anizocytosis. RDW is routinely assessed, is not influenced by infections and its standard deviation (RDW-SD) does not depend on medium corpuscular volume. Recent studies showed an increased RDW in various autoimmune diseases (systemic lupus erythematosus, Sjogren's syndrome, rheumatoid arthritis, systemic vasculitis), correlating with inflammatory markers and disease activity. Also, the RDW seen in solid tumors and hematological cancers has prognostic value.

Objectives: To assess the RDW-SD in RP patients, its relation with the disease activity and with the presence of neoplasia

Methods: We performed a retrospective study on the patients diagnosed with RP in a tertiary Rheumatology department between January 2017 and January 2019, using the Atlatmed data management system of the institution. The concomitant diseases and the inflammation parameters were recorded. The RP activity was measured using RPDAL (relapsing polychondritis disease activity index). The correlation between variables were calculated using GraphPad Prism.

Results: We identified 20 patients, median age 59.04 years (range 38-81), with a male-to-female ratio of 1: 5.66. An associated autoimmune disease (Sjogren syndrome, Hashimoto thyroiditis, systemic lupus erythematosus, rheumatoid arthritis, psoriatic arthritis) was found in 85% of patients. Moreover, 40% of the patients had various types of solid or hematologic neoplasia, including myelodysplastic syndrome. An elevated RDW-SD was seen in 90% of RP patients. The average RPDAL was 10.6 points. RDW-SD significantly correlated to RPDAL ($p=0.0012$). Of the inflammatory parameters, RDW-SD was not found to be related to ESR and CRP. RDW-SD increased with age, but no correlation was found between RPDAL and age. All patients with neoplasia had abnormally high RDW-SD. Nevertheless, RDW-SD was not significantly different in RP patients with or without neoplasia (Mann-Whitney test, $p=0.56$).

Conclusion: RP was frequently associated with other autoimmune diseases, but also with neoplasia. The positive correlation of RDW-SD and RPDAL in RP suggests a possible new, clinically employable, biomarker of disease activity.

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AB1079 CHECKPOINT INHIBITOR-ASSOCIATED ARTHRITIS: PHENOTYPES AND CYTOKINE ASSOCIATIONS

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Background: Immune checkpoint inhibitors (CI) have revolutionized cancer management, but can also cause immune-related adverse events. Five percent of CI-treated patients develop inflammatory arthritis, but it is poorly defined phenotypically and immunologically.

Objectives: To characterize phenotypes of CI-associated arthritis, and compare cytokine levels in these patients to rheumatoid arthritis (RA) and osteoarthritis (OA) controls.

Methods: Patients referred for CI-associated arthralgia or arthritis were prospectively enrolled in an institutional registry. Serum was collected when patients underwent phlebotomy for a clinical indication. We used a Lumines Human Magnetic Assay to measure levels of IL-1 β , IL-2, IL-6, IL-8, IL-10, IL-12, IL-17, IL-22, TNF, IFN- γ , PD-L1, CCL2, CXCL2, CXCL13, OSM, CCL20, GM-CSF, CXCL-11 in CI-treated patients, and in stored serum from 7 RA patients (matched for medication, age, sex, CDAI) and 4 OA patients (age, sex matched). All comparisons were planned a priori.

Results: Thirty-six patients were enrolled 5/1/18-1/25/19. Median [IQR] age was 67[58-78], 18(50%) were female, 14(39%) were smokers and 13 (36%) had melanoma. Twenty-two (61%) were on anti-PD1 or PD-L1 monotherapy, and the remainder were on combination CI. Phenotypes included 1. Small joint involvement in 17(47%), 2. Exclusively large joint involvement in 6(17%), 3. Arthralgia without arthritis in 9(25%), and 4. Polymyalgia rheumatica in 4(11%). In all, 7(19%) had concomitant tenosynovitis or enthesitis, mostly accompanying large joint arthritis or arthralgia

(6/7). Median CDAI at entry was 11[7-23] and median ESR 29[18-44]. The majority (58%) of patients with the small joint phenotype were RF and/or CCP positive and one had erosive disease, compared to none with the large joint phenotype. ANA positivity was common (74%) and did not vary across phenotypes. Median time of symptom onset was 4 [0.8-12] months after CI initiation. Median follow up was 7[3-22] months but only 5(14%) had resolution of arthritis off medication during that period. 22(61%) required CI discontinuation, 5(14%) due to arthritis. 29 (81%) required steroids including 15(42%) who required >20mg prednisone. 19(53%) required a synthetic DMARD and 5(14%) required a biologic DMARD. Of 33 patients with known cancer status, 15(45%) had a complete response, 5(15%) a partial response, 5(15%) "stable" disease, 6 (18%) progression, and 2(6%) died. Cytokines were measured in 22 patients, who were similar to the cohort as a whole except for more CCP positivity ($p=0.02$). CI patients with the small joint phenotype had higher levels of IL-6 than RA controls ($p=0.04$) (Figure 1) and IL-6 levels trended higher in the small joint vs. exclusively large joint phenotype (Figure 2). The B cell chemoattractant CXCL13, a factor produced by T peripheral helper cells in RA synovium¹, trended higher in the serum of CI patients (Figure 3). Other cytokine levels did not differ significantly in patients with the small joint vs. exclusively large joint phenotype, or in CI-arthritis patients vs. controls.

Conclusion: Half of patients with CI-arthritis present with an RA-like phenotype with small joint involvement and frequent seropositivity, and have elevated levels of IL-6 compared to RA patients. This small joint phenotype may represent an accelerated form of RA.

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Figure 1. MFI=mean fluorescent intensity

Figure 2

Figure 3

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AB1080 **TOCILIZUMAB FOR REFRACTORY DYSTHYROÏD MYOPATHY (RDM) : A MONOCENTER OBSERVATIONAL STUDY OF 8 PATIENTS**

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Background: Dysthyroïd myopathy (DM) refers to Graves' ophthalmopathy (GO) in 90% of the cases but can also be observed with hypothyroidism, and is responsible for orbital fat and muscles inflammation. In those patients with euthyroidism and no thyroid receptor antibody, a strong argument for DM can be the aspect of the extra ocular muscles. In myositis of other causes, muscle insertions are increased in size. In DM, the insertions are respected and not increased in volume in magnetic resonance imaging. This was the case of our eight patients.

Objectives: To describe the efficacy of Tocilizumab (TCZ) in RDM in 8 patients

Methods: We conducted a monocenter study of 8 patients with RDM refractory to conventional treatment scheme

All patients have been treated following the EUGOGO (European Group on Graves' Orbitopathy) scheme, which consists in weekly infusions of 500 mg prednisolone (4 to 6) followed by weekly infusions of 250 g (4 to 6). One patient had received before oral prednisolone, which is known to be less effective and no other immunosuppressive therapy.

The aim was to reduce the clinical activity score (CAS) of the disease to a score of 1 (score composed of 7 items)

Results: We studied 8 female patients (16 eyes); mean age at diagnosis 64.37±9.37 years.

All patients had normal thyroid function at diagnosis. Three patients had a previous history of hashimoto's thyroiditis and the other 5 had no immunological abnormalities.

The duration of orbitopathy between first supposed manifestations and therapy onset was 5,7 months +/- 2,3. TCZ was introduced at the end of the steroid pulses, or before, during steroid therapy, in 2 patients who did not improve at all their ocular status after 3 steroid infusions. TCZ was used intravenously as a monotherapy, at the classical dosage of 8 mg/kg per infusion, with no other immunosuppressives.

According to the classification of severity of the EUGOGO group using the CAS ¹, before TCZ, 1 had severe (n=2 eyes) or moderate (n= 14 eyes) disease. Moreover, patients presented exophthalmos (n=16 eyes), strabismus (n=16 eyes), muscle inflammation and volume increase at MRI and severe optic neuropathy (n=1).

After a mean of 4 pulses (extremes 1 to 7), all patients experienced improvement with TCZ withdrawal in all due to complete remission in 3 and regression in ocular inflammation in 5. Unfortunately, one patient relapsed two months after the 6th TCZ infusion, despite of initial complete remission and was treated with 4 weekly infusions of rituximab at 375 mg/m² with a very good response three months later. Only one

patient experienced a severe anal abscess after the first TCZ infusion leading to treatment interruption, but with a good improvement of DM. Improvement of ocular parameters with TCZ therapy. Data are expressed as mean±SD or median [IQR]. (VA : visual acuity; IOP : intra ocular pressure; CAS : clinical activity score)

Before tocilizumab after tocilizumab

VA 0,7 (0,3-1) 0,9 (0,7-1)

IOP 26,5 +/-7,7 21,1 +/-13

CAS 4,25 +/- 1,28 1

Conclusion: TCZ seems to be effective in RDM, as previously reported.

In case of ineffectiveness or relapse, rituximab may be effective as well. This questions us about a new treatment scheme, which patients could benefit from biotherapies alone for a better and quicker efficiency?

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AB1081 **A COMPARATIVE STUDY ON THE FEATURES OF THE SPINAL INVOLVEMENT IN SAPHO SYNDROME**

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Background: SAPHO syndrome is a rare disease with the typical involvement of the anterior chest wall. The spinal involvement is more often than we thought and less understood by us.

Objectives: To assess the clinical and imaging features of the spinal involvement in SAPHO syndrome.

Methods: Patients diagnosed with SAPHO syndrome in Peking University Third Hospital from 2006 to 2018 were recruited. Patients were divided into spinal involvement group and non-spinal involvement group. Patients with AS (ankylosing spondylitis) were recruited as control group. Their clinical data, laboratory data and imaging data (CT, MRI and radionuclide imaging) were collected and were compared. All the patients with SAPHO syndrome were followed up regularly.

Results: Totally 46 SAPHO patients were included (17 male and 29 female) and 34 patients (73.9%) had spinal involvement. The mean age was 50.2±10.9 years and the mean disease duration was 5.4±6.4 years. 50 patients with AS were also included.

Compared with non-spinal involvement group, the age at disease onset in spinal involvement group was older, the disease duration was longer, the CRP elevation was more often and the anterior chest wall involvement was less often (table 1).

In spinal involvement group, the thoracic spine was most commonly involved and the vertebral inflammatory changes including bone marrow edema were often seen. These patients were more likely to suffer from cervical spine involvement, endplate inflammation and spondylodiscitis (table 2).

Abstract AB1081 Table 1. characteristics of SAPHO syndrome patients with and without spinal involvement

characteristics	Spinal involvement (n=34)	Non-spinal involvement (n=12)	P value
Sex, female	21(61.8%)	8(36.7%)	NS
Age at diagnosis yrs	52.2±10.3	44.6±10.6	0.033*
Disease duration yrs	6.1±7.1	3.1±2.4	0.048*
Dermatological disorders	19(55.9%)	10(83.3%)	NS
CRP elevated	21 (4.6±12.1)	4 (3.0±4.3)	0.047*
ESR elevated	16 (31.2±24.0)	6 (32.2±27.2)	NS
TNF-αelevated	12 (58.6±55.9)	13 (45.3±22.7)	NS
IL-6 elevated	18 (320.5±343.9)	42 (48.6±328.2)	NS
sternoclavicular	18	12	0.003*
Clavicle	6	2	NS
First rib	8	5	NS
Sternocostal joint	6	2	NS
Sternum corner	1	3	0.02*
Manubrium	6	0	NS
Sacroiliac joint	6	5	NS