patient subtype clustering (n=5, 7%) and the application of natural language processing to understand user-generated text for pharmacovigilance (n=2, 3%). The results show that within the studies that developed ML models for prediction, most of them (n=16, 21%) had prolonged follow-up (median follow-up outcome (the majority looking at arthroplasty, arthroscopy and spine surgery patient populations).

All these studies had skewed outcome proportions but only three studies (4%) addressed it (with either oversampling techniques or reporting the area under the precision-recall curve). Only one study had been externally validated. Other primary outcomes of prediction models developed included opioid use disorder (n=12, 16%), opioid overdose prediction (n=9, 12%), opioid administration and prescribing (n=6, 8%) and chronic opioid use (n=3, 4%). For risk factor identification, ML techniques were limited to understanding the drivers of opioid-overdose (n=2, 3%), opioid dependency (n=2, 3%) and opioid administration and prescribing (n=3, 4%). A very limited number of studies used unsupervised and semi-supervised ML algorithms to address opioid-associated outcomes (n=8, 11%).

Conclusion: To date, application of ML techniques besides logistic regression to classify patients who experience opioid-related harms has been limited, with most publications using electronic health records from the United States in the last 5 years. The majority focused on prediction algorithms for postoperative opioid use and have limited implementation in clinical practice. The current literature lacks external validation studies for developed prediction models using ML. This is especially important if implemented outside of the United States, since the scope of opioids is affected by a diverse set of individual and contextual factors that can substantially vary across countries.

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AB1657 TIME-DEPENDENT CDSMADS USE AND INFLAMMATORY BURDEN CAN PREDICT CARDIOVASCULAR RISK IN PATIENTS WITH ANKYLOSING SPONDYLITIS: A POPULATION-BASED STUDY

Keywords: Cardiovascular disease, Prognostic factors, Disease-modifying drugs (DMARDs)

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Background: It is well established that AS patients had a higher risk of cardiovascular disease (CVD) than the general population [1,2]. To date, there is no primary studies directly addressing the relationship between risk factors and MACE in population-level study.

Objectives: To examine whether inflammatory burden and drug use over time increase major adverse cardiovascular events (MACE) independent of traditional cardiovascular (CV) risk factors in ankylosing spondylitis (AS) patients.

Methods: Patients who had been diagnosed with AS (ICD-9: 720.0) from 2006 to 2015 were recruited in a retrospective cohort study. They were followed until the end of 2018. The primary outcome was a first incidence of MACE. Time-varying Cox proportional hazard models were used to assess whether inflammatory burden (C-reactive protein [CRP] and erythrocyte sedimentation rate [ESR]), and drug use (non-steroidal anti-inflammatory drugs [NSAIDs] and disease modifying anti-rheumatic drugs [DMARDs]) can predict the development of first MACE.

Results: Totally 3827 patients (age: 45.2 ± 15.0 years, male: 2911 [76.1%]) were recruited. 135 patients (13.2%) developed a first MACE. ESR level (including ESR≥20 mm/hr and ESR>30 mm/hr, HR: 2.07±2.41), CRP level (including CRP>3 mg/dl, HR: 1.20±0.77) and use of steroid (HR: 3.48) were associated with a significantly higher risk of MACE during follow-up. Whereas the use of sulfasalazine (SLZ) and DMARDs (bDMARDs) were associated with reduced risk of MACE. After adjusting for time-fixed CV risk scores in the multivariable models, only ESR level (including ESR≥30 mm/hr, HR: 1.02-1.94) and CRP level (including CRP>3 mg/dl, HR: 1.14-5.43) remained significant predictor for increased risk of MACE, while SLZ (HR: 0.41±0.52) was protective against MACE.

Conclusion: Increased inflammatory burden was associated with increased risk of MACE, while the use of SLZ may reduce risk of future MACE in patients with AS.

REFERENCES:

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AB1658 COMPARISON OF STERNOLEIDOSTOMAIDOICEOUS FLEXIBILITY, VAGUS NERVE FUNCTION, AND GASTROINTESTINAL SYMPTOMS IN CHRONIC NECK PAIN AND HEALTHY INDIVIDUALS

Keywords: Gastrointestinal tract, Prognostic factors, Non-pharmacological interventions

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Background: The vagus nerve emerges from the jugular foramen and continues through the carotid sheath in the cervical region. The carotid sheath is in contact with the SCM muscle. It has been hypothesized that Sternokleidomastoideus (SCM) muscle tension may affect the carotid sheath and the function of the vagus nerve passing through it. It is known that there is an increase in activation of the SCM muscle in individuals with chronic neck pain (CNP), which may change the passive mechanical properties of the muscle [1]. It has been shown that vagus nerve dysfunction can cause pathologies in the organs it innervates. Although the relationship between vagal dysfunction and gastrointestinal system symptoms is clear, the mechanisms that may affect vagus nerve function have not yet been clarified.

Objectives: This study aims to compare the passive mechanical properties of the SCM muscle, vagus nerve function, and gastrointestinal symptoms in healthy individuals with neck pain.

Methods: Tone, stiffness and elasticity, which are the passive mechanical properties of the SCM muscle, were measured with the Myoton-3 myotonometer device (Muomeetria AS, Estonia, EU). Vagus nerve function was evaluated with the Vagus Neurodynamic Test (VAGUS-NDT)[2]. The test was performed bilaterally. Gastrointestinal symptoms were evaluated with the Gastrointestinal Symptom Rating Scale (GSRS).

Results: 29 individuals, 15 healthy, 14 with CNP, who were not diagnosed with gastrointestinal or any systemic disease were included in the study. In individuals with CNP, the positivity of VAGUS-NDT test and GSRS all sub-scores (reflux, indigestion, diarrhea, constipation and abdominal pain) and total score were higher than healthy individuals (p<0.05). In addition, right and left elasticity scores for the SCM muscle were lower in these individuals than in healthy individuals (p<0.05) while tone and stiffness were similar(p>0.05).

Conclusion: According to our preliminary results, SCM elasticity was lower and the incidence of vagal dysfunction and gastrointestinal symptoms were higher in individuals with CNP than in healthy. This may be due to compression of the vagus nerve passing through the carotid sheath as a result of decreased SCM muscle elasticity. The increase in the tension of the soft tissues around a nerve in the body restricts the movement of the nerve, affecting its function and making it susceptible to entrapment. Even this slight nerve compression can cause entrapment and lead to neuromodulation[3]. This research is a preliminary conclusion that neck pain and decreased SCM elasticity may be an important factor that may affect vagal function. This relationship needs to be investigated with a larger sample group and advanced statistical methods.

REFERENCES:

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Disclosure of Interests: None Declared.

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AB1659 MOROCCAN SOCIETY FOR RHEUMATOLOGY BIOLOGICS REGISTER IN RHEUMATOID ARTHRITIS AND SPONDYLOARTHRITIS (RBSMR): 3 YEAR-FOLLOW UP ANALYSIS

Keywords: Rheumatoid arthritis, Spondyloarthritides, bDMARD

AB1660

ASSOCIATION OF COMMON COMORBIDITIES WITH ASEPTIC OSTEONECROSIS: EXPERIENCE OF RHEUMATOLOGY DEPARTMENT

Keywords: Bone diseases, Comorbidities

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Background: Osteonecrosis (ON) (avascular necrosis, aseptic necrosis or subchondral avascular necrosis) is not a specific disease entity but the final common pathway of a number of conditions leading to bone death [1].

Objectives: To examine the frequency of ON and to investigate different common comorbidities association with ON in a rheumatology department.

Methods: All patients with a first-time hospital diagnosis of ON in rheumatology department during 1995–2022 were included. We obtained a complete hospital history of comorbidities preceding the diagnosis of ON.

Results: 43 ON cases were included with an average of 1.6 cases/year. The mean age of our patients was 53 years (27-82). The sex-ratio male to female was 1.75 (12 females and 21 males). The different sites of osteonecrosis were distributed as follows: femoral head, femoral condyle, semilunar and humeral head. During follow-up, 38 patients were treated with biologics (bDMARDs) at 36 months. Infections, mainly nonspecific infections, were the main adverse events in both RA and SpA of our registry.

Conclusion: This monocentric study provides evidence for an increasing ON incidence associated to systemic steroid administration. Hence the need for early and adequate management of this factor to prevent possible complications such as aseptic osteonecrosis.

REFERENCE:

Disclosure of Interests: None Declared.

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AB1661

INCREASED RISK OF TOTAL HIP ARTHROPLASTY IN RHEUMATOID ARTHRITIS AND SYSTEMIC LUPUS ERYTHEMATOSUS OVERLAP SYNDROME

Keywords: Rheumatoid arthritis, Comorbidities, Systemic lupus erythematosus

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Background: Limited data have been published on tolerance and efficacy of biotherapies in moroccan patients with rheumatoid arthritis (RA) and spondyloarthritis (SpA).

Methods: The RBSMR is a registry of biological therapies in rheumatic diseases from the Moroccan Society of Rheumatology. The patients recruited were over the age of 18 years, diagnosed with RA or SpA, fulfilled ACR/EULAR 2010 criteria and ASAS 2009 criteria respectively, with biologics (bDMARDs). Overall median age at inclusion was 53 and 39 years. The median disease duration was 146 and 131 months for RA and SpA respectively.163 (72.4%) RA and 137(70.6%) SpA received a first line bDMARDs.10.7 % RA and 55.2 % SpA were prescribed bDMARDs in combination.

Results: A total of 225 RA and 194 SpA including 170 ankylosing spondylitis were treated with biologics (bDMARDs). Overall median age at inclusion was 53 and 39 years. The median disease duration was 146 and 131 months for RA and SpA respectively.163 (72.4%) RA and 137(70.6%) SpA received a first line bDMARDs.10.7 % RA and 55.2 % SpA were prescribed bDMARDs in combination.10.7 % RA and 55.2 % SpA were prescribed bDMARDs in combination with csDMARDs. After 3 years of follow-up, median DAS28 CRP was 2.6 [0.9-4] (p<0.001) and median ASDAS CRP was 1.8 [1-2.4] (p=0.66). The most commonly used drug was rituximab (60%) in RA and etanercept (33%) in SpA.

Conclusion: In this real-world analysis of data from the RBSMR registry, a considerable proportion of patients with RA and SpA had an adequate response to bDMARDs at 36 months. Infections, mainly nonspecific infections, were the main adverse events in both RA and SpA of our registry.

REFERENCE:

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Table 1. Adverse events of bDMARDs in RA and SpA patients during 3 years of follow up

<table>
<thead>
<tr>
<th>Event</th>
<th>RA N=225</th>
<th>SpA N=194</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse events</td>
<td>1 year</td>
<td>2 years</td>
</tr>
<tr>
<td>Leucopenia</td>
<td>87 (38.3)</td>
<td>53 (22.9)</td>
</tr>
<tr>
<td>Uveitis</td>
<td>37 (16.5)</td>
<td>16 (7.1)</td>
</tr>
<tr>
<td>Non specific infection</td>
<td>31 (13.8)</td>
<td>14 (6.2)</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>6 (2.7)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Atypical mycobacteria</td>
<td>1 (0.4)</td>
<td>3 (1.3)</td>
</tr>
<tr>
<td>Fungal infection</td>
<td>4 (2.2)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Viral infection</td>
<td>5 (2.6)</td>
<td>4 (2.1)</td>
</tr>
<tr>
<td>Cancer</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Solid tumor</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Sudden death</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>1 (0.4)</td>
<td>1 (0.4)</td>
</tr>
</tbody>
</table>

* Other hematological malignancies

† Number and percentage