Methods: New onset JDM children were randomised to receive either prednisone (PDN) alone or in combination with MTX or CSA. All children were given initially intravenous methylprednisolone, and then PDN starting with 2 mg/kg/day. Gradual tapering according to a specific protocol could lead to the safe dose of 0.2 mg/kg/day by month 6, then discontinued at month 24. Major therapeutic changes (MTC) were defined as the addition or major increase in the dose of MTX/CSA/other drugs or any other reasons for which patients were dropped from the trial. Patients were divided according to clinical remission (CR) (CMAS=52 and MD global=0 for 6 continuous months) into two major groups. Group 1 included those on CR, who could discontinue PDN, with no MTC (reference group). Group 1 was compared with those who did not achieve CR, without or with MTC (group 2 and 3, respectively). JDM core set measures (CSM) were compared within the 3 groups. We also calculated the gold standard group 1 median change in the CSM in the first 6 and over 24 months and applied a logistic regression model to identify predictors of CR with PDN discontinuation.

Results: 139 children were enrolled in the trial: 47 on PDN, 46 on PDN +CSA and 46 on PDN +MTX. We identified 30 (21.6%) patients for group 1, 43 (30.9%) for group 2 and 66 (47.5%) for group 3. At baseline all 3 groups had no differences in the CSM. Already in the first 2 months a clear differential trend in disease activity measures, according to clinical remission status and PDN discontinuation, could be identified. From the observation of the median change in the CSM of group 1 in the first 6 months, the following recommendations could be extrapolated: decrease corticosteroids from 2 to 1 mg/kg/day in 2 months if the MD-global, parent-global, CHAQ, DAS, CMAS, MMT or Phs measures have increased of at least 20%; in the following 2 months if the CSM of group 1 in the first 6 months, the following recommendations could be identified. From the observation of the median change in the CSM of group 1 in the first 6 months, the following recommendations could be extrapolated: decrease corticosteroids from 2 to 1 mg/kg/day in 2 months if the MD-global, parent-global, CHAQ, DAS, CMAS, MMT or Phs measures have changed of at least 50%; from 1 to 0.5 mg/kg/day in the following 2 months if the MD-global, parent-global, CHAQ, DAS, CMAS, MMT or Phs measures have increased of at least 20% in the following 2 months (month 4–6) corticosteroids can be tapered up to the safe dose of 2 mg/kg/day, if the disease activity measures remain at normal levels. We finally ran a logistic regression model that showed that the achievement of PRINTO criteria 50–70–90 at 2 months from disease onset, an age at onset ≤8 years and the combination therapy PDN +MTX, increase the probability of clinical remission from 4 to 7 times (table 1).

Conclusions: We propose evidence based specific cut-offs for corticosteroid tapering/discontinuation based on the change in JDM CSM of disease activity, and to identify the best predictors for clinical remission and corticosteroid discontinuation.

Disclosure of Interest: None declared DOI: 10.1136/annrheumdis-2018-eular.3855

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Triple T: T cells, technologies and therapies

OP0341 INCREASED FREQUENCY OF CIRCULATING CD4 +CXCR5-PD-1hi PERIPHERAL HELPER T (CPTH) CELLS IN PATIENTS WITH SEROPOSITIVE EARLY RHEUMATOID ARTHRITIS (RA)

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Background: A novel population of CD4+ T cells with B cell helping capacity has been described in the synovial tissues and peripheral blood of seropositive RA patients with an established disease, and termed ‘peripheral helper’ (Tph) cells. (Rao DA et al, Nature 2017) Tph cells are characterised by the lack of CXCR5 together with a bright expression of PD-1 (CD4 +CXCR5-PD-1 hi) T cells. As opposed to CD4 +CXCR5-PD-1 hi follicular helper T cells (Tfh), Tph cells are not located in lymphoid organs but accumulate in inflamed tissues. Tph cell numbers have not been previously examined in early RA (eRA).

Objectives: To study the frequency of circulating CD4 +CD4+CXCR5-PD-1 hi Tph cells (cTph), in patients with eRA.

Methods: Peripheral blood and sera was drawn from DMARD-naive early RA patients (eRA) (2010 ACR criteria) with a disease duration <24 weeks (n=42), and healthy controls (HC) matched for age and gender (n=42). For comparison, blood was also drawn from 66 patients with established RA (disease duration >2 years), 45 patients with Spondyloarthritids (SpA), and their age and gender-matched HC (one HC per patient). In addition, synovial fluid from 7 patients with established RA and 3 patients with SpA was examined. Seropositive RA patients were receiving low-dose oral methotrexate and were naïve for biological agents. SpA patients were receiving NSAIDs, low-dose oral methotrexate and/or salsalazine and were naïve for biologics. After isolation by Ficoll-Hypaque gradient, PBMCs were stained with antibodies to CD3, CD4, CXCR5, ICOS and PD-1, and examined by flow cytometry.

Results: The frequency of circulating CXCR5+ cells gated for CD4 +T cells was not different among the studied groups. In contrast, eRA patients demonstrated an increased frequency of circulating CD4 +CXCR5-PD-1 hi Tph and CD4 +CXCR5-PD-1 hiICOS+ T cells. When examining seropositive (RF + and/or ACPA +), n=25 and seronegative eRA patients (RF- and ACPA -), n=17 separately, it was evident that the above described alterations were only apparent in seropositive eRA. Likewise, increased cTph numbers were observed in seropositive eRA (n=47) but not seronegative (n=19) established RA, and not in SpA patients (n=45), which is consistent with data reported by Rao et al. Interestingly, this increased cTph cell frequency was observed only in seropositive RA patients with an active disease (DAS28 >2.6, n=24), whereas the numbers of cTph cells in established RA patients who had achieved remission (DAS28 <2.6, n=23) were not different from HC. Furthermore, Tph cells were present in the synovial fluid of seropositive RA (n=4) but not of seronegative RA (n=3) or SpA (n=3).

Conclusions: Tph cells may play an important role in the pathogenesis of seropositive but not seronegative RA. An increased cTph cell frequency is a marker of active, seropositive RA.

REFERENCE:

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OP0342 ALTERED FREQUENCY AND FUNCTION OF MAIT CELLS IN SYSTEMIC SCLEROSIS REVEALED BY HIGH DIMENSIONAL MASS CYTOMETRY AND TRANSCRIPTOME ANALYSIS

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Background: Systemic sclerosis (SSc) is an autoimmune disease characterised by excessive fibrosis of skin and internal organs, and vascular dysfunction. Association of T and B cell subsets have been reported in SSc, however there is lack of systematic studies of functional relations between immune cell subsets in this disease. This lack of mechanistic knowledge hampers targeted intervention. Objectives: In the current study we sought to determine differential immune cell composition and heterogeneity in peripheral blood of SSc patients and its impact on disease severity and progression.

Methods: Mononuclear cells from blood of SSc patients with interstitial lung disease (ILD, n=10) or No ILD (n=10) and healthy controls (n=10) were analysed by flow cytometry. For comparison, blood was also drawn from 66 patients with established RA (disease duration >2 years), 45 patients with SpA was examined. Established RA patients were receiving low-dose oral methotrexate and were naïve for biological agents. Only patients with SpA were receiving NSAIDs, low-dose oral methotrexate and/or salsalazine and were naïve for biologics. After isolation by Ficoll-Hypaque gradient, PBMCs were stained with antibodies to CD3, CD4, CXCR5, ICOS and PD-1, and examined by flow cytometry.

Results: The frequency of circulating CXCR5+ cells gated for CD4 +T cells was not different among the studied groups. In contrast, eRA patients demonstrated an increased frequency of circulating CD4 +CXCR5-PD-1 hi Tph and CD4 +CXCR5-PD-1 hiICOS+ T cells. When examining seropositive (RF + and/or ACPA +), n=25 and seronegative eRA patients (RF- and ACPA -), n=17 separately, it was evident that the above described alterations were only apparent in seropositive eRA. Likewise, increased cTph numbers were observed in seropositive eRA (n=47) but not seronegative (n=19) established RA, and not in SpA patients (n=45), which is consistent with data reported by Rao et al. Interestingly, this increased cTph cell frequency was observed only in seropositive RA patients with an active disease (DAS28 >2.6, n=24), whereas the numbers of cTph cells in established RA patients who had achieved remission (DAS28 <2.6, n=23) were not different from HC. Furthermore, Tph cells were present in the synovial fluid of seropositive RA (n=4) but not of seronegative RA (n=3) or SpA (n=3).

Conclusions: Tph cells may play an important role in the pathogenesis of sero-