after DMM markedly worsened joint damage and osteophyte formation. These findings suggest an important role for nociceptors in joint homeostasis, with different effects if nociceptors are ablated before or after joint damage occurs. Our findings suggest a neurogenic contribution to joint homeostasis. Current work focuses on documenting the joint nociceptive innervation in the different experimental groups, and the relationship with pain.

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OP0196
ANTI-TNF TREATMENT MODIFIES PAIN MODULATION DESCENDING PATHWAYS: A PROSPECTIVE, 6 MONTHS STUDY IN ACTIVE CHRONIC INFLAMMATORY RHEUMATOID PATIENTS’ NAÏVE OF BDMARD

Keywords: bDMARD, Rheumatoid arthritis, Pain

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Background: In rheumatoid arthritis (RA) and spondyloarthritids (SpA), persistent pain remains challenging. In active disease, diffuse noxious inhibitory controls (assessed through conditioned pain modulation (CPM)) are impaired [1]. Little is known regarding impairment of pain pathways in patients under bDMARD.

Objectives: The main objective of the RAPID (Rheumatism Pain Inhibitory Descending pathways) study, was to assess descending pain modulation (through CPM paradigm) in patients with active RA or SpA, after introduction of first bDMARD with anti-TNF.

Methods: We included 50 RA and 50 SpA patients with active disease, naïve of bDMARD. We assessed clinical disease variables for patients, together with responses to various psychological questionnaires. All participants underwent QST with the determination of heat and cold pain thresholds (HPT-CPT) on dominant forearm and CPM. CPM paradigm require a conditioning stimulus, here applied to the non-dominant foot (cold circulating bath at 6°C during 1 min). Descending pain control was assessed as the change in HPT (in °C) following the conditioning stimulus: the higher the CPM effect, the more efficient the inhibitory control. Patients were followed at 3 and 6 months after TNF inhibitor initiation. At both follow-up visits, clinical monitoring of the rheumatism and repeated thermal QST and CPM.

Results: One hundred patients were included, 59 women, mean age 45.8 (± 14.6) and mean disease duration 7.93 (± 796) years. Due to COVID surge 87 patients initiated an anti-TNF, 74 patients completed the follow-up. At 6 months, 40 patients achieved a good therapeutic response (good EULAR response or ASDAS major improvement), 19 patients had a moderate therapeutic response (moderate EULAR response or clinically important improvement) and 15 patients had no therapeutic response. At the end of follow-up, 51 patients were in remission or low disease activity and 47 patients had a pain intensity ≤4/10. Thermal pain thresholds did not significantly change during follow-up. Mean HPT was at baseline 42.35°C (± 3.68) and at 6 months 42.17°C (± 3.67). Mean CPT was at baseline 13.11°C (± 10.04) and at 6 months 12.86°C (± 9.45). Conditioned pain modulation was significantly changed during follow-up. Mean CPM effect was at baseline 0.25°C (± 2.57), 2.64°C (± 2.12) at 3 months and 2.96°C (± 2.50) at 6 months. At the end of the 6 months follow-up, mean CPM effect was significantly higher in patients with residual mean pain intensity ≤4/10 compared to patients with persisting pain ≥4/10: 3.25°C (± 2.68) vs 2.47 (± 2.11) (p=0.04).

Conclusion: After TNF inhibitor initiation in active RA or SpA, impaired diffuse noxious inhibitory controls are significantly improved. Apart from their articular efficacy, TNF inhibitor have an action on the central nervous system and pain modulation pathways. In patients with persisting pain under bDMARD, diffuse noxious inhibitory controls are not as efficient as patient without residual pain.

REFERENCE:

OP0197
FACTORS ASSOCIATED WITH LONG-TERM OPIOID USE IN FIBROMYALGIA PATIENTS NEWLY STARTED ON AN OPIOID: RESULTS USING UK PRIMARY CARE ELECTRONIC PATIENT RECORDS

Keywords: Artificial intelligence, Fibromyalgia, Prognostic factors

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Background: The impact of the opioid epidemic in North America has caused concern in the United Kingdom and across Europe. Long-term opioid use is associated with several opioid-related harms and adverse outcomes. Fibromyalgia is frequently treated with opioids due to limited therapeutic options. Understanding what factors are associated with long-term opioid use in such patients is the first step in helping to develop targeted interventions for deprescribing.

Objectives: The objective of this study was to (i) quantify the proportion of new opioid users with fibromyalgia who become long-term opioid users (ii) identify risk factors associated with long-term opioid use in fibromyalgia.

Methods: A retrospective cohort study was conducted using data from the Clinical Practice Research Datalink (CPRD). CPRD is a national database of electronic health records within primary care, representation of the UK general population. Fibromyalgia patients without prior cancer who were new opioid users between 01/Jan/2006 and 31/Aug/2021 were included. Long-term opioid use was defined as at least 3 opioid prescriptions issued within a 90-day period, or ≥1 opioid prescription lasting at least 90 days, in the first year of follow-up. Logistic regression analysis and a random forest model were used to identify risk factors related to long-term opioid use. Compared to logistic regression, random forest variable importance measures covered both the effects of individual predictor variables as well as multivariate interactions with other predictor variables. In the random forest model, the mean decrease accuracy (MDA) index to measure the variables’ importance was used; the larger the value of the mean decrease accuracy, the more important the variable is.

Results: Of the 28,552 fibromyalgia patients who were new opioids users, 7,375 (26%) became long-term opioid users in the first year. In the fully adjusted logistic regression model, suicide and self-harm (adjusted odds ratio [aOR]: 1.98, 95% confidence interval [CI]: 1.72-2.27, p=0.001), substance use disorder (aOR: 2.07, 95%CI: 1.62-2.66, p<0.001), most deprived (Index of Multiple Deprivation [IMD] quintile 5/least deprived), obesity (aOR: very severely obese, OR: 2.35, 95%CI: 1.76-3.18, p<0.001) and mean daily morphine milligram equivalents (MME) at
the initiation (High (120–199 MME/day): aOR: 3.81, 95%CI: 18–78.05, p<0.001 compared to mean daily MME: Low (<50 MME/day)) were associated with higher risk of long-term opioid use. The three most important variables using the random forest model were mean MME/day at initiation (MDA 140), history of suicide and self-harm (MDA 40) and IMID (MDA 30).

Conclusion: Almost 1 in 4 patients with fibromyalgia starting opioids became a long-term opioid user in this nationally representative dataset across the UK within the first year. The dose of initial opioid prescription, high deprivation score, history of suicide and self-harm, substance use disorder and obesity were associated with long-term opioid use.

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Keywords: Artificial intelligence, Fibromyalgia

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Background: Chronic Pain Syndromes (CPS), including fibromyalgia (FM), place a significant health and socioeconomic burden. Despite sharing a similar clinical presentation, they are a heterogeneous entity, often with different causes and in association with other conditions. Multimodal treatment programs allow a comprehensive clinical and physical assessment of these patients.

Objectives: The objective of this study is to identify subtypes in CPS patients including primary and secondary FM who were assessed during a two-week multimodal pain management program via an unsupervised machine learning model.

Methods: We collected data from 202 patients as part of a 2-week multimodal pain management program. Clinical features, comorbidities, medications and demographics were collected and patients were assessed by physical and mental questionnaires (e.g. BPI, FABQ, FABQ-W, POAM, HAS, HDS, PCS, TAMPA, OD) before and after the program. There was a weekly interdisciplinary case discussion between rheumatologists, pain specialists, psychiatrists, physiotherapists and occupational therapists. For data analysis, hierarchical agglomerative clusters were generated using the Ward variance minimization algorithm with Euclidean pairwise distances (Python 3.10). The number of clusters was selected by inspecting visualizations (including dendograms and radar plots), in combination with clinical interpretability and utility.

Results: Five patient subtypes with the following characteristics were identified:


Conclusion: All five chronic pain phenotypes identified by unsupervised machine learning are consistent with clinical observations. Psychiatric comorbidities are prevalent in all clusters except one, where they may be suppressed. Work disability plays an important role in all patients. In at least two clusters, the pain seems to have its origin in childhood or adolescence. One cluster seems to be particularly influenced by hormonal and metabolic factors.