Chronic pain in patients with coeliac disease: Cross sectional study

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Background: Coeliac disease (CD) is a long-term autoimmune disorder that primarily affects the small intestine. Classic symptoms include gastrointestinal problems such as chronic diarrhoea, abdominal distention, malabsorption, loss of appetite, and among children failure to grow normally. Often patients present with neurological manifestations, such as cerebellar ataxia and peripheral neuropathy, even in the absence of any gastrointestinal symptoms. Chronic pain is a major determinant of poor quality of life in patients with coeliac disease, however it has been previously shown that a strict gluten free diet is beneficial in dramatically reducing the odds of suffering from pain. The aim of this cross-sectional study was to establish the prevalence of chronic pain in patients with coeliac disease.
Methods: Patients with CD and healthy volunteers were prospectively evaluated. Pain was assessed with the use of the painDETECT and the DN4 questionnaires.
Results: Sixty-one patients with CD (79% females, mean age 39.6 ± 12.9 years) and 61 age and gender matched healthy volunteers were recruited. Patients had a diagnosis of CD for a mean of 6.7 ± 4.7 years (ranging from 0 to 18 years). The prevalence of chronic pain was 57% in the healthy volunteers group and 59% in the CD group (p = 0.854). In both groups the prevalence of neuropathic pain was established to be 20%. The most commonly reported painful area in both groups was low back pain (26% in the CD group and 20% in the healthy control group). In the CD group, patients with pain were significantly older compared to patients without pain (43.6 ± 12.5 years vs 33.8 ± 11.4 years, p = 0.003). No differences between these two sub-groups were found regarding gender, BMI or CD duration.
Conclusions: Chronic pain is very prevalent in CD and is very similar to the prevalence observed in the general population.

20. Chronic pain in patients with COVID-19: Cross sectional study

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Background: Coronavirus disease 2019 (COVID-19) is a contagious disease caused by SARS-CoV-2. Symptoms of COVID-19 are variable, but often include fever, cough, headache, fatigue, breathing difficulties, and loss of smell or taste. Neurological complications include cerebrovascular incidents, acute polyneuropathy and myelitis. The aim of this cross-sectional study was to establish the prevalence of chronic pain in COVID-19 patients.
Methods: All participants were prospectively evaluated. Pain was assessed with the use of the painDETECT and the DN4 questionnaires.
Results: Fifty-two COVID019 patients (67% females, mean age 48.4 ± 16.1 years) and 52 age and gender matched healthy volunteers were recruited. Patients were evaluated on average 4.2 ± 2.9 months after being diagnosed with COVID-19. From the classic acute COVID-19 symptoms, 50% had anosmia/hyposmia, 48% ageusia/hypogeusia, 48% fatigue, 40% cough, 39% headache, 35% myalgias and 31% fever. The prevalence of chronic pain was 70% in the COVID-19 group and 73% in the healthy volunteer group. The most commonly reported painful area in both groups was lower back (35% in the COVID-19 group and 31% in the healthy control group). In 7 patients chronic pain (6 neuropathic, 1 nociceptive) developed after COVID-19 whereas 3 patients reported worsening of their pre-existing chronic pain (2 neuropathic, 1 nociceptive). In the COVID-19 group, patients with pain were significantly older compared to patients without (51.8 ± 17.0 years vs 40.9 ± 10.7 years, p = 0.022). No differences between the two sub-groups were found regarding gender, BMI, COVID-19 symptoms, COVID-19 symptoms duration or interval since COVID-19 infection.
Conclusions: Chronic pain is very prevalent in patients suffered from COVID-19 and its prevalence is similar to the prevalence observed in the general population. However, one in 5 COVID-19 patients reports that chronic pain

developed or deteriorated after their infection. Chronic pain, particularly neuropathic, should be considered as a symptom of the post-COVID syndrome.

VI: Chronic Pain III

21. COVID 19 pandemic influence on Pain Clinic patients of "Laikon" General Hospital of Athens

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Aim: Aim of study was to record the COVID 19 pandemic impact on pain scores and quality of life in patients with chronic non-malignant pain, during lockdown periods.
Material and Methods:119 patients, who have been taken care after "Laikon" General Hospital of Athens Pain Clinic, with non-malignant pain under control before COVID 19 pandemic outbreak, were studied. All of them were asked to complete questionnaires from the beginning of the first till the end of second lockdown, where the parameters recorded were pain score, ability to work, relationship with their family, friends, sexual life, psychological status, depression, optimism, and suicidal thoughts in a scale from 1 to 10 every trimester, and results were analysed and studied. All patients completed the same questionnaires according to the period before pandemic, as well. Need for extra analgesics' prescription, or medications' modification and supplementary analgesic medication, frequency of their appointments to pain clinic in comparison to the pre-pandemic era were also recorded. Statistical analysis of recorded parameters between the two lockdowns, their interval and pre-pandemic period followed questionnaires' collection, using χ^2 method.
Results: Most patients from "Laikon" General Hospital of Athens Pain clinic, demonstrated statistically significant worsening in recorded parameters, which was attenuated during second lockdown period (raise in recorded pain scores, raise in need for analgesics, need for supplementary antidepressants, and higher frequency of appointments to pain clinic), in comparison to the period before COVID 19 pandemic.
Conclusions: People lockdowns caused by COVID 19 pandemic had bad impact to quality of life and pain scores in patients with chronic non-malignant pain, with raise in pain clinic appointments' frequency and modification plus supplementation of pharmaceutical treatment. Further studies, with higher number of patients are necessary to support these findings, hoping of course that no more lockdowns will be needed.

22. Approach of the relationship between fibromyalgia and bipolar disorder through an interesting case report

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Introduction: 21% of patients suffering from fibromyalgia also suffer from bipolar disorder [1] and reversibly 50% of patients with bipolar disorder (BD) suffer from chronic pain syndromes including fibromyalgia [2]. Fibromyalgia and BD seem to share the same pathophysiologic mechanism [3]. The aim of this case report is to emphasize the interrelation of fibromyalgia and BD in order to improve the therapeutic management of those patients.
Method: A 45 years old female patient came into the Pain Clinic complaining about exacerbation of fibromyalgic pain for six months. She was receiving venflaxine 300 mg, Aripiprazole 10 mg, gabapentin 1800 mg, mirtazapine 30 mg daily. For analgesia she was taking a combination of paracetamol/ codeine in a daily dose of 4 gr/500 mg respectively and transdermal buprenorphine 70 μcg. Therapeutic interventions with trigger point injections and intra-articular injections on both knees was given. Past medical history: BD type II for 20 years, fibromyalgia for ten years, hypothyroidism. Social history: married with two children. She was working in administration of a public service. Physical examination: neck stiffness, tender points, WPI = 9 and SSS = 7, score on PHQ-9 questionnaire 20/27. Multivariant therapeutic approach: Adjustment of fibromyalgia pharmaceutical therapy. Communication with treating psychiatrist for modification of the therapy for BD. Complementary acupuncture therapy was provided. Evaluation of patient using VAS score and dose of analgesic medication on every session and three months after therapy. Questionnaire PHQ-9 was repeated at the end of therapy and three months afterwards.

Results: There was gradual reduction on the intensity of pain. The analgesic therapy was interrupted after the third session. PHQ-9 scored 5/27 at the end of therapy and 7/27 three months later.
Conclusions: Fibromyalgia and BD can coexist and the symptoms of one may shadow or worsen the symptoms of the other. Multivariant approach is needed for effective therapy and psychiatric intervention.

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23. The effect of Reflexology in patients with Fibromyalgia

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Aim: This study is to investigate the effect of Reflexology as an add-on treatment in patients with Fibromyalgia, receiving pregabalin as treatment.
Method: The study was conducted from September 2017 to February 2020.
79 patients (74 women and 5 men) with a mean age of 54.6 years were included.
Inclusion criteria:
- Diagnosis of Fibromyalgia >1 year
- Duration of pain >1 year
- Pain intensity >6 on VAS scale
- Not using Reflexology in the past

Results:
- Primary endpoint: Reduction of pain scores more than 30% in 3 months.
- Secondary endpoints: Functionality (in terms of rigidity and workability) in 3 months.

In all patients, the diagnosis of Fibromyalgia was made by completing the FIRST (Fibromyalgia Rapid Screening Tool) questionnaire (Greek version). The evaluation of the results was done with the pain intensity questionnaire in scale VAS as well as with observation, interviews, diaries.
All patients received Pregabalin medication at a recommended dose of 75–600 mg daily.
44 patients (56%) received normal medication. A mean reduction in pain of >50% was recorded.
35 patients (44%) did not reach the maximum dose due to side effects and the drug was stopped at 450 mg daily. These patients received 14, 20-min Reflexology sessions, in 12 weeks, in order to achieve the desired analgesic effect.
There was a reduction of pain >65% and a significant improvement in the secondary endpoints of functionality (significantly reduced morning stiffness, increased ability to work).
Conclusions: Reflexology may be beneficial as add-on treatment in patients with Fibromyalgia who are unable to receive the recommended dosages of their medication.

VII: Perioperative Care

24. Perioperative Analgesia in Major Oncology operations for the prolepsis of persistence of Chronic Neuropathic Pain

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Abstract: Perioperative Analgesia in Major Oncology operations for the prolepsis of persistence of Chronic Neuropathic Pain might include intravenous infusion of analgesics, concomitant drugs as well as invasive techniques in all surgical stages. Achieving highly effective analgesia presupposes the interdisciplinary collaboration of the surgeon and the anesthesiologist with the patient.
Purpose: To give prominence to the benefits of analgetics for the oncology patient undergoing surgery after having received appropriate perioperative treatment and starts analgesic protection from the time preceding surgical incision to the patient's complete recovery, as far as prevention of chronic neuropathic pain is concerned.
Materials & methods: Thorough review of scientific literature in scientific databases (PubMed, Scopus, hesmo.org, uicc.org, Signa Vitae) which are consistent with the way our department functions and in compliance with the protocols concerning the prolepsis of persistence of Chronic Neuropathic Pain in major oncology operation patients.
Results: Major analgesic outcomes and avoidance of persistence of chronic neuropathic pain, by taking into consideration the fact that postoperative oncology patients suffer from respiratory depression after invasive analgesia techniques. Also, we are prepared to reduce the use of opioids and their adverse effects, following the procedure below: (1) Choose, when allowed, a combination of general and epidural anesthesia to achieve maximum intraoperative and postoperative analgesia. (2) Intravenous administration of non-steroidal anti-inflammatories, paracetamol, dexamethasone 8mg, NMDA receptor antagonist (Ketamine 30 mg) before incision as well as local infusion of Ropivacaine 2% solution. (3) Intravenous infusion of lidocaine, fentanyl, remifentanil, morphine, tramadol, Mg, ketamine, during surgery by adjusting doses per patient and operative time. (4) Particular caution is suggested in the immediate postoperative period so as to avoid transition from acute postoperative pain to chronic neuropathic pain. Continue drop by drop administration of ropivacaine 2% from epidural catheter. Our armamentarium includes paracetamol, tramadol, dexketoprofen, oxycodone per os, PCA morphine, pain busters (paired drainage catheters with elastomeric pumps) of ropivacaine 2%, patch lidocaine and block nerve conduction. A medical record of the postoperative analgesic course of our patients is kept and completed by our medical and nursing staff.
Conclusions: Perioperative analgesia is our key concern in all oncology patients undergoing major surgeries, so as to prevent persistence of chronic neuropathic pain, taking into consideration the impaired health status of patients with acute pain conditions.

25. Perioperative analgesia for the prolepsis of persistence of post-thoracotomy chronic neuropathic pain

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Abstract: Proper perioperative analgesic management of Thoracic surgery cases constitutes a primary factor for the successful outcome of the surgery, having created the ideal conditions for both the thoracic surgeon and the anesthesiologist, but mainly for the avoidance of postoperative pain for the patient. 5%-67% of thoracic surgery cases reports post thoracotomy pain syndrome that can persist for up to 20 years.
Purpose: To give prominence to the benefits of analgesics for the patient undergoing thoracic surgery after having received appropriate perioperative treatment and starts analgesic protection from the time preceding surgical incision to the patient's complete recovery, as far as prevention of chronic neuropathic pain is concerned. Complete analgesic protection presupposes the interdisciplinary collaboration of the surgeon and the anesthesiologist with the patient.
Materials & methods: Thorough review of scientific literature in scientific databases (PubMed, Scopus, SignaVitae) concerning perioperative analgesia in thoracotomies.
Results: In our effort to prevent the persistence of Chronic Neuropathic Pain, we always take into consideration the fact that thoracotomy patients suffer from respiratory complications/uneasy breathing with invasive analgesia techniques. Therefore, we remain alert to reduce the use of opioids and their adverse effects on those patients. Major

analgesic outcomes and avoidance of persistence of chronic neuropathic pain can be achieved with the following procedure: (1) Intravenous administration of non-steroidal anti-inflammatories, paracetamol, dexamethasone 8 mg, NMDA receptor antagonist (Ketamine 30 mg) before incision as well as local infusion of Ropivacaine 2% solution. (2) Intravenous infusion of lidocaine, fentanyl, remifentanil, morphine, tramadol, Mg, ketamine, during surgery by adjusting doses per patient and operative time. (3) Particular caution is suggested in the immediate postoperative period so as to avoid transition from acute postoperative pain to chronic neuropathic pain. Our armamentarium includes paracetamol, tramadol, dexketoprofen, oxycodone per os, PCA morphine, pain busters (paired drainage catheters with elastomeric pumps) of ropivacaine 2%, patch lidocaine and thoracic epidural analgesia with ropivacaine pumps and intercostal block nerve conduction. A medical record of the postoperative analgesic course of our patients is kept and completed by our medical and nursing staff.
Conclusions: Perioperative analgesia is our key concern in all thoracic surgeries, so as to prevent post thoracotomy pain syndrome. For the purpose of this concern, we administer analgesic treatment on all surgery stages as well as keep postoperative analgesic record.

26. Effect of anxiety disorder and depression in postoperative pain

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Introduction: The aim of this study is to briefly present and to evaluate the elements that show whether the psychological background of the patients, particularly anxiety disorder and depression, are involved in the mechanism of postoperative pain, to examine the mechanisms involved in the intensity of pain and to report the methods used to evaluate and treat pain after a surgical procedure in this vulnerable group of patients.
Methods: We performed a literature review of relevant articles, mainly published during the last decade, in MEDLINE database and 15 articles were used.
Results: Clinical studies lead us to the conclusion that the intensity of postoperative pain is directly related to the levels of anxiety and to the presence of depression. Undertreatment and delay in managing acute postoperative pain can lead to the development of chronic pain syndromes with consequent negative effects in life and in the level of functionality of patients. A number of neurobiological processes could further explain the effect of psychological factors on pain, especially after surgical procedures.
Conclusion: The psychological aspect of acute postoperative pain can be evaluated during the preoperative period, in order to relieve the intense negative psychological experience of pain after surgery, by using pharmacological therapy as well as psychotherapy. It is of great importance to perform psychological monitoring of patients after surgery, since it has been observed that the psychological phenotype of patients is altered during the first postoperative days. Catastrophology is involved in elevated intensity of postoperative pain, therefore the appropriate use of relevant clinical interventions would be beneficial. Psychosocial and psychophysiological evaluation is of great importance in order to detect patients at high risk and to offer individualized management and targeted preventive preoperative planning. The heterogeneity of patient population going to surgery increases the need for further studies which would evaluate appropriate therapeutic regimens, individualized for each special group of patients.

27. Anesthetic management of a patient with Takotsubo syndrome undergoing hip fracture repair

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Introduction: Takotsubo syndrome (TTS) is a type of acute reversible left ventricular dysfunction in the form of acute catecholaminergic myocardial stunning in the absence of occlusive coronary artery, with considerable patient morbidity and mortality[1]. The optimal anesthetic management of patients with TTS remains unclear. We would like to share our experience with a patient with TTS presenting for hip fracture repair.
Methods: An 80-year old female complained of dyspnea and retrosternal chest pain after subcapital hip fracture. Her diagnostic workup revealed elevated markers of myocardial necrosis and pathologic findings from transthoracic echocardiogram. Left ventriculography imaging along with an unremarkable coronariography was suggestive of TTS. After the initial control of acute myocardial crisis, the patient was scheduled for hip fracture repair, under spinal anesthesia. Having obtained patient's informed consent, we performed an ultrasound guided fascia iliaca

compartment block (FICB) (30 mL ropivacaine 0.5%/8 mg dexamethasone). Twenty minutes after the FICB, the patient was placed in the lateral decubitus position and 3 mL levobupivacaine 0.5% were injected intrathecally. A bolus dose of dexmedetomidine 1 mcg/kg followed by a continuous intravenous infusion at a rate of 0.5 mcg/kg/hour was initiated 10 min before lumbar puncture. The infusion was reduced to 0.25 mcg/kg/hour 30 min later due to a drop in systolic blood pressure 40% below baseline, until the end of surgery.
Results: No complications occurred in the postoperative period. The patient walked on the second day and one week later she was discharged from hospital.
Conclusion: To our knowledge, there are no reports of intraoperative dexmetomidine administration in TTS patients. Avoidance of adrenergic agonists and initiation of antiadrenergic therapy is suggestive by the pathogenesis of the syndrome [1]. Our main goal was the control of stress response [2, 3], performing FICB to facilitate perioperative analgesia and administering dexmetomidine, an agent with sedative, anxiolytic and analgesic properties.

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28. Post-surgical analgesia management with transdermal buprenorphine patch on a patient with compartment syndrome after tibia plateau fracture with multiple operations before the end of his rehabilitation

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Introduction: Buprenorfine is a semisynthetic opioid which is used as a therapeutic substitute of opioid drugs and as medium to strong painkiller in smaller doses for the management of chronic pain. It's first use goes back in 80's. The use of buprenorphine as therapeutic substitute was approved in 2002 in USA and 2006 in Europe. The administration of buprenorphrine, in contrast to other opioids, does not provoke euphoria. It binds as an agonist/antagonist to μ and κ receptors of the brain and last up to 72 hours. Compartment syndrome is a serious pathological situation where we have increased pressures within a compartment. Compartment is a group of muscles, blood vessels and nerves which are surrounded by a strong membrane called fascia attached to bone. Fascia cannot be expanded therefore the oedema within a compartment can lead to increased pressures. As a result, it can create muscle, vessel and nerve damage. The increased compartment pressure can block the blood flow in the compartment and lead to lack of oxygen in tissue (ischemia) and cellular death. Patient feels an acute pain, unbearable as described and strong opioids provide moderate pain relief. Purpose of the current study is to evaluate the analgesia and efficiency of buprenorphine patch not only in patients with chronic pain but as post surgical analgesia in patients who suffered compartment syndrome and need multiple operation before the end of the rehabilitation.
Case presentation: A male patient, 36 y.o. with no past medical history attend A/E department after a fall from height and intense knee and proximal tibia pain. He suffered from a tibia plateau fracture. Neurovascularly was compromised with absence of pulses in posterior tibial artery, reduced sensation in the anterior compartment of the tibia and the passive movement of the toes triggered excruciating pain. Lower limb vein triplex was performed to exclude DVT. Clinical diagnosis of compartment syndrome was done and the patient was taken to OR where fasciotomy both sides was performed and all four compartments were released. Copious haematoma was evacuated, a bridging femur tibia ex fix was applied and the wound left open. The phased closure of the trauma was achieved in four stages within the next 30 days.
Outcome and follow-up: Spinal anaesthesia was the preferred method and for the post-op pain management was applied transdermic buprenorphine patch 70mcg in combination with 1 gr three times a day of IV paracetamol. Gradual decrease of buprenorphine dose lasted for the period the wound was open until the final closure and the reduction of the fracture. Acute and continuous pain is constant in the post op period in patients with long bone fractures complicated with compartment syndrome. Most of the times the pain can not be managed with routine analgesia, even with the additional use of opioids. With the application of buprenorphine patch on the specific patient, the pain was not only significantly reduced but also was not in need of any additional painkillers. The Visual Analog Scale (VAS) was 2to 3 the first week and 1 to 2 the second.
Discussion: Anaesthetists are familiar with the pain management and their administration methods. Post op analgesia methods and their application is part of the ongoing perioperative pain management. The new

semisynthetic opioids offer excellent challenges and opportunities to use and study their field of application not only for the chronic malignant pain but with also for post op analgesia under constant monitoring. It can provide sufficient and safe analgesia in difficult cases such as the tibia plateau fracture in combination with the compartment syndrome.

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VIII: Miscellaneous

29. The individualised Pharmacologic approach of Enhanced Recovery After Surgery (ERAS) pathways: Analgesics and local anaesthetics

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Background: Enhanced Recovery After Surgery (ERAS) is multidisciplinary, evidence-based approach in the perioperative care of surgical patients that aims to reduce postoperative complications, length of hospital stay, readmissions and healthcare costs by implementing protocols throughout patient's perioperative journey. (1) The purpose of this review is to highlight the pharmacologic perspective of the most common drugs utilised in ERAS protocols, present current evidence regarding optimal and individualised use of them, discuss ways how clinicians can maximise the benefits of their patients and outline future advancements in the field.

Methods: A wide literature search was performed to identify high quality evidence on the pharmacology of common analgesics and local anaesthetics used in ERAS protocols. PubMed, Embase and Scopus databases were searched using various combinations of terms related to perioperative analgesia, personalised/precision/individualised medicine, local anaesthetics and Enhanced Recovery after Surgery protocols, up to January 2021.

Results: Literature search revealed known and less known pharmacological properties of common analgesics and local anaesthetics, unveiled pharmacodynamic, pharmacokinetic and pharmacogenomic properties of drugs that can improve efficiency and reduce adverse-effects with a more individualised patient approach and suggested evidence-based ways of serving the purposes of ERAS protocols.

Conclusions: Clinical Pharmacology plays an essential role in improving patient care within ERAS pathways by implementing basic and advanced pharmacologic properties and pharmacogenomic data towards a more patient-centered approach.

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30. Assessment of dyspnoea in Covid 19 patients using modified Borg scale

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Background: Dyspnoea (shortness of breath) is a common excruciating symptom. Shortness of breath is a feeling associated with impaired respiratory function. As difficulty breathing, I can not breathe. It occurs in 64 % in Covid 19 patients.

Objective: Our goal is to evaluate dyspnoea using Borg scale that assesses the functional state of respiratory function.

Material–methods: We assessed (92) Covid 19 patients with a categorical ten-point rating, a corresponding verbal description (Table 1).

Table 1. 1–10 Borg Rating of Perceived Exertion Scale – Breathing Difficulty.

1 - 10 Borg Rating of Perceived Exertion Scale	
0	Rest
1	Really Easy
2	Easy
3	Moderate
4	Sort of Hard
5	Hard
6	
7	Really Hard
8	
9	Really, Really, Hard
10	Maximal: Just like my hardest race

Patients were aged between 44–78 years old. Fifty of them (50) were obese, body weight >greater than 90 kg with comorbidities (hypertension and diabetes mellitus). The assessment was performed by a specialist anaesthesiologist (pain clinic) on the Borg scale.

Results: (12) Covid 19 patients with moderate dyspnoea. (30) Covid 19 patients with severe dyspnoea (hard). (46) Covid 19 patients very severe dyspnoea (really hard). (4) Covid 19 patients maximum intolerable dyspnoea (maximum). We immediately intubated them. There's not internationally accepted way to assess shortness of breath. Scales are commonly used to assess respiratory difficulty (for example: respiratory distress observation scale).

Conclusions: The Borg scale has been used successfully in Covid 19 patients. Every patient experiences dyspnoea differently, depending on the severity of the disease. However, it seems that the assessment of dyspnoea on the Borg scale, taking into account co-factors leads to safer monitoring of severely ill Covid 19 patients.

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31. Posttraumatic stress in Covid 19 patients after extubation in an intensive care unit (ICU)

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If you're patient in an ICU, this fact is in itself a traumatic unpleasant event.

Covid 19 patients who admitted to the intensive care unit urgently, are provided with a wide range of machines for safe monitoring.

Objective-purpose: The purpose is to record the physical and emotional unpleasant experience during their hospitalisation in ICU.

Material-methods: We conducted a study of 18 patients, (44 to 82 years old), ASA II-III, 12 men and 6 women. We filled out a questionnaire.

1. What was the difficulty in communication?
2. What was scary in the environment (ICU)?
3. Do you suffer from insomnia? (noises from ventilators or monitors).
4. Do you feel pain ?(VAS scale)
5. Do you feel muscle weakness?
6. Do you know where are you ?(disorientation)

7. Do you want to talk to your family?
8. Emotional changes (anger, aggression, arousal.)
9. Can you swallow?

Results: (8) Covid 19 patients difficulty in communication. (14) Covid 19 patients were scary. (12) Covid 19 patients suffered from insomnia. (16) Covid 19 patients felt pain VAS >8. (18) Covid 19 patients felt weakness. (11) Covid 19 patients with disorientation. (6) Covid 19 patients with emotional changes (anger, aggression, arousal). (12) Covid 19 patients: difficulty swallowing. Symptoms such as muscle weakness or insomnia persist 6 months after discharge from the hospital.

Conclusions: Memories of posttraumatic stress in Covid 19 patients in an ICU appear to be different, unprecedented and particularly stressful. These patients need a long term psychological support ie desensitisation. A plan is required : I start from the beginning to live.

32. Implementation of a multimodal analgesia protocol in a burn patient in the emergency department

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Introducton: Survival post-severe burn has increased significantly, and prognosis is not limited to survival or functionality, but extends to ensuring a pain-free quality of life. Pain management is one of the most crucial challenges in the care of severely burnt patients and includes pharmacological and non-pharmacological methods.

Methods: Pain management report of a burn patient in the emergency department.

Results: A 37-year-old male patient was admitted to the emergency department with hands, lower extremities, perineum and lower abdomen burns, after an explosion of a tank and leakage of steam and chemicals. The burn injury of partial thickness occupied about 25% of the total body surface. During the initial ABCDE assessment no life-threatening condition was found and attention was focused on pain management (reported VAS score 10). Wet gauges were applied to the burn area and paracetamol 1 gr, morphine 10 mg (in increments), pethidine 100mg, ketamine 60 mg, dexamethasone 8 mg, parecoxib 40 mg and midazolam 3 mg were administered intravenously, without significant improvement. A PCA pump with simultaneous continuous infusion and on-demand boluses of a solution of morphine, ketamine, lidocaine and midazolam was used, resulting in pain improvement (VAS score 5/10). Analgesia with PCA and systemic administration of paracetamol was continued in ward, where the patient stayed for 24 hours steadily improving (VAS score 4/10). On the 2nd day decision was made to transfer the patient to a specialised burn centre.

Conclusions: Burn pain is complex and unpredictable, with features of nociceptive, psychogenic and neuropathic pain, including a strong element of hyperalgesia. Unfortunately, despite recognizing the importance of analgesia in the management of burns, such patients are often undertreated in the emergency department. Continuous pain reassessment and recording and the application of individualized multimodal analgesia protocols are required, with emphasis placed on the use of PCA pumps in a monitored care unit.

33. Diplopia due to local anesthesia. A very rare complication

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Introduction: Local anesthesia for dental procedures is considered relatively safe since, apart of anaphylactic reactions, only rare complications are reported. Visual disturbances such as diplopia that is presented below account for 0.1% of all complications.

Method: A 57 year old woman was administered a posterior superior alveolar nerve block for the dental filling of the first right molar tooth with the use of Articaine Hydrochloride 4% with Adrenaline 1:100,000 in a 30 gauze syringe. Soon after she complained of diplopia and dizziness and was referred for evaluation by a specialist. Psychiatric evaluation did not reveal any psychopathology other than the presence of great distress. Neurological examination revealed horizontal diplopia and limitation of the lateral rectus muscle to abduct the right eye. Pupil reaction was normal and no ptosis was present. It was diagnosed right abducent nerve palsy. The patient was reassured of the transient nature of symptoms and the eye was covered to minimize nausea. Symptoms resolved

gradually after 90 min.
Results: Literature suggests that diplopia occurs most frequently after maxillary injections (77.8% vs 57.1% for mandibular injections) and after posterior superior alveolar nerve block. Various mechanisms, other than improperly placed nerve block are proposed. The most possible hypothesis of retrograde flow of anesthetic solution into the venous system explains that the anesthetic solution, after an accidental entry into the venous system, will drain into the pterygoid venous plexus, and at last into the cavernous sinus, where the abducent nerve is sited. These complications may be related to anatomic variations
Conclusion: Diplopia during local anesthesia is very rare and usually transient, however is very alarming and might lead to medicolegal issues. Generally is proposed to always aspirate before injection, stop any procedure and refer the patient if symptoms persist.

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34. The effects of preemptive dexketoprofen with two different doses of tramadol use on postoperative pain relief

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In patients with moderate to severe pain, it is difficult to obtain effective analgesia with a single drug and, therefore, analgesic drugs are commonly combined to achieve optimal control of pain as combination of analgesics are often particularly effective [1, 2].
Aim: The present study aimed to evaluate the analgesic efficacy and safety of the single dose administration of dexketoprofen 50 mg/tramadol 100 mg iv in comparison with the dexketoprofen 50 mg/tramadol 200 mg in moderate to severe acute pain after total laryngectomy.
Material and methods: 36 patients undergoing surgery for laryngeal or hypopharyngeal epidermoid carcinoma, requiring a partial or total laryngectomy, took part in this study. Informed consent was obtained from all patients. Inclusion was decided during the systematic preanesthesia consultation, when it was clear that there was no contraindication to the use of the analgesic drugs prescribed. Patients in group A received IV 50 mg dexketoprofen and tramandol 100 mg and group B received IV 50 mg dexketoprofen and tramandol 200 mg, 10 min before surgery. In the first 3 postoperative days, we evaluated the intensity of acute postoperative pain, anxiety, and pain relief with VASs. These scales consisted of horizontal lines graduated from 0 to 10, with 2 end points labeled on the front side: "no pain" to "worst pain," "no anxiety" to "maximal anxiety," and "no relief of pain" to "total relief of pain." The first evaluation was performed when the patient had just recovered from anesthesia, immediately before he was taken from the recovery room, at the time defined as hour 0 (H0). The assessments were then performed every 6 hours in the first 24 hours, and every 8 hours in the following 48 hours, that is, until the postoperative 72nd hour (H72).Patients were asked to quantify the level of pain and anxiety they were experiencing at the moment of the assessment, just before the analgesic administration. The nurses performed the assessments of heart rate (radial pulse), blood pressure and respiratory rate in the same times.
Results: Demography and baseline characteristics of different treatment groups were comparable**.** After awakening the patients in the group B had significantly ($P < 0.05$) less pain [median VAS 2,5 compared to the group A 4,1]. A 30% reduction of fentanyl requirement was seen in the group B [median 0.1 (range 0–0.3) mg] compared to the group A [0.15 (0.05–0.35) mg] in the postanaesthesia care unit ($P < 0.05$). Nausea and vomiting were observed more in Group B than Group A, and patient satisfaction was better in Group A ($P < 0.05$).
Conclusions: After laryngeal surgery for cancer, pain can reach high levels, particularly in the first hours following recovery. Dexketoprofen 50 mg combined with tramadol 200 mg provided good analgesia in postanaesthesia care unit with long duration in a model of moderate to severe pain.

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2. ROUND TABLE DISCUSSIONS

Round Table Discussion I: Obstetrics & Paediatric Update

The promising novelty nerve blocks in the paediatric population

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The number of nerve blocks performed in the pediatric population is constantly increasing nowadays, contributing to better post-op analgesia and outcomes. Multiple studies by the Pediatric Regional Anesthesia Network (PRAN) and the French-Language Society of Pediatric Anesthesiologists (ADARPEF), the use of ultrasound, the push for multimodal analgesia on the one hand, and the evolution of various innovative interfascial nerve blocks performed on the thoracic and the abdominal wall (i.e., Pecs blocks, Posterior TAP, Serratus Anterior Plane block, Rectus Sheath Block, Quadratus Laborum blocks, Erector Spinae block, super-inguinal fascia illiaca) on the other hand, have led to this trend. The ease of their performance, the steeper learning curve and the safer adverse effect profile compared to other "traditional" central regional techniques, still providing comparable analgesic results, accounts for this trend towards interfascial plane blocks performed for pediatric surgeries lately.

This presentation focuses on the techniques of administration (using ultrasound), the anatomic considerations, the indications and limitations of these innovative interfascial nerve blocks performed on children. We are also going to talk about the appropriate for age doses and concentrations of local anesthetics and the adjuvant drugs used for blocks in the pediatric population, the more often and the most serious complications we can come across when performing these "high volume" blocks, what should alert us in the sleeping child and what is the best way to cope with an inadvertent complication, should this happen. After all is it really worth the trouble and why. Finally, we will talk about the reinvasion of subarachnoid anesthesia in the pediatric anesthesia practice and some issues of current debate in the pediatric regional anesthesia literature.

Round Table Discussion II: What did the COVID-19 Pandemic teach us?

What pandemic teaches us about the patient of a pain center

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Although pain treatment has been described as a fundamental human right, the Coronavirus disease 2019 (COVID-19) pandemic forced healthcare systems worldwide to redistribute healthcare resources toward intensive care units and other COVID-19 dedicated sites. As most chronic pain services were subsequently deemed non-urgent, all outpatient and elective interventional procedures have been reduced or interrupted during the COVID-19 pandemic in order to reduce the risk of viral spread. The shutdown of pain services jointly to the home lockdown imposed by governments has affected chronic pain management worldwide with additional impact on patients' psychological health.

Chronic pain is a complex multidimensional experience severely compromising the QoL, often limited ability to work, sleep, and affected social interactions with friends and family. Because of compromised health care services and their limited accessibility during the pandemic, socioeconomic disadvantages, and exposure to enhanced phychological stressors, patients with chronic pain may experience an exacerbation of symptoms.

Telehealth and telemedicine have been suggested as a means for treating chronic pain patients at home in nonemergent conditions, as well as to assure continuity of care of patients after hospital discharge. Many technical solutions, with different costs and benefits, have been utilized for remote assessment and treatment of chronic pain. Telephone consultation is the first and low-cost example of telemedicine for remote treatment of pain.

As a matter of fact, the evidence on telemedicine efficacy in chronic pain is lacking according to some published systematic reviews [MartorellaG, 2017 and SlatteryBW, 2019], including a Cochrane review [EcclestonC, 2014]. The effects of psychological therapies delivered via the Internet on pain, disability, depression, and anxiety are promising but come from a small number of trials so that the estimate of the effects remains to be assessed.

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Peripheral neuropathy in the COVID-19 era

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The term peripheral neuropathy refers to disorders of the peripheral nervous system (PNS) including single and multiple (asymmetric) mononeuropathies, and symmetrical involvement of many nerves (polyneuropathy). Further classification depends on a mixture of phenomenological, neurophysiological, pathological and aetiological parameters. The temporal evolution of symptoms divides polyneuropathy (PN) into acute or chronic. Acute PN e.g. Guillain-Barré syndrome (GBS) is rare but an important entity to recognise because whilst at times severe, it is treatable. Most PN are chronic and usually develop over several months.

Coronavirus disease 2019 (COVID-19) is a contagious disease caused by SARS-CoV-2. Symptoms of COVID-19 are variable, but often include fever, cough, headache, fatigue, breathing difficulties, and loss of smell or taste. Neurological complications have been reported in the context of COVID-19 infection both in the acute and subacute phase, as part of the post-COVID syndrome or as a result of the vaccination against SARS-CoV-2.

In the acute phase, it has been reported that GBS prevalence is 15 cases per 100,000 SARS-CoV-2 infections. Demyelinating GBSs variant in particular is the most prevalent. Although not necessarily directly caused by SARS-CoV-2, prolonged stay in ICUs is associated with increased risk of ICU related neuro-myopathy. In the chronic phase, preliminary results of ongoing prospective observational studies suggest that patients suffered from COVID-19 have increased risk of developing mild axonal peripheral neuropathy that shows evidence of length dependency.

Interestingly, it has been reported that – even in the absence of electrophysiologically confirmed PN – 1 in 5 patients reported deterioration of pre-existing neuropathic symptoms or development of new neuropathic symptoms, particularly pain, after COVID-19. Such symptoms tend to persist for months.

Further studies are needed to describe the natural history of the PNS involvement during and after COVID-19 infection.

Round Table Discussion III – ESRA Hellas: Redefining the Position of Regional Anaesthesia in the 21st Century

Regional Anaesthesia: Key component analgesia in multimodal personalized postoperative pain management

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The benefits of multimodal analgesia as a way of managing perioperative pain are well evidenced. The synergic effect maximizes pain relief at lower analgetic doses, thereby reduces the risk of adverse drug effect. But despite the progress in non-opioid analgesics and multimodal pain regiments they still can't achieve significant pain alleviation on their own.

Therefore regional anesthesia plays a crucial role in multimodal plan providing enhancement to perioperative pain management.

But which is the most appropriate regional technique to choose and what skills and infrastructure are required for its implementation?

A personalized approach will define the right pathway for achieving balanced and effective perioperative pain management. Incorporating factors specific to the patient (sex, comorbidities etc.) the intended surgery (surgical approach etc) and the resources available in the institutducation of ward staff, ultrasound device etc) we can structure the suitable multimodal plan.

Regional Anaesthesia in Day Case Surgery: Challenges and Unresolved Issues

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Day surgery (outpatient or ambulatory surgery) provides high quality and efficient care for a wide variety of surgical procedures with primary aim early recovery and satisfaction of the patients, while the health system benefits from the reduced costs. The use of regional anesthesia has grown in popularity in day surgery. The regional technique chosen depends on the surgical site, the anticipated length of the procedure, the analgesic needs and the desired duration of postoperative pain control. Regional anesthesia techniques include central neuraxial blockade, peripheral nerve blocks, local infiltration and intravenous regional anesthesia (Bier's block). Benefits of regional anesthesia compared to general anesthesia constitute the decreased incidence of postoperative nausea-vomit (PONV) and of postoperative pain, the reduced need for analgesics, the increased alertness, the shortened post-anesthesia care unit (PACU) time, the reduced costs However, the choice of regional anesthesia in day surgery is related with various problems. First of all, the regional anesthesia requires active co-operation of patient and surgeon. Moreover, when a regional technique is chosen as the most suitable for a day surgery different issues arise, such as prolonged time needed for execution and installation of the block, the extended recovery time for full block regression, the delayed patient mobilization. Induction may be associated with patient discomfort, movement during surgery can be a problem in a very anxious patient and If the block fails the anaesthetist must be on stand-by to convert to general anaesthesia immediately. Additionally, there is a risk of complications specific to each regional technique and to the local anaesthetic drug used, such as postdural puncture headache (PDPH), transient neurological symptoms, nerve damage, urinary retention, local anesthetic toxicity.

Artificial Intelligence and Robotics in Regional Anaesthesia: Do they have a role?

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"I expect it [Artificial Intelligence - AI] to play a foundational role in pretty much every aspect of our lives"

We are living in the fourth industrial revolution, characterised by the dominance of computers and technological advances including artificial intelligence (AI) and robotics [1]. Such developments are likely to have a profound impact on humanity, reforming our work environment and daily life.

Artificial intelligence refers to the simulation of human intelligence in machines [2]. Computers can be programmed to imitate neuronal activity and appear to think like humans or mimic their actions, with an attempt to find solutions to complex problems in a variety of scientific domains, including medicine. Such programs are able to make calculations with higher accuracy and speed, compared to humans, using large volumes of data. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning, planning, programming, creativity and problem–solving. AI renders machines capable of interpreting their environment to act for the purpose of achieving a specific goal. Importantly, AI systems can be capable of adapting their behaviour (up to a point) to solve problems with relative autonomy, via analysis of previous actions and outcomes. Robots are machines with an abundance of sensors, that are properly designed to perceive the outer environment and to interact with it, finally executing a series of programmed actions [3].

Artificial intelligence and robotics may provide extremely powerful advances with multiple applications in various medical fields. The emphasis, for the moment, is on surgery and radiology, and with the first related literature reports having appeared at the end of the previous century [3]. In anaesthesia, however, their development was slower, and the first attempt in automation was the introduction of computerised pharmacokinetic model – driven continuous infusion pumps. These attempts resulted in the first target–controlled infusion (TCI) device for administering propofol.

More recently, research has demonstrated that AI may also be useful in Regional Anaesthesia (RA), by identifying key anatomical features and by facilitating Ultrasound–Guided Regional Anaesthesia (UGRA) [2, 4]. The initial challenge in UGRA is an understading of the sono–anatomy, to acquire and interpret ultrasound images [2, 5]. This remains an under–explored area of research and is known to be imperfect amongst anaesthesiologists. While improvements in ultrasound technology provide greater image resolution, developments in AI can be helpful and may be employed to support the application of this technology to identify the salient sono–anatomy. In this regard, a field of AI called “computer vision” has received particular attention as it enables computers to interpret the visual world, most commonly using a technique called deep learning.

Artificial intelligence systems in RA are emerging [2, 6] Among them, the development of a deep learning–based system called ScanNav Anatomy Peripheral Nerve Block (Intelligent Ultrasound, Cardiff, UK) has recently received attention in literature [2–4]. This system uses deep learning to identify anatomical structures on B-mode ultrasound and applies a colour overlay to those structures in real time (as summarised below taken from Bowness *et al*, 2021) [5]. The labelling is achieved using a convolutional neural network, based on the U-Net architecture. Data (greyscale ultrasound images) that are entered, pass through a series of computational (neural) layers, with each layer extracting specific information. In the initial “contracting” path, each of the down–sampling layers applies a series of convolutional filters to extract image features, and then halves the resolution for the next layer. By this down–sampling, the AI machine can understand better what is present in the image, but it loses information about where some features are. In the subsequent “expanding” path, up–sampling layers apply further convolutional filters, doubling the resolution, until the final image is once again at the initial resolution. The up–sampling helps the network understand where the features are in the image. “Skip connections” facilitate the network to reuse information from higher layers, so that it can learn to finetune the details for the output segmentation (recognition of a specific anatomical structure/area and application of a colour overlay).

During development of the AI system ScanNav Anatomy PNB, a separate network was created for each anatomical area of interest (the region scanned for each block). Ultrasound videos for each area were allocated at random to training (90%) or testing (10%), with training data for a region comprising of pairs of images. In each pair, the first element is an unmodified still frame image and the second one a manually segmented colour overlay corresponding to a specific view. As still frame image pairs were presented, the network learned to make associations between the area of the colour overlay and the area on the underlying B-mode ultrasound image, and thus learned to recreate the desired output colour overlay. The 10% of data reserved for testing was used to evaluate the network’s performance after training. This is a supervised machine learning process, in which, learning is directed by human input at each stage. A typical training set consisted of 115.000 pairs of still frame images for each network, whereas over 800.000 images were finally labelled, evaluated and utilised.

The device has received approval for clinical use by the regulatory authorities in Europe and is currently being reviewed by FDA in the USA. In addition, an objective and quantitative assessment of the system is currently taking place, to frame its exact impact on the spectrum of training and clinical practice for both experts and non-experts anaesthesiologists. The goal is to highlight AI position in current clinical practice, and to focus on its future role in education and training. AI technology in RA indeed has limitations and inaccuracies, but automated medical image interpretation systems already exist, with the future potential to surpass human performance in such a process.

Regarding application of robotics in RA, some preliminary studies have been published. In this context,

researchers developed a robotic needle driver for spinal blocks (nerve roots and facet blocks). Their equipment consisted of a robotic needle driver mounted on an interventional table and a joystick located in a control panel separated from the robot. A robot controller with safety features was installed in a computer and connected to the robot by cables. After application in cadavers and utilisation in humans they concluded that robotic spinal blocks are as feasible as manual blocks. Subsequently, other researchers developed a more general device for the guidance of soft-tissue injections, as RA is [3].

Similarly, other researchers established a control algorithm given a predetermined needle trajectory. Then, a robotic arm (C-Arm) drove a flexible, spinal needle toward the target (an animal specimen) and performed the puncture under a closed-loop control from a software guided by real-time X-ray images. This system aimed to create a pathway for needle driving given the initial coordinates and to optimise the plan for minimal pressure on tissues, also taking into account the possible obstacles. Other applications of robotics to RA have focused on peripheral nerve blocks, for example, use of the Da Vinci Surgical System to perform a robotically assisted ultrasound-guided nerve block. Researchers proved that robotically assisted RA is feasible; however, the cost and number of personnel needed to perform robotic RA is not practical currently. A system consisting of equipment specifically designed to perform robot-assisted UGRA is the Magellan, designed and developed at the McGill University in Canada. The Magellan has four components: a standard nerve block needle and a syringe mounted via a custom clamp to a robotic arm (JACO arm, Kinova, Canada), an ultrasound machine, a joystick (Thrust Master, New York, USA), and a control software. This system was designed to work with any ultrasound machine with a video output. The ultrasound video output is captured and displayed on the user interface of the control software. The system is provided with safety features which pose no risk for patients in the case of errors or failure. However, there is a potential danger of overreliance on robotic assistance during training. Although variability may be reduced among trainees, overall competence may be inadequate. Such deskilling would expose anaesthetists during emergencies and equipment failure. Therefore, it is important to carefully design robotic interventions in training as a feedback system to aide and not supersede the learning process.

In conclusion, the potential for utilisation of AI and robotics in UGRA is yet to be determined. Few applications are currently employed in daily practice and with limited scope. However, anatomical knowledge and ultrasound image interpretation are of paramount importance in UGRA, but the human performance and teaching of both are known to be fallible. Therefore robust, reliable AI and robotic technologies could support clinicians to optimise performance, increase uptake of and standardise practice in UGRA. They will likely offer innovative solutions to change service provision and enhance education in the future. Despite their limitations, such innovative modalities should not be perceived with scepticism; rather, they should be embraced as an opportunity for the promotion of the RA subspecialty in a modern, progressive manner.

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Round Table Discussion IV: Chronic Pain – Therapeutic Approach

Deprescribing is essential for good prescribing

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In 2017 the World Health Organization recognized the potential patient-related harm of polypharmacy as a matter in need of attendance in the years to come and it was set as a priority in the Medication without Harm Initiative. Polypharmacy is rather common in the elderly patients due to their multimorbidities and in patients with chronic pain. It has been related to drug adverse reactions, increased length of hospital stay, falls and increased morbidity. All these are augmented by the number of different drugs and the nature of the disease. Risk factors of polypharmacy are increasing age, female gender, low educational level and socio-economic status, multimorbidity and number of hospitalizations.

The term deprescribing comes to confront this issue by means of establishing a well designed plan of discontinuing or tapering off drugs that can cause potential harm to the patient. It is based on the principles of revision of all inappropriate drugs, of gradual reduction, dicontinuation or replacement of these drugs, of designing a certain plan of action along with the patients' education and cooperation. Guidelines already exist for certain kind of drugs (antihypertensives, statins, antipshychotics a, benzodiazepines) with positive outcomes.

In the case of opioid deprescribing in chronic pain management the challenge escalates since there are further issues to be addressed. Opioid withdrawal, the fear of changing the pain management status quo and a level of uncertainty regarding the optimum tapering opioid plan are barriers in the process. Guidelines on opioid deprescribing are in need to address all these matters of concern.

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Cannabinoids: A new friend or just another pandemic?

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Cannabis is a plant, native to Greece, the cultivation of which was under the protection of the State up until 1957. In 1961, due to pressure exercised mainly by the US, the UN proceed with a ban on all products from any part of the plant, under the pretext of its psychotropic effects. It does appear, however, that the real purpose behind America's actions was an attempt to consolidate the cotton fiber market at the time which, until then, had been mainly serviced by the durable fabrics derived from the hemp plant (ex. sails, sacks and ropes) - an unwelcome competitor. However, all across the globe people had learned to appreciate the cannabis plant as a source of fiber, of medicine, and as well as a recreational and spiritual medium, thus any attempt at isolation was bound to meet with failure - such as was witnessed during alcohol prohibition that led to similar consequences: the illicit domestic production and continued use of a commodity people simply did not want to part with.

During this time, organic chemist Raphael Mechulam managed to isolate tetrahydrocannabinol as a molecule, while in the '80s he went on to discover that mammals produce substances that are chemically related to cannabinoids, called endocannabinoids, and more so; that there is a system of specific binding receptors for these substances. His discoveries rekindled the interest of the scientific community in the possible therapeutic uses of the cannabis plant. At the same time, there began to be reports from patients of a variety of benefits they were seeing from consuming cannabis in various forms. Unfortunately, the legal framework for conducting integrated research in this area is complex, due to the limitations and regulations put in place that continue, to a great extent, until today. An additional complication is that the plant produces more than 150 chemical molecules that are identified today as cannabinoids, the actions of which are interconnected and interdependent, with clinical results contributed to by the terpenes and flavonoids that are also abundant in the plant. Therefore, designing a prospective study is seemingly mathematically impossible as the potential combinations of active molecules are plausibly infinite. In an attempt to side step these difficulties, the industry created synthetic replicas/equivalents of tetrahydrocannabinol, which were

marketed as pharmaceuticals and tested in numerous clinical situations. Unfortunately, the resulting effects were disappointing - proponents of the plant attribute this to the absence of other molecules of cannabinoids, as well as terpenes and flavonoids, which have been shown to contribute to the therapeutic effects of cannabis (commonly known as the 'entourage effect').

Nonetheless, in countries such as Canada, with many states of Europe and the US following suit, patient appeals and the findings from various small-scale clinical trials were taken into consideration and a structured framework for prescribing and using cannabinoids for the treatment of a variety of symptoms has been established, usually in cases resistant to available medications. These include spasticity and pain that accompany multiple sclerosis, cachexia and refractory pain in cancer, nausea and vomiting from chemotherapy and neuropathic pain in HIV/AIDS. Several of the above indications have been adopted in our country since 2018: initially, following a recommendation by the Working Group of members of the Hellenic Anaesthesiology Society for the establishment of Therapeutic Protocols for painful syndromes, cannabinoid drugs were recognized as possible therapeutic options. Following this a special committee formed by the National Pharmaceutical Organization of Greece prepared the Core SmPC applicable to the marketing licence that must be applied for.

The current legal framework in Greece considers cannabis products to be included in schedule IV of the controlled substances list, meaning access is legal only with a Special Prescription for controlled substances. The molecule which is responsible for the inclusion of cannabinoid medications in schedule IV is Δ9-tetrahydrocannabinol. Many of the other cannabinoids, chiefly cannabidiol, are widely available on the market as they are not considered to have psychotropic effects but are neither considered to be medications in the strict sense of the term. Therefore, they cannot be prescribed by a physician, the cost is not reimbursed by the State and, concurrently, their consumption is generally not supervised by a specialist. In addition, no application for licensing of a medicinal product has been submitted for approval to the NPO, to date. Three years prior, the Ministry of Health had allocated the sum of about 70,000 euros for the importation of a number of vials of the most famous cannabis medication. After various time consuming bureaucratic adventures, the medication finally appeared for a few short days on the electronic prescription platform and, before being able to be allotted to patients, expired and was disposed of accordingly. Currently, if a Greek patient wishes to obtain these medications, he has three options available: (a) legally through IFET (the regulatory board responsible for individual drug importation), a purely theoretical process as no patient application has been processed to date and illegally (b) through avenues that deal in preparations of dubious quality and unspecified chemical composition, or (c) by cultivating the plant themselves.

Cannabis is generally agreed to be quite safe - even within its so-called recreational use no deaths from overdose have ever been reported (provided it is not combined with alcohol or other substances that act on the central nervous system). Cannabis is a "new" medication - even under the stress of the coronavirus pandemic, governments continue to modify and relax the legal regulatory framework. Cannabis is a trend - as is sometimes the case with many miracle promising herbs. Cannabis is 'in' - people around the world are turning to it not only for its therapeutic value but also for its textile and industrial applications. Cannabis is everywhere, and everyone wants to use it. However, the use of products of questionable composition, home-cultivation and the unsupervised availability of cannabinoids expose patients to many risks: the most "innocent" is the use of excessively large doses of cannabidiol, which without a properly titrated dose, could possibly worsen the symptom which it is expected to relieve. A more substantial risk is the use of products that contain impurities, such as neem - an herbal pesticide that is thought to be responsible for the appearance of nausea and vomiting due to neurotoxicity. Other possible risks include being exposed to drug trafficking, the grey zone illegalities of cultivation and "use".

Cannabis is a plant, but it is also a chemical treasure trove. In western medicine, we are not trained to the pharmaceutical use of plants. Cannabinoids are medicinal substances that, despite the complicated difficulties that arise when we attempt to manage them as we would other regulated medications, must be treated as such. If we really want to take advantage of their therapeutic properties, we must administer them with the same responsibility that we bear for all medicines. Unregulated use of antibiotics has led to the emergence of drug resistant germs, while reckless over-prescribing has resulted in the recent opioid crisis. The "solution" offered by benzodiazepines has led many elderly, and not only, to dangerous withdrawal syndromes while in the past, amphetamines that were the recipe for success for students (and the obese) caused many deaths from cardiac complications. As doctors we have an obligation to our patients to act always with the aim of safeguarding their life and health - as is stated in the Code of Medical Ethics. There is no magic cure, nor are there any "innocent" drugs. In Greek, the word for medicine is the same as that for poison: rational use is what makes all the difference.

Let us thus be prudent, and not expect miracles – then, quite possibly, we may make way for them to happen.

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Evidence based Interventional pain medicine techniques

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Interventional pain management techniques have a definite place in the management of chronic pain. Inclusion of interventional pain management techniques in the patient's treatment plan should be guided by the best available evidence on efficacy and safety with respect to the diagnosis.

Between 2009 and 2011 a series of 26 articles on evidence-based medicine for interventional pain medicine according to clinical diagnoses were published but during the last years the high number of publications justified an update. These new data were published in Pain Practice on 2019.

For 28 different pain indications a total of 113 interventions were evaluated. Twenty-seven (24%) interventions were new compared to the previous guidelines and the recommendation changed for only 3 (2.6%) of the interventions.

The quality of evidence may seem rather low and the strength of the recommendations weak. However, this must be viewed in the context of guideline methodology. The fact that the quality of the evidence is rather low does not mean that the effect of the treatment is minimal; it indicates the need for clinical research. However, performing RCTs for (interventional) pain management techniques have many difficulties.

When the quality of the evidence is low, this does not mean that the intervention is not effective. And the quality of the evidence may be high, indicating that the intervention is not effective. When the recommendation is very low, there is a high need for more research.

The recommendations formulated in guidelines are valid for a specific patient population; however, they may not be valid for the individual patient with comorbidities.

The correct application of interventional pain management techniques requires an excellent knowledge of the neuroanatomy, experience in the interpretation of the images obtained during the procedure, and adequate training. Therefore, it is preferred that such interventions be performed in specialized centers.

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Round Table Discussion V: Palliative Care

Thromboembolism in cancer patients. What should anaesthesiologists know

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Cancer patients are at high risk of thromboembolic complications (deep vein thrombosis, pulmonary embolism) which increase the morbidity and mortality rates. The thromboembolic risk is further increased perioperatively in cancer surgery, rendering its prevention and management a clinical challenge. International Societies and Experts' Panels have addressed this issue in an effort to fill in the existing gaps, since evidence is rather limited.

Thromboprophylaxis should be given to all patients undergoing cancer surgery. It should include pharmacological agents and should be initiated preoperatively and/or as soon as possible postoperatively. Mechanical prophylaxis alone is not recommended, and should be reserved only for cases where pharmacological thromboprophylaxis is contraindicated. Combined pharmacological/mechanical thromboprophylaxis should be used in high risk patients. The patient risk factors, co-morbidities, procedure type/duration and the surgical bleeding risk should be carefully assessed before deciding the scheme, drugs, dosing and timing of thromboprophylaxis. Low Molecular Weight Heparin (is the preferred agent), Unfractionated Heparin (if creatinine clearance <30 mL/min) and possibly Fondaparinux can be used for thromboprophylaxis. There is no consensus on the use of inferior vena cava filters; they are not recommended as a routine thromboprophylactic measure, but their placement could be considered in patients with pulmonary embolism or lower limb proximal deep vein thrombosis (especially during the first 2–4 weeks), if anticoagulants are contraindicated. The risk of intervention-related adverse effects/complications should be taken into account.

Postoperative pharmacological thromboprophylaxis should be maintained for at least 7–10 days. For high risk, major abdominal or pelvic surgery (laparotomy or laparoscopic), thromboprophylaxis should last longer (up to 4 weeks). Patients facing a high risk for both thrombosis and major bleeding should receive mechanical thromboprophylaxis first and pharmacological prophylaxis should be added as soon as possible. Early postoperative ambulation should be encouraged whenever possible.

Current minimally invasive surgery and chronic postsurgical pain

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Chronic pain is the most common symptom for which patients seek medical care and surgery is the cause of chronic pain for 22.5% of these patients [1]. “Chronic post-surgical pain” (CPSP) is defined as pain persisting at least 3 months after surgery [1].

CPSP can occur following various operations, ranging from simple (herniorrhaphy, caesarean section or dental extraction) to complicated surgeries (thoracotomy, radical mastectomy or hysterectomy) [2].

The amount of injury to the tissues or nerves and the degree of inflammation differs by operation type and procedure for the same surgery. Since there is less tissue trauma in minimally invasive surgery, less chronic pain is expected than in open procedures. However, results have not always been positive.

For instance, there is a reduced incidence of moderate to severe CPSP with laparoscopic cholecystectomy (8.8%) than with open cholecystectomy (28%). Minimally invasive surgery is also recommended for orthopedic surgery to limit tissue damage and nerve injury [3]. Unfortunately, arthroscopic surgeries can also lead to CPSP due to injury to the nerves.

In the case of thoracotomy, many factors are related to CPSP. These include the surgical approach [video-assisted thoracoscopic surgery (VATS) vs open thoracotomy], the type of incision for open procedures (posterolateral vs. muscle sparing vs. sternotomy vs. transverse sternothoracotomy), rib resection or retraction, the extent of intercostal nerve preservation, and the method of rib approximation after the procedure. However, VATS does not reduce the incidence of CPSP, despite there being some reduction in the incidence of acute postoperative pain compared to open thoracotomy [3].

Despite there being insufficient evidence to recommend a definite surgical technique to eliminate the possibility of CPSP, surgeons can minimize the risk of CPSP by choosing a minimally invasive surgical technique, employing careful dissection to avoid injury to nerves, avoiding extensive surgery whenever possible, and/or minimizing the duration of surgery if possible [3].

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Integrative medicine models

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Patients with chronic pain and chronic diseases are looking for ways to combat the health implications, to alleviate the side effects of treatments and to improve their quality of life.

The medical community is constantly looking for ways to provide the comprehensive health care that patients need. In this context, more pluralistic healthcare systems began to develop, combining conventional and complementary approaches in a coordinated way and to varying degrees.

These systems are referred to as Integrative (UK) or Integrated (USA) Medicine.

Two dominant models of Integrative Medicine have been developed.

The first is a selective combination of Complementary Therapies used as add-on to the treatment proposed by conventional medicine, based on evidence from Research and Practice (Supplementary Model).

The second includes only Evidence-Based Complementary Treatments that are integrated in the usual care (Collaborative Model).

These two models have different levels of autonomy, control and responsibility among the participating health professionals. Despite their differences, both models focus on the patient and offer a holistic approach.

In Greece, a Supplementary Model of Integrated Medicine is offered at the Pain Clinic of Aretaieion Hospital. This model selectively combines various Complementary Treatments such as Reflexology, Shiatsu, Acupuncture, Psychological support, etc., as add-on to the conventional treatments thereby maximizing the beneficial results and can serve as a pioneering example for the development of Integrated Medicine systems in Greece.

A well-designed model of Integrated Medicine, combining every possible means and every available treatment and that includes all the necessary safety checks can be particularly effective in achieving the goal of any medical system. The goal of a comprehensive treatment of the disease and its side effects across all aspects of the patient's life.

Genetics-guided treatment for chronic pain

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Chronic pain treatment is often compromised by adverse reactions, low efficacy, and potentially dangerous drug interactions. Genetics may, in some cases, help avoid such issues and it is conceivable that, in the near future, the treatment of chronic pain will be guided -at least in part- by the genetic background of individual patients. A typical example is the polymorphisms of the cytochrome enzymes (e.g., P450); understanding their impact on substrate metabolism can significantly help to avoid lack of efficacy and adverse events for medications often used in the treatment of chronic pain, such as opioids, NSAIDs and membrane stabilizers (antiepileptics). There is abundant literature on other relevant examples, such as receptors polymorphisms (e.g., OPRM1), HLA genotypes (e.g., HLA-A*31:01), enzyme and transporter polymorphisms (e.g., COMT, UGT, ABCB1), cytokine profiles (π.χ. IL-6), ion channel and transcriptional factor polymorphisms etc. Current research, using data from channelopathies and ion channel mutations related to pain transduction and conduction, attempts to develop treatments for chronic pain syndromes which will utilize a guided and individualized approach to achieve safer and more efficacious therapies. Accordingly, genetics has allowed for the identification of novel modes of action for old compounds already used for the treatment of chronic pain. By combining pharmacogenetics, proteomics, epigenetics and neurophysiology, it is foreseeable that we will manage to approach the underlying pathophysiology of chronic pain in an individualized manner and, consequently, to adapt the treatment. In addition, genetic therapy (e.g., RNAi, ASOs, CRISPRi-KRAB) may further help manage difficult chronic pain syndromes. There are still many barriers to overcome, such as the availability of genetical analytics and their performance, the cost-effectiveness ratio, the lack of relevant data from randomized controlled clinical trials, as well as the limited number of approved treatments with different modes of action for chronic pain.

3. INVITED SPEAKERS LECTURES

Lecture I: Pain management and COVID-19

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The still present COVID-19 pandemic, lasting for over 1.5 years, has put the health care systems in a challenging situation. Prioritizing other aspects, pain patients have been practically abandoned, probably because Pain Medicine is not perceived as a priority for the patients. The organization of Pain Clinics and the cares for in-hospital pain management is reduced for quantity and quality [1].

This challenging situation has also been victim of some misinformation. One of them was diffused at the very beginning of the pandemic. The use of NSAIDs, and especially of ibuprofen, was accused to be responsible for an increased risk of potential infection by SARS-CoV [2]. The subtle pathophysiologic mechanism behind this was supposed to be the action of ibuprofen on the angiotensin-converting enzyme 2 (ACE2), also involved in the action of coronoviruses. The shocking theory had obvious consequences, especially for its diffusion in the media, but was rejected immediately after [3] and also reviewed by the same authors [4]. Immediately after, other authors have expressed their perplexities on the topic [5]. Then, all the connections between COVID-19 and NSAIDs were summarized in an extensive review article [6].

The one above is just one of the examples of the disastrous consequences of COVID-19 pandemics on the poor patients suffering for pain, both acute and chronic. Other connected problems were related to the organization of the pain clinics and the network for home care for suffering pain patients.

All these topics will be illustrated and summarized during the lecture. The congress will be an excellent occasion to also collect opinions and feedbacks of the attending Colleagues.

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Lecture II: Is regional anaesthesia worthy with hospital business?

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The direct costs of anesthesia and analgesia (including anesthesia fee) represents only 2–4% of the total cost of a surgical procedure. the type of surgical procedure or its duration can make regional anesthesia less expensive or more expensive than general anesthesia. However, optimization of the total time spent inside the OR represents the main factor of the total bill (50–60%). Such a reduction in the total OR time leads to a significant decrease in personnel costs which represents 70% of the cost. Thus, scheduling, organizing flow of patients through the OR is the first improving factor to control. In this field, regional anesthesia can significantly reduce this major cost factor through multiple mechanisms: (1) setting a "block room" to perform blocks in a dedicated space outside the OR for high output short surgical procedures (hand surgery cases) improves the efficiency of the OR by 56%. (2) Regional anesthesia techniques reduce the duration of stay in PACU compared to general anesthesia and even allows more easily to encourage PACU bypass (10–82% of patients). (3) Regional anesthesia and analgesia significantly increase the percentage of surgical procedures which are performed on an ambulatory basis, compared to general anesthesia. Such a shift towards ambulatory surgery leads to a major decrease in nursing budgets for the hospital. (4) Finally, all ERAS surgical procedures require somehow the administration of local anesthetics which can go from

intravenous lidocaine (associated to general anesthesia), to infiltration techniques, to nerve blocks. In conclusion, Regional anesthesia techniques, when combined to a strict optimisation of the management of patients flow throughout the whole process, are 2 major factors that significantly improve hospital business.

Lecture III: PROMs (Patient Reported Outcome Measures) after surgery for patients with chronic pain

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In line with the new definition of chronic pain [1] outcome measures of pain treatment have shifted from unidimensional scales (NRS, VRS) to multidimensional patient reported outcome measures. The Patient Reported Outcome Measurement Information System (PROMIS) rates across seven domains (pain interference, physical functioning, anxiety, depression, fatigue, sleep disturbance, and the ability to participate in social roles and activities) with four questions in each domain. PROMIS have been shown to be adequate and cross-walks may replace disease specific legacy PROMS [2, 3]. In Europe, data for the general population are available online [4].

Opioids are an integral part of many chronic pain patients but are not associated with improvement of PROMIS PI (pain interference) and PF (physical function) scores [5]. A consensus group advocated against Buprenorphin tapering before surgery [6] but opioid weaning improves PROMIS profiles for patients undergoing spine surgery [7] and liver transplants [8]. Methadone may be more effective than conventional perioperative short acting opioids [9, 10] and may also prevent against chronic pain after surgery [11].

Perioperative low dose Ketamine treatment has been advocated for chronic pain patients [12, 13]. A combination of Methadone and Ketamine showed impressive results in spinal surgery patients [14]. Gabapentinoid treatment should be continued but not initiated for surgery [15, 16]. i.v Lidocaine currently has no clear beneficial impact [17]. Regional anesthesia is generally advocated as its opioid sparing effects are well documented. Whether it provides protection against chronic pain after surgery is less clear [18, 19].

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Lecture IV: Recommendations for osteoarthritis

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Osteoarthritis (OA) represents one of the most important clinical situation characterized by chronic pain (CP), huge number of patients worldwide and large amount of burden for each national health systems.

Moreover, OA is now considered as a syndrome in terms of each articular localization; on the other hands the cartilage remodelling is characterized by an imbalance between degradation and synthesis due to the impact of subchondral bone citokines production.

OA presents mechanic CP, and inflammatory acute pain in the period of inflammatory flare.

The American College of Rheumatology published the "2012 recommendations for the therapy of OA": NSAIDs, acetaminophen, opioids, intra-articular steroids, as well as intra-articular viscosupplementation are the cornerstones of the pharmacological recommendations, while weight management and exercises are the most important suggestions for non-pharmacological treatments.

The American Academy of Orthopeadic Surgeons published in the 2015 the surgery criteria for OA: both conservative and pharmacological treatments come first the surgical approaches.

It is very important to consider that an early diagnosis of OA and an accurate stadiation of the disease can lead to the early start of a focused therapy, the reduction of evolution towards chronicity, progression, and disability, with a consequent reduction of pain and burden, and, finally, the increasing of quality of life.

Lecture V: Optimal Regional Anaesthesia – Analgesia for Knee Surgery: Current Trends & Future Perspectives

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Major orthopedic surgery is frequently associated with high pain scores. For many procedures, especially those that are known to cause severe postoperative pain, guidelines from many countries recommend the use of RA for postoperative pain control. Although randomized controlled trials have demonstrated clinically significant pain reduction after peripheral nerve blocks and wound infiltration with local anesthesia, these techniques are still underused [1].

Approximately 15% of patients report persistent knee pain despite surgical success following total knee arthroplasty. Acute postsurgical pain, generally regarded as pain within the first 72 hours postoperatively, has been found to be independent risk factor of chronic postsurgical pain [2].

Early mobilization is the cornerstone of enhanced recovery program. Early mobilization (sitting out of bed/walking) can result in a reduced length of stay of 1 to 2 days and should be considered within the first 24 hours after surgery [3]. Early ambulation (on post-operative day 1) is also associated with lower hospitalization costs [4].

What are the different approaches?

Periarticular infiltration using the appropriate technique and knowledge of intraarticular knee anatomy may increase pain control and maximize rehabilitation [5].

Femoral block is also associated with lower opioid consumption and a better recovery at 6 weeks than periarticular infiltration [6]. Early postoperative activity measures were proved to be possible indicators of knee function recovery at 6 weeks after surgery.

In a metaanalysis , Adductor Canal Block method was superior in terms of equivalent morphine consumption in the first 24 hours and 48 hours, without increasing the risk of complications, when compared to the Peri articular Infiltration method [7].

What's the best approach?

Blocking multiple nerves was preferable to blocking any single nerve, periarticular infiltration, or epidural

analgesia.

1- Proximal blocks

The combination of femoral and sciatic nerve block appears to be one of the best approaches [8].

The combination of Femoral, Sciatic, Obturator and Lateral Cutaneous of the thigh nerve blocks has shown that the opioids requirements in the first 48hours were extremely low (20mg to 30mg Oral Morphine Equivalent). Quadruple nerve block could be considered as a reliable option to achieve per and postoperative analgesia for TKA in combination with a multimodal analgesia regimen (intravenous dexamethasone, intravenous ketamine, paracetamol, ketoprofen, etc).

2- Distal blocks

Combined Obturator and Femoral triangle block reduces morphine consumption better than LIA after TKA [9].

There is moderate level evidence that iPACK might provide analgesia for posterior pain after total knee arthroplasty when compared with a control group at 12 h, but was not associated with any other meaningful benefits. Based on these results, there is currently limited evidence supporting the use of iPACK as a complement to adductor canal block for analgesia after total knee arthroplasty [10].

Genicular nerve blockade may also be associated with a reduction in opioid consumption at 24 hours in primary total knee arthroplasty patients [11].

3- Association of LIA and Distal Blocks

In a recent publication, the 24 h resting VAS score was lowest in Adductor Canal Block + Peri Articular Infiltration and 48 h resting and movement VAS score was lowest in continuous ACB also showing the interest of the catheter in this indications [12] .

The best choice for optimal analgesia in TKA remains controversial. Combination of different techniques is preferable than using a single nerve injection or a unique approach. Early mobilization should be considered for an optimal enhanced recovery program. Suitable analgesia may reduce the risk of chronic postsurgical pain lasting more than 6 months after surgery.

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4. Fellows - Young Anaesthesiologists & Young Physicians FORUM

Presentation I: Chronic Pain after hospitalization in intensive care unit

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Patients admitted to Intensive Care Units (ICU) suffer from critical illness and have the highest mortality rates among hospitalized patients. For those who survive, recovery is often a prolonged rehabilitation period with physical, cognitive and psychological dysfunction. Pre-existing chronic pain, previous impairment in quality of life due to health problems, but also the critical illness itself and organ support with multiple interventions, predispose to the development of chronic pain in the post-critical period, making it difficult to return to the pre-disease functional status. Opioid administration during mechanical ventilation is a common practice, frequently without reliable or systematic assessment of pain and individualized titration of dosage. Multimodal analgesia, including dexmedetomidine, ketamine, adjuvant medication and regional analgesia techniques can prevent chronic pain and treat withdrawal symptoms during opioid weaning. Early mobilization and physiotherapy as soon as the patient's condition becomes stable, continuous assessment of pain and its corresponding treatment during hospitalization and the following period, individualized titration of opioids and follow-up by a team of specialists during rehabilitation, comprise a successful management plan for early recognition of complications and effective aftercare treatment of these patients.

Presentation II: Precision Medicine in migraine management

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Migraine is a common disorder that negatively affects a significant percentage of patients, with corresponding social and economic costs. It is a neurovascular disease whose pathophysiological mechanisms are still being examined. While cortical spreading depression (CSD) and dysfunction of the trigeminovascular system appear to play a key role in the onset of migraine aura and pain, the study of human genome has shown the involvement of several genes and neuropeptides in its pathogenesis. New data make it necessary to search for targeted methods in the diagnosis and treatment of the disease, as current therapeutic approaches in many cases show little effectiveness and significant side effects.

Nowadays, the rapid development of genetics opens new horizons in the approach of migraine through the prism of Medical Precision. Precision Medicine (PM) is a new approach to the treatment and prevention of the disease, which combines the individualized approach of the patient with the design and implementation of appropriate treatment. It differs radically from the "one size fits all" approach, leading to a better understanding of the pathophysiological mechanisms of the disease and the development of innovative diagnostic and treatment options. It combines the expression of genome and the correlation of science of Biochemistry with the comorbidity of the patient, in order to achieve the optimal clinical result.

The purpose of this essay is to present the current therapeutic approaches for migraine treatment and to investigate their applicability, according to the new data of Medical Precision. The investigation and identification of new genetic, epigenetic, biochemical and other biomarkers will enable the patient to be better approached, more targeted treatment and reduced disease's management costs.

Keywords:
Migraine; Precision medicine; Biomarkers; Genome; Neuropeptides; Genetics; Therapy

Presentation III: Mindfulness: Its application in pain management and the improvement of the quality of life

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"I can't cope with this", "Why me?", "What if it worsens?". These thoughts swirl in our mind when we are in pain. Soon we feel anxiety, stress, depression, irritability and exhaustion, which amplify the pain.

Suffering occurs on two levels. Firstly, there are the actual unpleasant sensations felt in the body (Primary Suffering) as a result of an injury, and ongoing illness or changes to the nervous system. On top of this is the Secondary Suffering, which is made up of all the thoughts, feelings, and emotions associated with the pain. When we are in pain, we actually feel is a fusion of both.

UK is moving towards a more holistic approach to pain management, referring many patients to alternative programs including Mindfulness. With Mindfulness, people are in a better position to distinguish what causes their pain, dissolve the Secondary Suffering and, many times, see Primary Suffering to dimmish.

Mindfulness meditation was initially brought into clinical healthcare in 1979 by Prof. Jon Kabat-Zinn. He developed the MBSR program at the University of Massachusetts and since then numerous scientific studies measure its efficacy: when it comes to pain, mindfulness can be as effective as the main prescription painkillers. Many hospital clinics abroad prescribe mindfulness meditation to help patients cope effectively with a range of diseases such as cancer, heart disease, diabetes, arthritis, back problems, fibromyalgia a.o.

A taste of this program is included in our Workshop. We will cultivate a closer relationship with out body and breath, we will accept pain whilst taking care of ourselves, we will appreciate the pleasant experiences and also acknowledge the difficulties in life, we will be reminded that we are interconnected with other people and, finally, we will acknowledge that although we can’t control what life throws on us, we can choose how to respond.