

MEETING ABSTRACTS

Abstracts of Roma Pain Days 2022

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Roma Pain Days 2022 Abstract Reviewers

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A good congress is always a mixing of an excellent scientific program, prepared by the Scientific Committee, and the “free communications” presented by some of the attendees. The COVID emergencies have contributed to rapidly modify the world of the scientific exchange of information and the presentation of the researches’ result by anyone interested in science evolution. In the past, the abstracts of lectures, posters and oral presentations were included in a volume that was distributed at the participants to the congress. That material had a clear destiny: a rapid oblivion.

Since the first edition, the organizers of the **Roma Pain Days**, which was already an “hybrid” congress, have tried to publicize much more the results of the many, many researchers willing to present their results to the large public. In fact, all the abstracts of the #RPD2021 were published in the Cureus Academic Channel of the Paolo Procacci Foundation, organizer of the congress - <https://www.cureus.com/channels/ppf/abstracts>. This year the Scientific Committee has decided to publish the abstracts on an indexed journal, agreeing with the GM of *Signa Vitae* (<https://www.signavitae.com>) to have all the accepted abstracts published by them. *Signa Vitae* is a growing and thrilling journal whose impact in the scientific world interested in Anesthesiology, Emergency, Intensive Care, and Pain Medicine is already well established. The Scientific Committee of the #RPD2022 and I thank the General Management of the journal for their kindness and generosity. I am more than sure that this will be of a mutual benefit for the researchers and the journal’s visibility. *Ad majora* for a future, increasing cooperation in favor of the science diffusion.

01. Complex regional pain after stroke: atypical case reportMarwa Ghanmi^{1,*}, Mariem Gaddour¹, Nedra El Feni², Walid Wannas³, Sonia Jemmi³¹Physical medicine and rehabilitation hospital of Sahloul Sousse, Tunisia; ²Physical medicine and rehabilitation hospital of Kairouan, Tunisia; ³Physical medicine and rehabilitation hospital of Sahloul, Tunisia.*Corresponding Author: Marwa Ghanmi (ghanmy.maroua@gmail.com)**Introduction and purpose:** The frequency of shoulder pain in hemiplegic patients varies from 5 to 84% of post-stroke

patients. It is mainly caused by complex regional pain syndrome also known as shoulder hand syndrome (SHS). We present the case of bilateral shoulder hand syndrome after lacunar stroke.

Case report: We present the case, of a 68-year-old male, with a history of hypertension and diabetes, who presented with a left lacunar stroke. Two months after stroke, he was referred to the rehabilitation outpatient clinic for bilateral pain in the shoulders with diffuse edema of both hands associated with painful severe restriction in the range of motion (ROM). On examination, he had limitation of the active and passive articular ROM of the shoulders and hands, allodynia, hyperesthesia, edema and sweating. However, the patient did not have any motor or sensitive function deficiency. radiographs showed severe patchy osteopenia in the periarticular regions of the shoulders and the hands.

The diagnosis was that of a bilateral SHS. The patient underwent corticosteroids infiltrations in the right shoulder and carpal tunnel followed by functional rehabilitation. The favorable outcome encouraged the same therapeutic approach on the contralateral side.

Discussion: The onset and severity of SHS is known to be related with the etiology of the stroke, the severity and recovery of motor deficit, spasticity and sensory disturbance. This case is therefore particular due to the importance of the pain in a non-deficient patient. To our knowledge there have been only one study reporting a case of SHS in an unaffected upper extremity. The pathophysiology of the disease is still not fully known.

Conclusion: SHS is a painful condition which management is a determining factor in the patient's quality of life and requires careful etiological and clinical assessment.

02. New frontiers of intra-articular infiltration

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The hyaluronic acids with Medium-Low Molecular Weight (first generation) (0.5–1.2 Mda), having smaller dimensions, have the ability to penetrate deeper through the synovial membrane so they are able to carry out a prevalent biological activity (visco-induction) while the lubricating and cushioning activity (visco-supplementation) is modest. Conversely, hyaluronic acids with Medium-High Molecular Weight (1.3–3.6 Mda) (second generation) would have a lower biological action but a better lubricating and shock-absorbing activity as they tend to remain more on the surface ensuring a more effective visco-supplementation. Again, in relation to the molecular weight, another important difference between medium-low or medium-high molecular weight hyaluronic acids is their ability to remain active for different periods. In fact, while the therapeutic cycle for low molecular weight hyaluronic acids provides from 3 to 5 weekly infiltrations with an effect that lasts for 3/6 months, with medium-high molecular weight acids the same effect is obtained with a smaller number. of infiltrations.

Until now we have talked about first- and second-generation hyaluronic acids which are characterized by the fact of being both structurally linear. However, the observation that some therapeutic effects and above all their duration could be linked to the molecular weight led the researchers to find methods to obtain hyaluronic acids with an even higher molecular weight for which it was possible to create “artificially” cross-links, between several molecules of linear hyaluronic acid so as to obtain a final product with a higher molecular weight. In this way the third-generation hyaluronic acids were born. They are also called “cross-linked”.

03. Art therapy, negative emotion and pain: Preliminary data

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Background: Art therapy is one of the psychotherapeutic approaches that provides a unique opportunity to improve mental health.

Objective: The main goal of the study was to use art therapy as a technique to distract attention from negative emotions and pain.

Methods: Participants were medical staff ($n = 76$) aged over 18 ($M = 32.2$), from University Hospital and were randomized to the art therapy group active (combination of art techniques) and to the passive (receptive art) group. Active art therapy was performed by registered clinical psychologists and psychotherapists, one session lasted at least 40 minutes, and each participant underwent at least 3 art therapy sessions to be included in the sample. Emotional thermometers were used to measure the chase before and after the all sessions in domains of distress, anxiety, depression, anger, intensity of pain and quality of life.

Results: We found significant improvement in the group with active art therapy in the domains distress (before $M = 2.3$, after $M = 1.1$) anxiety (before $M = 2.0$, after $M = 1.2$), depression (before $M = 1.4$, after $M = 1.1$) anger (before $M = 2.0$, after $M = 1.7$) and pain (before $M = 2.4$, after $M = 1.2$) (all $p < 0.05$). We have not confirmed improvements in quality of life (before $M = 3.0$, after $M = 3.1$). The highest (moderate) effect size of chase was found for the pain domain (Cohen's $d = 0.5453$, $p < 0.0001$). The passive art therapy group did not significantly improve in any domain (all $p > 0.05$).

Conclusions: These preliminary data show the effect of art therapy in medical staff, it needs to be verified in patients with chronic pain.

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04. Epidural steroid injection versus interferential therapy in managing chronic low back pain

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Objective: To compare the potential effect of epidural steroid injection (ESI) followed by lumbar stabilization exercises (LSE) to interferential therapy (IFT) combined with LSE in managing patients with axial chronic low back pain (cLBP).

Methods: Randomized, controlled, single-blinded, single-center trial on 60 patients complaining of cLBP. Patients were randomly assigned into 3 groups, each of 20 patients. Patients of Group A received ESI with LSE, patients of group B received IFT with LSE and those of group C received LSE only. The Numerical Rating Scale (NRS) for pain severity, the Oswestry Disability Index (ODI) and the Beck's Depression Inventory (BDI) were used for assessment in all participants; before treatment, 3 weeks, 6 weeks and 12 weeks after the start of treatment.

Results: There was a significant improvement in NRS, ODI, and BDI at 3 weeks, 6 weeks and 12 weeks following treatment in each of the studied groups ($p < 0.001$). At the end of the study; the improvement in group A was better than that in either group B or group C regarding only NRS and ODI ($p < 0.001$). However, there was no significant difference between group B and group C regarding NRS, ODI or BDI. No major adverse events were reported in any group.

Conclusion: All groups showed significant improvement in all assessed parameters following treatment. A statistically better improvement was found in group A (compared to other groups) regarding pain scores and ODI, but not BDI. There

was no significant difference in the improvement between group B and group C.

05. Results of treatment of the post-COVID-19 infection femur head aseptic necrosis

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Objective: To study the clinical signs and methods of treatment of patients with COVID-19-related femoral head aseptic necrosis.

Methods: There were 80 patients (65 men and 15 women) with COVID-19-related femoral head aseptic necrosis. In the first days of the disease, pain was noted in the groin area and hip joint, which increased after 2–3 days. Because of the pain, the physical activity of patients was sharply reduced, some patients could not walk. A characteristic early clinical sign of femoral head aseptic necrosis after COVID-19 infection in 60% was observed limitation of internal rotational movements of the thigh in the area of the hip joint, limitation of external rotational movements of the thigh was noted in 40% of patients with stages 1–2 of the disease. Both internal and external rotational movements of the thigh in the area of the hip joint 100%. All patients had 3–4 stages of the disease. Depending on the stage of the disease, various methods of treatment were carried out.

Results: In the early stage 1–2 of the disease, patients were prescribed anti-inflammatory drugs (Dexalgin), therapeutic blockades and injections, physiotherapy, manual and underwater massage, exercise therapy, plasma therapy. If conservative treatment was ineffective, surgical treatment was performed. Patients underwent our proposed method, a minimally invasive decompressive, revascularization surgery in the head of the femur using stromal vascular fraction, bone marrow concentrate, and using bioceramics. In stage 3–4, hip arthroplasty is used.

Conclusion: Clinical signs of COVID-19-related femoral head aseptic necrosis make it possible to determine the degenerative-destructive changes and the choice of treatment method. In stages 1–2 decompressive, revascularization operations were performed in the area of the femoral head using stromal vascular fraction, bone marrow concentrate, and with the use of bioceramics. In stages 3–4 of the disease, we perform arthroplasty.

06. Acute Postoperative Pain; Challenges and Controversies

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During the last two decades there are a lot of developments and advances in the management of acute postoperative. Despite of this progress there are many areas of challenges and controversies and need more work.

The current challenges include management of pain in extremes of age, patients with chronic pain on regular analgesics, opioids overuse, patients with significant comorbidities and patient with neuropsychiatric disorders.

There are many issues as well for patients who are candidates for regional anesthesia and blocks. Challenges include, patients on anticoagulants, rebound pain after block and possible local anesthetic toxicity.

On the other hand, there are many controversies like the best multimodal analgesia combination, opioids-free analgesia, electronic measuring of pain, perioperative use of gabapentinoids and use of cannabis.

The lecture will explore and discuss the above challenges and controversies based on the recently published researches

and evidence-based recommendations.

07. Day-Case Surgery: pain-related readmission or delayed discharge. A preliminary Data Mining and Literature Review

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Introduction and Objectives: The clinical feasibility and socio-economic opportunity of Day-care Surgery (DCS, <12 hrs stay) has been known for years. The objectives of this abstract are (1) how to seek proper scientific literature dealing with these three issues together (DCS, unbearable symptoms, delayed discharge/re-admission), (2) using Data Science to perform semantic search.

Materials and Methods: RStudio open-source software for Data Science and its RISmed library were connected to NCBI search engines to extract bibliographic content using semantic search instead of relying on keyword search only. Papers describing settings where the length of stay was >12 hours and/or no Anesthetist was needed were ruled out.

2 sets of vectors were created to describe:

- Surgery needing anesthesiologic procedures (mostly sedation and Pain control)
- Need for Hospitalization or delayed discharge due to pain

Results:

- DCS-related MeSH term (and subheadings) was only introduced in 1998 as “Ambulatory Surgery”
- 5 terms were frequently found to express identical meaning (<12 hrs stay, and Anesthetist required): Day Surgery, Day-care Surgery, Day-case Surgery, Same-day Surgery, Ambulatory Surgery, ruling out papers with Patients discharged after 24 hours (mostly, but not always, addressed as “One-day Surgery”)
- 5 terms were found to describe need for unplanned hospital care: Hospitalization/Re-admission/Unwanted readmission/Prolonged stay/Delayed discharge
- 69 articles were found, 9 of them being Reviews and Meta-Analysis

Discussion and Conclusions: Data mining technology is useful when there’s lack of terminological standardization of similar concepts. Despite a more uniform use about Day Surgery related terms since 2016, less is cited about the rate of delayed discharge or re-admission due to postoperative pain, and their repercussions on Patients’ health and overall costs [1].

[1] Herbst MO, Price MD, Soto RG. Pain related readmissions/revisits following same-day surgery: Have they decreased over a decade? *Journal of Clinical Anesthesia*. 2017; 42: 15.

08. Acute pain alleviation in the Emergency Department: outcomes of a Greek Nation-wide survey

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Objectives: Emergency Departments (EDs) in Greece are staffed by different specialties. We performed a survey to understand perceptions among emergency physicians inside the ED regarding acute pain assessment and management.

Methods: We conducted a cross-sectional study using a structured anonymous questionnaire, among a random sample of doctors working in four different tertiary hospitals of Athens and rural regions. The data were analyzed using descriptive statistics and statistical significance tests via R-Studio, version 1.4.1103.

Results: Results from 101 questionnaires, show suboptimal knowledge and attitudes regarding acute pain management among emergency healthcare providers in Greece. Additionally, certain parts of the population such as young children and pregnant women receive suboptimal analgesia.

Knowledge and Skills (Percentage)

Awareness of:

- *multimodal analgesia (48%)*
- *newer pain treatment methods (41%)*
- *pain management:*
 - *seminars (16%)*
 - *protocols in their workplace (26%)*
- *administering opioids (32%)*

Beliefs and Attitudes:

- *Analgesia is “time consuming” (58%)*
- *Distraction from pain serves as indication if less severe pain (56%)*
- *Placebo administration is an appropriate way of judging the truth behind one’s pain allegations (52%)*
- *Fear of administering opioids due to their side effects (51%)*
- *Fear administering opioids due to fear of hindering a potential diagnosis (38%)*

Paracetamol, NSAIDs and opioids such as tramadol and morphine appeared to be highly reachable, while drugs like fentanyl, ketamine, oxycodone, and adjuncts to analgesia were more rarely used. Demographic correlations between participants showed that clinical experience and pain management education were associated with a better response profile on the questionnaire. Specialties with a core training containing pain education (anesthesiologists, emergency physicians) as expected, showed better awareness, beliefs and attitudes.

Conclusions: Pain Educational programs along with standardized algorithms should be developed to cover existing needs and misconceptions. Studies on a nation-wide level, will help understanding the level of acute pain management in Greece and whether the urban or the rural environment plays any role in pain alleviation in the ED.

09. Results of using transversus abdominis plane (TAP) block as a component of multimodal analgesia in patients undergoing solid organ transplantation

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Objective: To present the experience of using and comparative evaluation of the use of TAP block as a component of

multimodal analgesia in related donors in solid organ transplants.

Material and methods: The study included 10 donors of the right lobe of the liver and 40 recipients who underwent kidney transplantation from a living related donor. The age of liver donors is from 19 to 45 years. All patients were classified to the somatic status I–IV class according to American Society of Anesthesiologists (ASA) and divided into two groups: the main group consisted of 30 patients who underwent TAP block under ultrasound control in the postoperative period as a component of multimodal analgesia (Dexalgin used); the comparison group included 20 patients only non-steroidal anti-inflammatory drugs (NSAIDs, Dexalgin) and narcotic analgesics were used as analgesia in the postoperative period. We used 5-component Harvard monitoring was used (electrocardiogram, measurement of non-invasive blood pressure (NiBP), pulse oximetry, capnography and nasopharyngeal thermometry) during anesthesia supplemented by measurement of Visual Analogue Scale (VAS).

Results: In the comparison group: NiBP $135.5 \pm 24.5/80.0 \pm 20.0$ mm hg., heart rate— 95.2 ± 18.8 beats per minute, glycemia 6.7 ± 2.3 mmol/L, VAS 5.1 ± 1.9 points. In the main group: NiBP $113.75 \pm 24.25/68.5 \pm 13.5$ mm hg., HR 76.6 ± 13.4 beats per minute, glycemia 5.8 ± 1.2 mmol/L, VAS 3.65 ± 3.35 points. In three cases, with a VAS score of over 7 points, single injections of opioid analgesics were used. In six cases, with 4–6 points on the VAS scale, NSAID injections were used.

Conclusion: The use of TAP block as a component of multimodal analgesia provides significant benefits in the postoperative management of patients after operations for solid organ transplantation. It should be taken into account that the dose reduction of opiate analgesics in groups with TAP block avoids the side effects of the latter.

10. Patients who associate pain with red color report less intense pain after hip replacement surgery: prospective, consecutive pilot study

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Introduction: Colors can dramatically affect moods, feelings, and emotions. The hypothesis was whether the preferred color or the color associated with the pain influences his postoperative intensity.

Material and methods: Prospective, consecutive, pilot study. Institute of Emergency Medicine, Chisinau, Republic of Moldova. Intervention: scheduled hip replacement. Research Ethics Committee approved. Exclusion criteria: color blindness, pre-existing chronic pain, depression, anxiety, neuropathy. Statistical analysis: Analysis of Variance (ANOVA), or *t*-Student. Data presented as mean \pm standard deviation (SD) (or 95 confidence interval (CI)).

Results: Enrolled 58 ASA 2 and 3 patients (22 men). Age 65.6 ± 13.3 years. Pain intensity (NRS) 24 hours postoperatively vs preferred color: blue (n = 9) 4.1 (2.8 to 5.4); magenta (n = 8) 4.6 (2.7 to 6.5); cyan (n = 13) 4.5 (3.4 to 5.6); red (n = 8) 4.4 (2.2 to 6.5); green (n = 11) 3.9 (2.3 to 6.5); black (n = 3) 3.7 (1.5–8.8); yellow (n = 8) 4.2 (3.0 to 5.4); white (n = 1) NA. Intensity versus color associated with pain: blue (n = 6) 3.5 (2.1 to 4.9); red (n = 16) 3.3 (2.3 to 4.3); yellow (n = 9) 4.2 (3.0 to 5.4); black (n = 20) 4.8 (3.7 to 5.8), green (n = 3) NA; magenta (n = 2) NA; cyan (n = 1) NA; white (n = 1) NA. Red vs. other: 3.3 (2.3 to 4.3) vs. 4.6 (3.9 to 5.3), $p = 0.0333$. Red vs. black 3.3 (2.3 to 4.3) to 4.8 (3.7 to 5.8), $p = 0.0497$.

Conclusions: The preference for a particular color was not associated with a different intensity of postoperative pain. In contrast, patients who associated pain with red color reported a significantly lower pain intensity 24 hours postoperatively. Significantly more intense pain was reported by patients who associated it with black color.

11. Neuropathic pain in Moroccan rheumatology practice: about 1528 patients

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Introduction: Neuropathic pain (NP) is a common public health problem, its management is a daily challenge in rheumatological practice.

Objectives: To estimate the prevalence and characteristics of NP among follow up patients in rheumatology department in Morocco.

Methods: We conducted a retrospective and comparative study, over a period of 19 months (between September 2019 to April 2022). The diagnostic tool used was the Douleur Neuropathique 4 (DN4) questionnaire in dialectal Arabic version.

Inclusion criteria: Patients followed up in the rheumatology department at the Ibn Rochd University Hospital Center from the 12 regions of the kingdom for a rheumatological pathology and who gave their consent to participate in the study.

Exclusion criteria: All patients who refused to participate in the study.

Results: 1528 patients had NP, with a DN4 score ≥ 4 , which represents a prevalence of 20% of surveyed population with confidence interval (19, 6; 20,4). Sex ratio M/F was 1/10 and the average age was 57.25 years old. 63% of patients with NP were housewives. The average DN4 score was 5.27 (SD: 1.24). 70% had in addition a nociceptive pain. The most frequent cause of NP was radiculalgia (77%). The risk factors significantly associated with NP were stress, carrying heavy loads, diabetes and overweight.

Conclusion: The prevalence of NP is high in the studied population especially among females. NP was associated with many causes and risks factors which must be integrated in NP management strategy.

12. Assessment of neuropathic pain in Moroccan rheumatology university hospital

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Introduction: Neuropathic pain (NP) is a common chronic pain condition with major impact on quality of life of patients (QOL).

Objectives: Determine the prevalence of NP in rheumatology and its impact on QOL, as well as the epidemiology of NP, the risk factors associated with and the most common therapeutic tools used.

Materials and Methods: Cross-sectional, retrospective and comparative study, conducted between October 2020 to April 2022 in the rheumatology department of Ibn Rochd university hospital of Casablanca. The diagnostic tool adopted was the Douleur Neuropathique 4 (DN4) questionnaire in dialectal Arabic version. The impact of NP on the QOL was assessed by the visual analogue scale (VAS) as well as the "Hospital and anxiety and depression scale HAD" score in validated Arabic version.

Results: 7640 participants had chronic pain and 1528 had NP. The prevalence was 20%. 91% was female with an average age of 57.25 years old (SD: 13.3 years old). The median of DN4 score was 5. The most common causes of NP were lumbo-radiculargia (51%), cervico-brachial neuralgia (26%) and carpal tunnel syndrome (20%). Pain VAS was up to 5/10 initially

in 90% of patients, it decreased to less than 3/10 in 46% of patients with therapeutic combinations and 43% with Pregabalin. Sleep before treatment was altered by pain in more than 85% and VAS sleep was completely improved in all patients receiving Amitriptyline and Gabapentin. 70% had functional limitation before treatment and total recovery of functions was observed in 69% of patients with Pregabalin. All the therapeutic classes used improved significantly the emotional status of all patients according to the HAD score.

Conclusion: NP was prevalent in our study. It impacted functions and altered QOL of all patients at different levels with significant improvement after different therapeutics conducted as part of global pain management strategy.

13. Seven cases of chronic peripheral neuropathic pain treated with peripheral nerve stimulation

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Objective: Evaluate the safety and efficacy of the Peripheral nerve stimulation (PNS).

Materials and Methods: We treated seven patients suffering from chronic neuropathic pain of peripheral origin resistant to conventional medical treatments. The implantation of the wireless PNS devices was performed percutaneously under ultrasound guidance, mild sedation, and local anesthesia with patient feedback during stimulation. Four patients were treated with the implantation of a Bioness StimRouter®. Patients in this group received an implant on the saphenous nerve (2 patients), intercostal nerve, and femoral branch of the genitofemoral nerve. Two patients were treated with the implantation of a Stimwave® PNS system on the cluneal superior nerves and the posterior cutaneous nerve of the thigh. One patient was treated with the implantation of two Axxess™ lead St. Jude Medical® one on the right ilioinguinal nerve and one on the right genitofemoral nerve connected with a non-rechargeable IPG in 2008. In 2011 a rechargeable IPG was implanted. The follow-up of the six patients treated with wireless systems is currently 12 months, 19 months, 24 months, 26 months, 36 months, and 40 months. The follow-up of the patient treated with the conventional system is 14 years.

Results: Pain relief was significant in all patients. NRS reduced on average by 75% and SF-12 improved in all items. Three patients decreased pain medication intake by 50%. Four patients discontinued all medications. There were no adverse events related to the procedure.

Conclusion: PNS should be considered the first-choice treatment in chronic peripheral pain syndromes. The described PNS wireless procedure could be a good option for patients not eligible for more invasive interventions.

14. Systematically administered medication for of neuropathic pain in head and neck cancer patients receiving radiotherapy/chemoradiotherapy: A Systematic Review

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Objective: Neuropathic pain (NP) in head and neck cancer (HNC) patients represents a therapeutical challenge. Most of the studies concerning drugs used in NP are conducted in diabetic neuropathy or postherpetic neuralgia and are limited to non-cancer pain. Regarding the cancer therapy-related NP, most studies do not focus on HNC patients. The aim of this review was to identify the studies about systematically administered medication for NP management that included HNC

patients under radiotherapy/chemoradiotherapy.

Methods: A systematic literature search was performed, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, in PubMed, Cochrane Library, Web of Science and ClinicalTrials.gov on 30 October 2021. The medical subject heading (MeSH) terms were “head and neck cancer” OR “tumor” AND “neuropathic pain” AND “medication” AND “radiotherapy.” Cochrane Collaboration tool was used for quality assessment.

Results: The search identified 432 articles. Three more articles were identified after searching the reference lists of the retrieved articles. A total of 10 articles met the inclusion criteria and were included in this review; 1 about pregabalin, 1 about nortriptyline, 1 about methadone, 1 about ketamine and 6 about gabapentin. Statistically significant results in pain reduction compared to placebo or standard pain medication were found in the studies concerning pregabalin ($p = 0.003$), methadone ($p = 0.03$), ketamine ($p = 0.012$) and in 2 out of 6 gabapentin studies ($p < 0.004$). Two of the studies (both concerning gabapentin) had no comparison arm.

Conclusions: Interventions including pregabalin, methadone, ketamine and gabapentin, were found to provide pain relief. While there is a plethora of pharmacological interventions available for the management of NP, only a few studies have been conducted regarding the pharmacological management of therapy-related NP in HNC patients, including a small range of interventions. More studies should be conducted regarding the pharmacological approaches in HNC therapy related NP and the specific treatment algorithms.

15. Pain and functioning management in lumbar degenerative syndrome after balneary treatments

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Introduction: Lumbar degenerative syndromes represents one of the most diagnosed pathology in our rehabilitation department. We use for rehabilitation regular treatments, using basic physical methods, associated with balneary treatments from Techirghiol area, one of the most famous locations in our country. The salty water and the sapropelic mud of the lake Techirghiol have been the subject of numerous research studies in rehabilitation field.

Objective: The aim of our study is to evaluate the impact of mud therapy and hydro-kinesitherapy in the salty water of Techirghiol lake on patients with degenerative low back pain.

Methods: We evaluated 73 patients, with chronic degenerative low back pain, hospitalized for rehabilitation treatment in Balneal and Rehabilitation Sanatorium of Techirghiol Romania for a period of 2 weeks. The patients were divided into 2 groups, one group was treated with balneal and regular rehabilitation treatments (electrotherapy for pain control and manual massage), and the other group was treated only with regular rehabilitation treatments (electrotherapy for pain control and manual massage). All patients were evaluated using the analog visual scale and lumbar disability specific scales, before and after the treatment.

Results and conclusions: We discovered statistically significant differences between the values monitored at admission and at discharge in first group so, we can say that mud therapy and hydro-kinesitherapy in salty water among special rehabilitation treatment decrease the pain and dysfunction for patients with this pathology, with big improvement of quality of life.

Keywords:

Balneal; Rehabilitation; Techirghiol; Resear

16. Role of Percutaneous Laser Disc Decompression in Patients with Lumbar Disc Herniation on Pain Relief: A Quasi-Experimental Pilot Study

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Objective: Disc herniation is broadly defined as a localized or focal displacement of disc material beyond the limits of the intervertebral disc space. The disc material may be the nucleus, cartilage, fragmented apophyseal bone, annular tissue, or any combination thereof. Laser surgery is one of the treatment modalities for treating patients with lumbar disc herniation. This study aims to examine the effect of Percutaneous Laser Disc Decompression (PLDD) in patients with lumbar disc herniation.

Methods: This study was conducted on 58 patients who underwent PLDD (optical fiber inserted through an 18G needle, 8 joules, and 8 watts). Baseline characteristics of patients include age, gender, and body mass index (BMI) were recorded. The pain was assessed through a 10-point Visual Analogue Scale (VAS) with endpoint anchors of no pain (0 points) and severe pain (10 points) before and after the procedure. Also, we compared the VAS based on age, gender, and BMI.

Results: The study population consisted of 58 patients, among which 58.6% were male. The mean age of the participants was 63.19 ± 13.48 years. The mean BMI of the participants was 29.09 ± 6.51 kg/m². The participants suffered from symptoms associated with disc herniation for an average of 30.44 ± 5.01 weeks, and 55.2% had symptoms for more than 30 weeks. The mean VAS score before and after surgery was 8.73 ± 1.29 and 5.22 ± 2.7 , respectively, which showed a marked reduction ($p < 0.001$). We found no significant association between VAS and gender, age, BMI, and symptom duration when assessing the contributing factors to the patients' pain level.

Conclusions: Our study showed that using PLDD for carefully selected individuals can reduce pain and disability in patients as a safe, non-invasive procedure.

17. Thoracic Epidural Anesthesia in COPD patients undergone open cholecystectomy

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Objective: To evaluate advantages of epidural anesthesia in patients suffering respiratory disease undergone open cholecystectomy and post-operative analgesia.

Methods: Thoracic epidural Anesthesia performed in 10 patients with mean age of 59 years, who underwent open cholecystectomy over a 6-months period. All of them were ASA Physical status Class 3 (stable), known cases of chronic obstructive pulmonary disease (COPD) (8 Cases) and severe asthma (2 cases). After admission, rehydration, steroid therapy, bronchodilators, pulmonary function test and chest physiotherapy performed in order to enhancement of respiratory conditions. Epidural catheter was placed at T 10–11 intervertebral space and a bolus of Ropivacaine 0.5% was administered.

During the operation depending on the pain or segmental level of analgesia, 2 mL of Ropivacaine 0.5% was injected via catheter. Patients received IV sedation with fentanyl and midazolam, they were ventilating spontaneously and no apnea was seen.

Results: Generally, patients had stable hemodynamic during surgery and tolerated well, however; Hypotension occurred for two of them, which corrected with 15 microgram of epinephrine IV. There were minimally changes in the patient's respiratory status, considering PaO₂ and PaCO₂. In addition, post-operative epidural analgesia was satisfactory.

Conclusion: We concluded that open cholecystectomy can be performed safely under thoracic epidural anesthesia in patients with respiratory failure or severe COPD, and provided that the surgeons have good cooperation with you.

18. The Impact of Rigid Cervical Collars on Outcome of Patients Who Underwent Posterior Cervical Laminectomy and Fusion: A Retrospective Comparative Study

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Abstract

Objective: Posterior cervical laminectomy and fusion (PCLF) surgery has been widely used to approach patients with myelopathic spinal cord symptoms, cervical canal stenosis, and ossified posterior longitudinal ligament (OPLL). The safety and possible advantages of implementing rigid cervical collars after PCLF are insufficiently investigated. This study aimed to evaluate the impact of rigid cervical collars on functional, physical, and quality of life-related outcomes of the patients who underwent PCLF surgery.

Methods: In this retrospective cohort study, patients who underwent PCLF and received postoperative cervical collars from 2018 to 2020 were included. Their data were compared with an age and sex-matched group of subjects who did not receive collars after PCLF during the same period. Pain intensity (using visual analogue scale (VAS)), neck disability index (NDI), and quality of life (using SF-36) of the patients were compared at baseline, 1, 3, 6, and 12 months postoperatively.

Results: Overall, 36 patients who received cervical collars after surgery and 40 controls were included. At baseline and one-month follow-up, there were no differences in pain intensity, functional status, and quality of life of the patients between the groups. However, at three months postoperatively, the quality of life of the subjects with no orthosis was higher than those who received cervical collars ($p = 0.01$). At 6- and 12-months follow-ups, there was no difference between the groups in case of pain intensity, functional status, and quality of life.

Conclusions: Our study showed no difference in the pain intensity and functional status of patients who used cervical collars and controls. Patients who did not wear cervical collars had higher quality of life during the three months postoperative evaluations. Future prospective, well-controlled studies with longer follow-ups are needed to further investigate the effect of a cervical orthosis on the clinical outcome of patients after PCLF.

19. Taking care of the person suffering from pain: results of a cross-sectional study in ASL2

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Objectives: To determine the prevalence of pain in patients and to assess the agreement among the level of pain perceived by patients and observed by nurses; to investigate nurses' knowledge about pain.

Methods: A cross-sectional study involving 401 patients (203 women, 197 men), with a median age of 78 years, has been conducted. Two different questionnaires have been administered; the first one, filled in by on-duty nurses, investigates pain and clinical parameters while the second one, filled in by patients, investigates pain and personal information. The concordance between the intensity of pain perceived and the pain observed has been evaluated through apposite scales.

A third questionnaire has been administered to all the nurses of the involved wards.

Results: Data analysis on patients without therapy (293) shows that 67 of them reported feeling moderate pain, while nurses observed it in 12. The percentage of agreement was 76% (K Cohen = 0.03); the pain has been overestimated and underestimated by nurses in, respectively, 2.73 and 21.50 %.

Regarding pain knowledge, it turned out that, from 296 nurses, 164 of them (55.4%) took part in training events about pain in the past even though 260 (87.8%) affirm that pain is very relevant in their professional activity.

Conclusions: Results of the study showed a variation between pain perceived and observed, depending on different ward (specialistic and not specialistic) and on patients with different kind of pain. Our main conclusion is that the assessment of pain is not yet a consolidated activity and represents an important investment area for the nursing profession.

20. Pain assessment: survey in Ligurian Hospital

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Background: Pain is a significant public health problem. It is estimated that, worldwide, one billion and four hundred million people feel pain [1, 2], while in Italy there are 12,000 [3]; numbers are constantly growing, also concerning the progressive aging of the population and the increase of the disability. Law 38/2010 defines pain as the fifth vital sign, giving it a value not only of a clinical nature but also ethical, deontological, and social. However, the pain still remains undersized in its assessment and is not managed appropriately.

Objective: The prevalence of pain in patients assessed, in internal medical, surgical, and specialist wards determines the correlation between the level of pain perceived by patients and that observed by nurses.

Methods: The study involved 401 patients (203 women, 197 men), with a median age of 73 years. The pain was detected on two definite levels, the first by the nurse, recorded directly on the electronic folder, the second, by the patient, annotated on a datasheet, prepared *ad hoc*. The outcome measures used were: numeric rating scale (NRS), self-assessment, and Pain Assessment In Advanced Dementia Scale (PAINAD), observational.

Results: A prevalence of pain of 25.44% was observed. The percentage of agreement was 76% (K Cohen = 0.03); the pain was overestimated (2.73) and underestimated (21.50%) by the nurses.

Conclusions: From the data analysis, it still appears that the pain assessment process is an activity to be consolidated in current practice, even if the fact that there are discrete levels of agreement between the pain detected/observed by the health worker and that experienced by the patient.

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21. Regional anesthesia for carotid surgery

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Objective: To assess the safety of using cervical blockade performed using ultrasound navigation during surgical interventions on the internal carotid arteries.

Methods: Prospective study including 183 patients with atherosclerosis of the carotid arteries, aged 48 to 84 years. Endarterectomy was performed in 125 cases and the elimination of kinking in 63 cases under conditions of cervical blockade with a 0.25% solution of bupivacaine under ultrasound control. 5–8 minutes after the introduction of a local anesthetic, the effectiveness of the blockade of the operating area was determined and the skin incision began. In 105 cases an intrawound blockade of the glomus of the bifurcation of arteria carotica communis was additionally performed with a 1% solution of lidocaine in a volume of 3 mL.

Results: The blockade was carried out without special technical difficulties and without complications. The duration of the operation ranged from 40 minutes to 2 hours 30 minutes, the time of clamping the common carotid artery—from 6 minutes to 47 minutes, the duration of anesthesia—from 2 hours 30 minutes to 3 hours 30 minutes. In one patient with prolonged (21 minutes) clamping of the internal carotid artery, a stroke developed. In 3 patients, signs of thrombosis were revealed intraoperatively, in 2 patients there was a material embolism in the vessels of the brain with a typical clinical picture of acute cerebrovascular accident. No lethal outcomes were observed.

Conclusion: The presented technique, due to a number of positive aspects of efficiency and safety, can be recommended as the choice of anesthesia for this category of patients, since it fully met the needs of surgical intervention. A carefully organized approach to neuro-monitoring and constant attention of the anesthesiologist at all stages of cervical blockade with ultrasound navigation improved their quality and ensured the safety of anesthesia.

22. A medical anthropological research on algo-politics and anthropo-poietical uses of pain in contemporary Europe

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Pain can't be limited to biology. The anthropological signification of an experience shapes the way we look at wounds or medicaments, how it's appropriate to embody, communicate or generally behave in determinate conditions. In a phenomenological perspective, social meanings mold the experience of pain(s),

“Learning to Fly” is a recently concluded ethnography on the exploration of meanings of body suspensions in contemporary Europe, a practice consisting in hang up a protagonist through metal hooks temporary inserted in the skin. The exposition to pain generally shocks outsiders.

Through an anthropological analysis, the research shows that alternative interpretations of voluntary forms of pain are (re)produced to manage chronic conditions, such as fibromyalgia, drug addictions, self-destructive behaviors, endometriosis, and lower-back pains. The management passes by voluntary suffering: pain becomes a positive identity-ingredient, part of anthropo-poietical projects [1] aiming to construct human being characterized by originality and authenticity. The *algofobia* [2] is challenged, generating delegitimizations and accusations of mental disorder.

Qualitative data highlights that pain is a mandatory gate of suspension, inducing altered states of consciousness and providing for self-regeneration. Through the manipulation of perceptual abilities, practitioners intervene on who they are, who they want to become, and pain-meanings drive the interpretation of painful experiences.

Through a multi-sited participant observations and qualitative semi-structured interviews, the research highlights that: suspensions are interventional strategies of pain management; pain is a symptom but also a means strategically operated by chronic suffering; pain can be inserted in life-long projects of self-enhancement beside health vulnerabilities; un-mainstreaming interpretations can be socially (re)produced in accordance with mainstream values.

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23. Radiation exposure during fluoroscopy guided ozone chemonucleolysis for lumbar disc herniations is highly dependent on patients' characteristics

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Introduction: Radiation exposure is a frequent drawback of spine surgery even if X-ray guidance plays a pivotal role to improve the accuracy and safety of spinal procedures. Consequently, radiation protection is essential to reduce potential negative biological effects. The aim of this study was to evaluate the radiation dose emission during fluoroscopy guided ozone chemonucleolysis (OCN) and the potential role of patients' characteristics.

Methods: The radiation dose emission reports were retrospectively evaluated in patients who underwent single level OCN for lumbar disc herniation. A generalized linear model (GLM) with a gamma distribution and log link function was used to assess the association between radiation emission and patients' characteristics such as age, gender, BMI, level of disc herniation, disc height and site of disc herniation.

Results: 240 OCN were analysed and low levels of radiation exposure were observed. The median fluoroscopy time for OCN was 26.3 (19.4–35.9) seconds while the median radiation emission dose was 19.3 (13.2–27.3) mGy and median kerma area product (KAP) was 0.46 (0.33–0.68) mGy*m². The KAP values resulted highly dependent on patient variables. In particular, gender, obesity and residual disc height <50% significantly increased the measured KAP while levels of disc herniations other than L5–S1 reduced the KAP values.

Conclusions: Under experienced hands, the radiation exposure during OCN is poor and quite similar to a simple discography. However, patients' characteristics are significantly related to radiation exposure and should be carefully

evaluated before planning OCN.

24. Effects of TRPM8 antagonists in stimulated sensory neurons

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For all organisms, it is extremely important to perceive noxious stimuli for self-defense. Primary sensory neurons with the ability to detect noxious and usually injurious stimuli exist in the dorsal root ganglia (DRG) and trigeminal ganglia [1]. Some of these neurons are known to express molecular receptors required for nociception, which include the transient receptor potential (TRP) family [2]. There are several distinct TRP family members; for instance, TRP melastatin 8 (TRPM8) is activated by innocuous cold, menthol, and other cooling substances, such as eucalyptol and icilin [3]. Cold hyperalgesia/allodynia is a difficult medical problem not only in inflammatory settings but also in diabetic and chemotherapy-induced neuropathic conditions [4]. Currently, no efficacious therapy exists for cold hyperalgesia/allodynia. The aim of this project was to investigate the effects of TRPM8 antagonists in a model of pain of DRG neurons. Specifically, we focused on the preservation of proteasome activity and autophagy mechanism using murine DRG. Finally, due to the interesting results we tested TRPM8 antagonists in iPSCs-derived sensory neurons, performing electrophysiology-based techniques. Here, we demonstrated that acting on TRPM8 signaling may represent a potential approach to ameliorate or counteract hyperalgesia/allodynia.

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25. The basic science of opioid and multidrug risks in pain patients: challenges and new strategies

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Objective: Treating an opioid overdose in pain patients (e.g., postoperative) or in the community setting using an opioid receptor antagonist (such as naloxone or nalmefene) makes mechanistic sense, and it can be effective if the overdose is due to an opioid. Unfortunately, in the hospital setting the beneficial effect (pain relief) will also be antagonized, and in the community setting the majority of current drug overdose deaths now involve poly-substance use (i.e., an opioid plus a non-opioid such as a benzodiazepine). These issues are addressed in this presentation.

Methods and Results: The basic science of opioid overdose risks and the potential synergistic interactions with non-opioids is reviewed. Respiratory depression induced by opioids results from excessive opioid molecules binding to opioid

receptors. This effect can be reversed by an opioid receptor antagonist. However, the respiratory depression induced by non-opioid drugs is not due to action at opioid receptors—and synergistic multiplicative interactions can occur—thus an opioid receptor antagonist can be less effective in these cases. For respiratory depression induced by non-opioids, receptor antagonists are either not available (*e.g.*, for propofol overdose) or the risks may outweigh the benefits (*e.g.*, for benzodiazepine overdose). This gives rise to a need for more effective ways to treat poly-substance overdose.

What is new and Conclusion: A new pharmacologic approach to treating opioid-induced respiratory depression due to drug overdose focuses on agents that stimulate respiratory drive rather than competing for opioid receptors. Such an approach is ‘agnostic’ to the cause of the respiratory depression, so might represent a potential way to treat polysubstance overdose.

26. 5HT3 receptor antagonist efficacy in PONV: the role of pharmacogenetics, a narrative literature review

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Objectives: Understanding how genetic variations influence drug response in postoperative nausea and vomiting (PONV) will help to identify in a more successful way those patients that could benefit from specific prophylactic and therapeutic antiemetic treatment. The aim of the present study is to investigate gene polymorphisms that influence 5HT3RA’s outcome in PONV.

Methods: We included articles published since 2005 up to present day, utilizing electronic databases including PUBMED, EMBASE, COHRANE Library and ScienceDirect, through a series of combinations and research terms related to the topic. Inclusion criteria were articles referring to: (a) the relationship between genetic variations and 5HT3 receptor antagonists’ efficacy in PONV and (b) genetic variations regarding the 5HT3 receptor gene, the CYPD6 gene and the ABCB1 gene. Exclusion criteria were articles on: (a) radiotherapy induced or pregnancy related nausea and vomiting, (b) genetic variations in patients with PONV not related to 5HT3 receptor antagonists’ efficacy.

Results: Of a total of 70 articles retrieved, 16 were included in this review. Regarding polymorphisms of the CYP2D6 gene, the ultra-rapid metabolizer genotype was associated with reduced efficacy of ondansetron, dolasetron and tropisetron, with the latter presenting more pronounced failure on these patients. It is worth mentioning that granisetron’s efficacy remained unaffected. Regarding variations in the ABCB1 gene, three polymorphisms (“2677G > T/A” in exon 21; “3435C > T” in exon 27; “C1236T” in exon 12) were related to a better response to ondansetron and ramosetron, while these polymorphisms did not affect palonosetron’s efficacy. Additionally, polymorphisms of the 5-HT3B receptor gene were associated with ondansetron’s postoperative efficacy; the “100_-102AAG” deletion variant was associated with reduced efficacy, while the Y129S variant did not show any effect on the drug’s antiemetic effect.

Conclusion: Repeated failure of a 5HT3 receptor antagonist to manage PONV, should raise suspicion towards specific genetic profiles related with drug’s efficacy.

27. Cancer Pain

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Most cancer patients have pain at any stage, and in most types of cancer (head, neck, GIT, gynecological).

It is estimated that only 1 in 3 patients in oncological department have appropriate World Health Organization (WHO) step ladder treatment in Europe because Pain is not systematically evaluated. There is a debate on the quality of life of cancer patients.

The cancer pain is either nociceptive (involvement of any tissue apart from the nervous system), neuropathic (involvement of the nervous system), or mixed. And the pain is either cancer-related, cancer associated, therapy related, or cancer independent.

Special challenge is bone metastasis where in 75% there is breakthrough pain, with characters of rapid onset, short duration, unpredictable, and spontaneous at rest. Assessment of cancer pain must not be only physical, but also psychological, spiritual, and social.

The WHO step ladder has to include interventional pain management in the algorithm that can be opioid sparing. Some drugs like enzalutamide given to patients with prostatic cancer stimulate the cytochrome P 450 that interacts with some analgesics like fentanyl, methadone, oxycodone and paracetamol in a way making the analgesic effect negligible.

The way to relief pain depends on the life expectancy of the patient; e.g., if he is expected to live more than 3 months, interventions like coeliac, splanchnic, hypogastric blocks and intrathecal pumps can be done. Immuno-Oncological treatment is new therapy that treats the patient and not the tumor by stimulating the immune system.

Conclusion: Pain is common in cancer patients which affects the quality of their lives, and the approach must be multidisciplinary and must include pain specialist.

28. Pain medicine and pain management: the territorial network between general practitioners and pain therapy centers

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Objective: Assessment of the local effectiveness of the Pain Therapy Network, 9 years after the Italian law 38/2010, in terms of patient's clinical management and cost containment.

Methods: Patients who arrived at the SPOKE center in Bisceglie from 2011 to 2019 were divided by sex and pathology of entry. The entry and current value of the Numeric Rating Scale (NRS) of pain was recorded on 212 patients from 2017 to 2019. Wilcoxon's rank test was used to assess the effectiveness of pain therapy. A survey on a sample of 64 patients defined: time between the onset of pain and the first visit to the center; diagnostic/therapeutic path; health expenditure and center's satisfaction degree.

Results: 985 patients arrived from 2011 to 2019, showing an annual growth rate of 40.7%, with a prevalence in females (60.51%) compared to males (39.49%). Lumbosciatalgia (43.28%) was the most frequent pathology. The sample of 212 patients had a mean entry NRS of 8.024(± 1.67). The difference between initial and current NRS was statistically significant. The survey showed that 35.8 months pass from the onset of pain to the first visit to the clinic. 75% consulted General Practitioners (GPs), 68.75% other specialists, 39.06% self-medicate. 62.9% did not receive any relief from the treatments done in this period, 27.42% little and only 9.68% benefited. 44.44% of patients were referred to the center by GPs, 39.68% by friends and relatives, 15.87% by specialists. The cost before entry is around €465. The center's satisfaction rate is 9.27/10.

Conclusions: The increase in access to pain therapy and the significant reduction of NRS, confirm the role of the Pain Therapy Network. But patients come after years of therapies that do not bring benefits and that weigh on personal expenses.

It is therefore necessary to focus on better collaboration between territory and SPOKE/HUB centers.

29. Low back pain (LBP) affected disability and pain catastrophizing in subacute inpatient rehabilitation during COVID-19 pandemic

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Objectives: To examine disability and catastrophizing strategies before and during COVID-19 pandemic among patients with LBP in subacute rehabilitation practice in Latvia.

Materials and Methods: In this study were used four research tools: Demographic questionnaire, Visual analog scale (VAS), The Oswestry Low Back Disability Questionnaire, Pain Catastrophizing Scale. The statistical analysis was performed using SPSS software version 22.0.

Results: In this study 78 patients participated for rehabilitation before COVID-19 pandemic and 70 patients during COVID-19 pandemic (total of 148 patients for rehabilitation), aged from 23 to 81 years with median age 56. Pain intensity by Visual analogue scale before pandemic mean scores were 30, but during COVID-19 pandemic mean scores for pain were 40. According to modified disability questionnaire 40% of LBP patients were with moderate disability, 26% minimal disability whereas 24% severe disability and 10% crippled before COVID-19 pandemic, but during pandemic 60% of LBP minimal disability and 40% were with moderate disability. Results showed statistical correlation between disability and pain intensity ($p < 0.01$), maladaptive catastrophizing thinking ($p < 0.05$), such as rumination and helplessness ($p < 0.01$). There are statistically significant correlations between low back pain disability and rumination ($r = 0.489$ before pandemic, and $r =$ during pandemic), Magnification ($r = 0.326$) and Helplessness ($r = 0.519$).

Conclusion: Our results point out the importance of pain catastrophizing strategies in determining disability. It is very important to use results for adapting biopsychosocial pain management model in rehabilitation practice. Necessary to continue research work to identify all possible aspects of factors that influence low back pain in multidisciplinary care and cure for better target interventions.

30. A systematic review of multimodal analgesia in postoperative abdominal hysterectomy

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Background: Abdominal hysterectomy is a commonly performed gynecological procedure. It is often associated with a significant problem of chronic post-hysterectomy pain (CPHP), which requires a comprehensive multimodal pain management strategy to reduce its incidence. This review aims to summarize the efficacy and safety profile of different multimodal analgesia combinations for the treatment of post-abdominal hysterectomy pain.

Methodology: A systematic review was conducted in Medline®, Embase®, CINAHL® and PsycInfo® in line with the PRISMA and SWiM guidelines. Randomized controlled trials (RCTs) which evaluated the use of different combinations of nonopioid and opioid analgesia for adult patients were included. The efficacy of different multimodal analgesia combinations was assessed based on the reduction in consumption of morphine.

Results: Of the 132 articles retrieved, 38 RCTs were included. There was a total of 31 studies which investigated analgesia combinations with 2 agents. Of these studies, the use of Nonsteroidal anti-inflammatory drugs (NSAIDs) and Opioids were

the most studied multimodal combination (n = 17, 55%), followed by N-methyl-d-aspartate (NMDA) Receptor Antagonist and Opioids (n = 6, 19%), Gabapentinoids and Opioids (n = 4, 13%) and Paracetamol and Opioids (n = 3, 10%). Within the combination of NSAIDs (including COX2 inhibitors) and Opioids, majority of the studies (n = 13) showed significant reduction in rescue opioid requirements (15% to 54%). Evaluating the combination of NMDA Receptor Antagonist and Opioids, 4 out of 6 studies revealed no significant reduction in rescue opioid requirements when compared to placebo. For Gabapentinoids and Opioids, most studies (n = 3) showed a significant reduction in rescue opioids requirements (32% to 71%). 2 out of 3 studies looking at Paracetamol and Opioids revealed significant reduction in rescue opioid requirements (31% to 36%).

Conclusion: NSAIDs and gabapentinoids appear to have significant opioid-sparing effects when treatment post-operative abdominal hysterectomy pain. Physicians should consider utilizing them as part of a post-operative regimen for optimum pain management.

31. Percutaneous Radiofrequency Neurotomy in the Treatment of Lumbar Facet Joint Syndrome. Looking for a consensus way

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Background: Despite its growing use, percutaneous radiofrequency treatment of lumbar facet joint syndrome (PRLFJ) represents one of the most debated interventional procedures. Remarkably, all aspects of the technique, including diagnostic criteria, patient selection, methodology, and post-procedural management, remain controversial.

Recently, a multi-specialist international working group addressed the issue, and developed guidelines based on consensus. The project involved 12 national and international scientific societies as well as several government agencies. However, the same authors concluded that, although raising, the evidence is still limited to comprehensively guide and standardize the procedure. The available literature, in fact, mainly concerns small sample sizes studies, monocentric, and featuring an uncontrolled design. The main limitation is that these studies provide results on very dissimilar approaches.

Scientific research must necessarily correct these gaps. For this purpose, bibliometric research can be an effective strategy. It can offer an overview on the developed research on the topic, providing useful findings. Results can be also used to predict the direction for future investigations and enhance research networks. On these premises, a VOSviewer-based bibliometric network analysis was performed.

Methods: The global literature on PRLFJ was scanned in the Web of Science (WOS) online database. The search string applied to identify the closest matching articles was “facet joint (All Fields) and radiofrequency (All Fields) or neurotomy (All Fields) and lumbar (All Fields) and rhizotomy (All Fields)”. All data were acquired on 19 July 2022. The knowledge visualization software tool VOSviewer (version 1.6.17) was implemented.

Results: The annual number of documents and trends will be shown in the poster.

32. Acute pain management: new guidelines are necessary

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Acute pain represents an incredible and difficult challenge in medicine. Most of the physicians are especially concentrated on postoperative pain, forgetting hundreds of other causes responsible for acute pain conditions, both of surgical and medical clinical interest. For an organic and adequate evidence-based management, several guidelines have been published. Exploring PubMed for “acute pain guidelines”, it is possible to find over 2000 papers just for the last 10 years. The history of guidelines in acute pain starts much before than the last 10 years. It goes back especially to the ‘90s, with all the interest related to multimodal analgesia and organization of acute pain services. As said before, the huge majority was related to the postoperative pain management. In particular, there were 2 great groups, in Copenhagen (Denmark) and in Orebro (Sweden) that generated an increasing interest on the topic. The first group at the beginning of the ‘90s started to highlight the concepts on the importance to treat postoperative pain and the potentialities to obtain a good analgesia with the simultaneous use of different analgesics (“balanced” or “multimodal” analgesia). The other one, in the same period of time, was more addressed to demonstrate how important (crucial) was the organization based on nurses, to obtain a rewarding management of postoperative pain.

After that, hundreds of evidence-based guidelines and recommendations have been published. We will analyze the most relevant. Also, we will focus the attention on the real influence of all those publications and guidelines on the on-bed assistance, and on the change of epidemiological data related to acute pain. At the end, we will propose some new vision that should be implemented, thank to technological developments, if we really want to have an impact on the incidence of acute pain and pain chronification.

33. Counterfeiting of Alprazolam Tablets: A Growing Problem with Disastrous Consequences

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Introduction: Sophisticated counterfeiting schemes for alprazolam tablets are on the rise and have dire implications owing to production methods that result in a product virtually indistinguishable from authentic alprazolam. The composition of the counterfeited drug can contain toxic amounts of fentanyl and/or analogs of fentanyl, with the potential to cause severe harm and even death to the unknowing user. Illicit fentanyl and fentanyl precursors originating from China are flowing into the United States, Mexico and Canada at alarming rates. These are mass-produced in clandestine labs in China and smuggled via traditional distribution routes directly or indirectly into the United States. Kilo packaged drugs are being used to mass produce fake alprazolam tablets with pill press dies and machines that can be easily obtained, and ranging in price from \$150 to over \$10,000. Large pill press machines are capable of producing 5000 pills an hour.

Methods: A literature review of illicit drug production was used to identify the prevalence of fentanyl-laced alprazolam tablets. There have been dramatic increases of this practice over the last several years due to cheap raw material costs and the prospect for huge profit. Unscrupulous individuals are not concerned with merely duplicating product composition, they would rather create an identical looking product and use the cheapest, and most toxic components that would give the user a high under the guise of anticipated alprazolam efficacy. Because alprazolam is such a popular drug, along with a restricted controlled drug schedule classification, there is a huge market for acquiring this product through illegal means.

Results: Non-pharmaceutical grade fentanyl, and its’ analogs, are specially designed narcotics illegally produced and manufactured by chemists in secretive laboratories worldwide. In some instances, fentanyl analogs can be up to

10,000 times more potent than morphine. The lethal dose of fentanyl analogs is not known; however, it is suspected to be micrograms compared to the potency of pharmaceutical grade fentanyl. Fentanyl analog substances are believed to be extremely potent in which there is no pharmacology to determine a toxic level. It would not be an unrealistic assumption to say that a few picograms of a fentanyl analog could be fatal.

Conclusions: Counterfeit alprazolam tablets are readily available on the Internet and have been shipped in the mail to unknowing consumers who think they are buying a benzodiazepine product. Unfortunately, these fake drugs have been identified to contain fentanyl and fentanyl analogs. They're composed of various fillers, and typically a potent dose of fentanyl and/or fentanyl analog, without a trace of any alprazolam. The danger of this horrific scenario is not only risk of harm and death to innocent individual users, but also the sobering and very real threat to entire populations if these counterfeit substances ever find their way into the drug supply chain.

34. Controlled Substance Waste

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Objective: Opioids and other controlled substances are widely prescribed but there are no uniform standards for appropriate disposal of these substances as waste beyond what individual organizations have established for their institutions or practices. There are city, state, and national regulations which can sometimes be contradictory. **Methods:** This was a narrative review looking at opioid wasting and disposal of controlled substance protocols, regulations, and the relevant regulatory bodies. It is also based on the clinical experience of the lead author.

Results: In the United States, as in other nations, multiple authorities may have regulations about controlled substance wasting, such as environmental agencies, drug enforcement agencies, medical organizations, and so on. Opioid wasting can be a vulnerable point for drug diversion since it may be possible for healthcare professionals to “document” appropriate opioid disposal while purloining the agents. After disposing, it is important the agents be rendered irretrievable. Although the United States has in the past allowed some of these wasted agents to be flushed into municipal water systems, that practice is discouraged or outlawed today. Monitoring waste disposal sites, appropriate recordkeeping and documentation, environmental prudence, and an awareness of ongoing regulatory issues and changes is important. Different regulations may apply to individual practices, veterinary clinics, hospitals, and long-term residential care facilities, all of which use controlled substances.

Conclusion: The disposal of controlled substances is an important public health concern, and clear guidelines are urgently needed for better waste management. Environmental concerns are important as well as the reduction of drug diversion. Safety for the environment, the community, the healthcare workers, and patients are crucial considerations.

35. Mobile Narcotic Treatment Programs in the United States: On the Road Again

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Objective: In the United States and other parts of the world, mobile services can be used to bring a “methadone van” to parts of the community not well served by brick-and-mortar opioid rehabilitation programs. These treatment vans were widely used in the United States and Europe, but were temporarily halted in the United States in 2007 for fear of drug

diversion.

Methods: This was a narrative review of the literature and a perspective on changing laws and trends in the United States related to opioid rehabilitation services.

Results: Opioid agonist treatment is an important and effective form of opioid rehabilitation but not all people—particularly in a large nation such as the United States with substantial rural populations—have access to standing rehabilitation treatment centers. The goal of mobile narcotic treatment is to “bring the treatment to the patient.” Such programs are ongoing in parts of Europe and China. Technological innovations such as video conferencing, smartphone apps, text reminders, and telehealth counseling services supplement these programs. Numerous regulations are in place such that these methadone vans must be affiliated and return each day to a brick-and-mortar rehabilitation center and special security provisions are required for storing the drugs while on the road. An important strategic consideration for such programs is onboarding patients (recruiting those who need the services) and exit strategies when it is time for the patient to move toward a different form of recovery.

Conclusion: Millions suffer from opioid use disorder and mobile services combined with telehealth apps and technology may expand opioid agonist therapy to a broader number of patients, particularly those who have difficulty accessing standard rehabilitation.

36. Low-dose transdermal buprenorphine in elderly patients affected by chronic non-cancer pain

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Abstract

Chronic pain affects up to 70% of the elderly population. Transdermal buprenorphine may help relieve pain, but its use in elderly patients is discussed, mainly because of its adverse effects, especially those on central nervous system, for potential detrimental effects on the cognitive responses. The mechanisms for such effects are still unclear. Also, the efficacy of buprenorphine patch on behavioural profile as well as on the functional level has yet to be clarified. We made a retrospective study, analysing the medical records of elderly patients treated with low-dose buprenorphine for their chronic non-cancer pain.

Methods: A real-world study, retrospective, was designed to explore the effects of transdermal buprenorphine in elderly patients affected by persistent chronic pain. Buprenorphine patch was administered in the new-developed weekly formulation, with 5µg/h release. Also, cognitive level, behavioural profile and functional abilities were evaluated. These were assessed at baseline and at the end of the study. Adverse events were recorded. Analysis of variance (ANOVA) within group comparisons were performed.

Results: A total number of 97 medical records were examined (baseline Numerical Rating Scale (NRS) 6.8 ± 1.8 , mean age 81 ± 7) and $n = 90$ of them were in agreement with the selection criteria. A statistically significant improvement was observed in NRS score and Norwich Patellar Instability (NPI) score. No statistically significant changes in Mini-Mental State Examination (MMSE) score, (activities of daily living (ADL)/instrumental ADL (IADL)) scores were observed. Reported adverse events were all of mild intensity, with a decreasing trend over time.

Conclusion: Despite the short study duration, this pilot study suggests the efficacy of low-dose buprenorphine patch in reducing moderate-severe chronic pain, and in improving the neuropsychiatric/behavioural profile, with a good safety profile. Patients’ cognitive status was unaffected by the treatment.

37. Iatrogenic Associated Respiratory Depression: The need for innovation

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Abstract:

Iatrogenic-associated respiratory depression is experienced in a cadre of clinical scenarios, including but not limited to postsurgical recovery. Postsurgical recovery is influenced by multiple pre-, intra- and perioperative pharmacotherapeutic interventions, including administering medications that can induce respiratory depression postoperatively. Pre-, intra- and perioperative medications are commonly administered for anxiety, anesthesia, muscle relaxation and pain relief, among other reasons. Several drugs alone or in joint action can be additive or synergistic, producing respiratory depression. Given the large number of surgical procedures performed each year, even a small percentage of postoperative respiratory complications translates into a large number of affected patients. It is a significant medical problem and a burden on hospital resources. New strategies are needed to prevent and treat the acute and collateral issues associated with postoperative respiratory depression.

We present a concise overview of the topic, including the nature and magnitude of the problem, contributing factors, currently limited options, and potential novel therapeutic approach.

38. Cocaethylene: The Dangerous Combination of Alcohol and Cocaine

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Objective: When cocaine and ethanol are used together, a psychoactive metabolite is produced which has potentially life-threatening cardiotoxic effects. This metabolite, known as cocaethylene, is more toxic to the cardiovascular and hepatic systems than the parent drug and has a longer plasma elimination half-life (~2 hours compared to 1 hour).

Methods: This was a narrative review of peer-reviewed literature using the keywords “cocaethylene” with emphasis on newer studies (<5 years).

Results: The metabolic pathway of cocaine is altered by ethanol such that cocaethylene is produced. This is the only known instance of a psychoactive substance produced entirely within the body. While cocaethylene has similar effects as cocaine, there are pharmacodynamic distinctions. Cocaethylene has slower clearance, a larger volume of distribution, and a longer half-life. Cocaethylene, a powerful sodium channel blocker, increases heart rate and blood pressure to a greater extent than cocaine and is believed to be more than 10 times as cardiotoxic as the parent molecule. Few patients understand the effects of alcohol with cocaine. Likewise, emergency healthcare workers who may treat patients with cocaine-induced adverse events need to be aware of how ethanol and cocaine may produce adverse effects that are more powerful and longer-lasting than one might assume would occur with cocaine alone.

Conclusion: Many people who use cocaine take it together with alcohol and are unaware that this may cause a manifold increase in toxicity. Increasing polysubstance use has shown that cocaine and alcohol is a popular drug combination. Greater awareness is needed among drug users and healthcare workers about this powerful and potentially dangerous combination.

39. Multimechanistic Single-Entity Combination Products for Control of Chronic Pain

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Objective: The atypical opioids of tramadol, tapentadol, and cebranopadol are novel analgesics with two mechanisms of action in a single molecule. This is a short review of their function and clinical application for chronic pain syndromes.

Methods: This was a narrative review of these three agents for use in chronic cancer and chronic noncancer pain patients.

Results: Tramadol is a centrally acting analgesic and weak opioid and is sometimes further combined with a nonopioid. Tramadol has been found effective in treating musculoskeletal pain and pain of osteoarthritis, it is not effective in treating neuropathic pain. The evidence supporting the use of tramadol for treatment of cancer pain is limited.

Tapentadol has been effective in treatment chronic low back pain with a neuropathic component, diabetic polyneuropathic pain, and it is also effective against many types of musculoskeletal pain. Tapentadol was found noninferior to oxycodone for treating cancer pain.

Cebranopadol, not approved to market, is a novel first-in-class analgesic that combined a mu-opioid-receptor agonist with activity at the nociception/orphanin (NOP) FQ peptide receptors. It has been studied in patients with chronic low back pain and cancer pain. Cebranopadol was noninferior to morphine in a study for cancer pain analgesia.

All of these agents are associated with potentially treatment-limiting adverse events.

Conclusion: Atypical opioids with dual mechanisms of action in a single molecule represent an important analgesic innovation and may help provide effective pain control while limiting opioid exposure and enhancing patient safety.

40. The Role of NSAIDs in the Management of Acute Postoperative Pain Following Oral Surgery

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Objective: Non-steroidal anti-inflammatory drugs (NSAIDs) are a broad class of analgesic agents that can be safe and effective in the treatment of acute postoperative pain. Since NSAIDs reduce inflammation, they may be particularly well suited to this role, but side effects must be considered. Our goal was to explore recent literature on the role of current and emerging NSAIDs for use in postoperative pain following oral surgery.

Methods: This is a narrative review based on a literature search for peer-reviewed articles reporting on clinical trials that used one or more NSAIDs to treat postoperative pain after oral surgery.

Results: The most frequently prescribed NSAIDs are naproxen and ibuprofen and were found to be effective in pain control; ibuprofen was effective at 400 mg with only modest or no incremental benefit at higher doses. NSAIDs can be combined with other agents, such as dexketoprofen (which can be used as monotherapy) with tramadol. Head-to-head trials failed to show a clearly superior analgesic agent. Side effects were relatively limited as most analgesia was administered as a single dose or very short course of treatment (2–3 days).

Conclusion: NSAIDs are safe effective pain relievers for controlling acute pain after oral surgery. The armamentarium is varied and agents may be effectively combined or used as monotherapy. They are well tolerated over a short course of treatment.

41. What is Old is Now New Again: Nitazenes as Street Drugs

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Objective: Nitazenes were first developed in the 1950s as drug candidates to substitute for morphine, but none were ever cleared to market. In the past years, nitazenes have been detected on autopsy in overdose deaths and in street drug supplies. Our goal was to explore the idea of these older abandoned drugs finding “new life” as dangerous street drugs.

Methods: This is a narrative review of peer-reviewed literature on nitazenes combined with materials from authoritative websites. There is a paucity of information available on nitazenes as the latest street drug.

Results: The commercial failure of nitazenes led to a general lack of academic interest in them until clandestine laboratories started to manufacture them illicitly and introduce them to the recreational drug market in Europe and North America. A variety of nitazene analogs are available and some are more potent than fentanyl. Isotonitazene is likely the most prevalent of these new street drugs. The clinical implications are that first responders and emergency medicine professionals may see cases of overdose or profound respiratory depression associated with these highly potent new drugs. Naloxone can reverse nitazenes but dosing is unclear as nitazenes may be both highly potent and impure. Nitazenes are often combined with other drugs either at the point of sale (nitazene-laced heroin, for example) or by the end use (polysubstance use).

Conclusion: Nitazenes as recreational drugs pose enormous clinical challenges as they are highly potent and are associated with overdose-related morbidity and mortality. Healthcare professionals as well as recreational drug users need to be more aware of these “new old drugs.”

42. Persistent hiccups after a single dose of dexamethasone injection for lateral epicondylitis (tennis elbow): A case report and mini review

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Background: Corticosteroids are known to have multiple systemic effects and side effects. Hiccups induced by steroids is an uncommon side effect and although not life threatening, it can be significantly annoying for the individual.

Case Report: We are presenting the case of a fit 46-year-old Caucasian male who developed persistent hiccups for 48 h, 1 hour after periarticular lateral epicondyle injection with 6.6 mg of dexamethasone. The hiccups was severe and intolerable, and prevented patient from sleeping. The patient had a history of vitiligo. On further questioning the patient recalled a past incident of persistent hiccups (72 h duration) after intramuscular corticosteroid injection for vitiligo treatment.

Discussion: Hiccups is an uncommon adverse effect of steroids, with unknown incidence. It is rarely mentioned by clinician during patient information and is possibly not counted as a side effect of steroids. Hiccups is an involuntary, intermittent, spasmodic contraction of the diaphragm and intercostal muscles that can occur at a frequency of 4–60/min [1] and represents a reflex arc made up of several neural pathways, including phrenic and vagus nerves, the sympathetic chain

[2], medulla oblongata and reticular formation, as well as hypothalamus. The phrenic nerve serves as the efferent limb along with additional efferent neural connections to the glottis and inspiratory intercostal muscles [3]. In the literature, there are currently few case reports on use of steroids and hiccups; steroids were used by various routes, doses, and duration of treatment. Among the steroids used were dexamethasone, prednisolone, methylprednisolone, betamethasone acetate/betamethasone sodium phosphate as well as anabolic steroids [4–8]. Impressively, dexamethasone is more frequently associated with hiccups [4, 9]. The speculated mechanism is that steroids lower the synaptic transmission threshold in the midbrain and directly stimulate the hiccup reflex arc [10].

Conclusions: Although hiccup is not usually reported as a side effect of steroids, there must be increased suspicion when patients present with it after administration. Patient information is also important as it can have significant impact on the individual.

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