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POS0010 CD38+ MEMORY T CELLS ARE A FUNCTIONALLY DISTINCT SUBSET THAT IS EXPANDED IN SLE AND ASSOCIATED WITH LUPUS NEPHRITIS

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Background: We recently reported the beneficial clinical responses of the anti-CD38 monoclonal antibody daratumumab in two patients with systemic lupus erythematosus (SLE) [1]. While the primary rationale for its use was the depletion of autoantibody-producing long-lived plasma cells, daratumumab may promote additional therapeutic effects on CD38-expressing T cells, but their origin, lifestyle and role in lupus pathophysiology remains elusive.

Objectives: To investigate the phenotype, transcriptional program, functional properties and clinical associations of CD4+ and CD8+CD38+ memory T cells in SLE compared to healthy controls (HC).

Methods: CD38-expression on memory T cell subsets was measured by flow cytometry in 65 patients with SLE and 28 healthy controls. We investigated the functional capacity of CD38+ T cells using CFSE staining and intracellular cytokine staining after polyclonal stimulation. Additionally, we performed single-cell transcriptome and T-cell-receptor sequencing of 7 SLE patients and 7 matched healthy controls, including surface protein expression analysis using CITE-seq (RNA-barcoded) antibodies.

Results: Compared to healthy controls, the frequency of CD38-expressing memory T cells in SLE was significantly increased in both CD4+ and CD8+ T cells. SLE patients with a previous or current lupus nephritis had significantly increased levels of CD8+CD38+ memory T cells compared to those without

history of renal involvement. CD38+ memory T cells expressed increased levels of Ki-67 and displayed higher proliferative capacity upon polyclonal stimulation than their CD38- counterparts, both in SLE patients and HC, while they showed decreased ability to secrete IFN- γ , IL-2, GM-CSF and TNF- α . Single-cell transcriptome sequencing revealed that CD8+CD38+ memory T cells were enriched within terminally differentiated, cytotoxic CD8 T cells, and had reduced TCR repertoire diversity compared to their CD38- counterparts. CD8+CD38+ memory T cells from SLE patients had significantly higher expression of type I interferon associated genes, both compared to CD38- memory T cells from SLE patients and CD38+ cells from HCs.

Conclusion: CD38+ memory T cells with increased proliferative capacity but altered effector functions are significantly expanded in peripheral blood of SLE and correlate with the lupus nephritis. Although the factors mediating their generation and their precise role in the disease pathophysiology remain to be investigated, CD38-expressing T cells may be useful as a future biomarker for lupus nephritis.

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Epidemiology and treatment of pain in RMDs

POS0011

THE ASSOCIATION BETWEEN BARIATRIC SURGERY AND CARPAL TUNNEL SYNDROME: A COHORT STUDY FROM SWEDISH NATIONWIDE HEALTHCARE REGISTRIES

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Background: Carpal tunnel syndrome (CTS) is a chronic compression neuropathy caused by entrapment of the median nerve in the wrist causing pain and sensory loss. Prior observational research suggested that obesity increased the risk of CTS. However, the impact of weight loss among obese patients on CTS has not been assessed to date.

Objectives: To assess the association between bariatric surgery and CTS in a secondary care setting.

Methods: We performed a propensity score (PS)-matched cohort study using data from Swedish nationwide healthcare registries (patient registry [secondary care], causes of death registry, prescribed drug registry). Patients aged 18-79 years who underwent bariatric surgery between 2006 and 2019 were matched to up to 2 obese bariatric surgery-free patients (called unexposed patients) based on their PS. PS-matching was carried out in risk set sampling to reduce selection bias, within 4 sequential cohort entry blocks to account for time trend biases. The outcome CTS was defined as a diagnosis of CTS in secondary care or carpal tunnel decompression surgery. After a 1-year run-in period, patients were followed in an "as-treated" approach. We applied Cox proportional hazard regression to calculate hazard ratios (HR) with 95% confidence intervals (CIs) of CTS among bariatric surgery patients when compared to obese unexposed patients overall, and in subgroups of age, sex, bariatric surgery type, and by duration of follow-up.

Results: A total of 40 619 bariatric surgery patients were PS-matched to 63 540 obese unexposed patients. A total of 72.3% of bariatric surgery patients were women. Bariatric surgery patients had a mean age of 41.7 years and a mean follow-up of 6.8 years. All patient characteristics in obese unexposed patients were highly similar. We observed 1 356 and 1 938 severe CTS cases among bariatric surgery and obese unexposed patients, respectively. Bariatric surgery was not associated overall with CTS (HR of 0.98, 95% CI 0.91-1.05). However, the risk of CTS seemed to decrease with age at bariatric surgery – the lowest CTS risk was observed among bariatric surgery patients aged 18-34 years (HR of 0.87, 95% CI 0.74-1.01), when compared to obese unexposed patients. Sex did not modify the risk of CTS among bariatric surgery patients compared to obese

unexposed patients. Restrictive bariatric surgery yielded lower risks of CTS (HRs of 0.81, 95% CI 0.69-0.88) than did malabsorptive bariatric surgery (HR of 0.95, 95% CI 0.88-1.02) when compared to obese unexposed patients. The risk of CTS increased with duration of follow-up. The lowest risk was observed 1-3 years after bariatric surgery (HR of 0.77, 95% CI 0.68-0.88) and the highest risk 6-13 years after bariatric surgery (HR of 1.20, 95% CI 1.05-1.36) when compared to obese unexposed patients.

Conclusion: Our results suggest that substantial weight loss is not overall associated with severe CTS in an obese patient population. However, bariatric surgery was associated with an initial decreased risk of CTS after bariatric surgery followed by an increased risk in later follow-up. Furthermore, restrictive bariatric surgery but not malabsorptive bariatric surgery was associated with a decreased risk of CTS.

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POS0012 EPIDEMIOLOGY OF FIBROMYALGIA HOSPITALIZATIONS IN THE UNITED STATES

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Background: Fibromyalgia is a chronic pain syndrome that is associated with protean symptoms including musculoskeletal pain, psychiatric symptoms, cognitive dysfunction, memory difficulty, and sleep disturbance. Fibromyalgia can be a primary diagnosis, or it can be associated with other conditions. Fibromyalgia is often seen in conjunction with autoimmune diseases such as systemic lupus erythematosus and rheumatoid arthritis. In 1990, the American College of Rheumatology released classification criteria for fibromyalgia that included symptoms of diffuse pain and physical exam findings of at least 11 of 18 defined tender points. In 2010, the ACR updated these criteria and eliminated the requirement of tender points. In 2011, these criteria were further modified to that they could be self-administered. A previous study used the national inpatient sample to examine hospitalization data for patients with fibromyalgia from 1999-2007.¹ No studies, however, have examined this data since the new ACR criteria were established in 2010.

Objectives: We aim to characterize the epidemiology of hospitalized patients with diagnosis of fibromyalgia.

Methods: Hospitalized patients with a diagnosis of fibromyalgia were identified in the 2016-2018 National Inpatient Sample (NIS) using the International Classification of Diseases 10 system (ICD-10). The NIS is an all-payer inpatient database that estimates over 37 million annual U.S. hospitalizations and is maintained by the Healthcare Cost and Utilization Project. The primary outcomes were prevalence of fibromyalgia and comorbid rheumatologic conditions among hospitalized patients. Secondary outcomes included cause of admission, mortality, length of stay, and cost of care.

Results: Of 1,351,234 patients with fibromyalgia identified, 437,145 were admitted in 2016 increasing to 461,820 in 2018. On average 59.1 years old, more likely female (1,262,735, 93.5%) and white (1,060,845, 81.3%). Patients were most likely to have Medicare (775,420, 57.5%) and were in the bottom quartile of income (402,945, 30.3%). The most common rheumatologic comorbidities were rheumatoid arthritis (142,195, 10.5%), lupus (69,980, 5.2%), and inflammatory bowel disease (38,165, 2.2%). Notably fibromyalgia was commonly associated with depression (500,420, 37.0%), obesity (379,324, 28.1%), hypothyroidism (334,585 24.7%), and congestive heart failure (213,790, 15.8%). The mortality rate was 13,605 (1.0%) patients, the average length of stay was (4.53 days), and the average cost of hospitalization (\$12,522). The most common causes of admission were inflammatory syndromes and joint disorders (13.4%) of which OA (4.2%) was most common complaint, digestive complaints (12.1%) of which IBD (4.4%) was most common.

Conclusion: The yearly number of fibromyalgia hospital discharges were greater than previously described. This may be a result of a more sensitive classification criteria. Further investigation into the etiology of this increase in fibromyalgia hospitalization diagnosis is warranted.

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POS0013 MUSCULOSKELETAL MANIFESTATIONS IN PATIENTS WITH ENDOCRINE DISEASES IN TERTIARY SERVICE

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Background: Musculoskeletal diseases represent about 50 to 70% of the frequency of chronic diseases according to previous studies (SOUZA, OLIVEIRA, 2015). Chronic pain is often associated with these diseases and is an important cause of care in the health service. Thus, medical professionals are required to adequately manage their patients. Despite the lack of knowledge of some, endocrine diseases are basic diseases linked to musculoskeletal manifestations. Thus, secondary arthropathies of the non-rheumatologic origin or osteoarticular complaints that simulate or show rheumatic diseases can be seen in patients with endocrine diseases during their evolution or in the initial phase along with other systemic symptoms.

Based on this concept, the musculoskeletal manifestations presented by patients with endocrine disorders in tertiary health service were monitored and evaluated.

Objectives: The objective of this study is to characterize the musculoskeletal manifestations in patients with endocrine diseases: type 1 and type 2 diabetes mellitus; hypothyroidism; hyperthyroidism and pituitary diseases and to clinically classify the patients based on physical and imaging findings.

Methods: A cross-sectional and descriptive study, where clinical screening was performed at the endocrinology outpatient clinic, in which patients with musculoskeletal complaints were identified. These patients were referred for evaluation with a rheumatologist with clinical, laboratory and imaging investigation for the diagnosis of rheumatic disease. A questionnaire with epidemiological and clinical data was applied.

Results: In this study, 325 patients with endocrine diseases were interviewed, 53 ± 16.4 years old, 258 (80%) were female and 64 (20%) males. Of the interviewed patients, 236 (72.8%) reported musculoskeletal pain, being that 196 (75.9%) of the women and 33% of the men indicated this type of symptom. Regarding endocrine diseases, the most frequent was Diabetes Mellitus type 2 with 158 patients (48.6%), and 75% of these people have chronic musculoskeletal pain, most 5 to 7 times a week, showing an intrinsic character of this disease with pain complaints from a large part of this population. It was also identified the prevalence of 25% of Hypothyroidism, 12% of Diabetes type 1, 9% of Hyperthyroidism and less expressive amounts of other endocrine diseases such as Acromegaly (2.1%), Gigantism (0.3%) and similar. About 63% of those who have pain are not followed up in the service of rheumatology, 42% of these have already indicated these pains to their endocrinologist, however they have not had their complaint properly flagged. Of these patients, 94 (29%) use Antihypertensives and 25% Oral Antidiabetics. The most notable diagnoses in rheumatology are: Rheumatoid Arthritis (29%); Osteoarthritis (27%); Osteoporosis and Fibromyalgia both with 20.6% of diagnoses and Psoriatic Arthritis and GOUT with 6%. The main regions that are subject to pain are the Hands (52%); Knees (40%); Spine and feet with 30% each.

Conclusion: Although there is a demand of more confirmatory studies, our preliminary results showed the mutuality between endocrine diseases and musculoskeletal manifestations and, therefore, that rheumatological findings are increasingly frequent in this population. The high prevalence of these symptoms secondary to endocrine diseases raises serious questions in order to improve the quality of life of these patients, and also to increase the number of researches in this field, because the pathophysiological mechanisms of this association are not well elucidated and, from this, expand this information to professionals who may not be aware of this relationship.

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POS0014 TIME-TRENDS IN COCAINE AND HALLUCINOGEN USE DISORDER HOSPITALIZATIONS IN RHEUMATIC DISEASES: A NATIONAL TIME-TRENDS STUDY

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Background: Cocaine use disorder is a frequent cause of drug use disorders in the U.S. Although hallucinogen use disorder is less common, both are potentially preventable public health issues. To our knowledge, epidemiological studies