Methods: Hypothesis-driven approach selecting markers that are (i) either targets of IL-23/IL-17 pathway activation (b-defensin 2, lipocalin 2, IL-22), (ii) associated with neutrophil/monocyte activation (calprotectin, IL-8) and (iii) achieve serum concentrations sufficient for reliable detection by standard ELISA. Parameters were assessed in 210 individuals comprising 105 healthy controls and 105 patients with psoriatic disease (each 15 for isolated (S, E, A) and composed disease manifestations SE, SA, EA, SEA). Results are expressed as percent positive patients with levels above three standard deviations over the mean level in healthy controls. In addition, 6-months sequential data on levels of these markers were collected in 20 patients treated with secukinumab or adalimumab to test treatment effects.

Results: CRP levels were normal in the majority of individuals. The respective percentages of patients with normal CRP (<5mg/L) were as follows: S: 100%, E: 100%, A: 80%, SE: 93%, SA: 67%, EA: 73%, SEA: 67% (Figure). Thus, CRP is only elevated in a subset of patients with arthritis. In sharp contrast, beta-defensin 2 levels (>1.88 ng/mL) and lipocalin-2 (>24.7 ng/mL) were elevated in the majority of patients with isolated skin and enthesal, but not joint disease. Conversely, elevations of calprotectin (>3.58 mg/mL) and IL-8 (>10.3 pg/mL) were found in the majority of patients with isolated joint disease. IL-22 was elevated (>17.1 pg/mL) in all three manifestations of psoriatic disease. Reflecting a combination of the findings the vast majority of patients with composed disease manifestation (SE, SA, EA, SEA) showed widespread marker elevation. IL-17 and TNF inhibition differentially lowered and partially normalized elevated markers of inflammation.

Conclusion: Systemic inflammation is detectable in the majority of patients with psoriatic disease, even if CRP is normal. The respective marker pattern depends on the manifestation (skin, entheses, joints) of psoriatic disease, with beta-defensin 2 and lipocalin-2 reflecting skin and enthesal disease, calprotectin and IL-8 joint disease and IL-22 a combination of these disease manifestations.

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My joints hurt and I'm overwhelmingly tired – fatigue in rheumatoid arthritis

OP0201

FATIGUE IN JUVENILE IDIOPATHIC ARTHRITIS AFTER 18 YEARS OF FOLLOW-UP

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Background: Fatigue is common in adults with rheumatic disease and has also been shown in adolescents with juvenile idiopathic arthritis (JIA). Knowledge on fatigue in JIA in long-term follow-up is limited.

Objectives: To study the prevalence and severity of fatigue 18 years after onset of JIA.

Methods: In this close to population-based cohort study from defined geographical areas of Norway, Sweden, Denmark and Finland, consecutive cases of JIA with disease onset in 1997 to 2000 were prospectively enrolled (1). At 18-year follow-up, fatigue was measured using Fatigue Severity Scale (FSS, range 0-7) (2), and severe fatigue was defined as FSS ≥4. General health status was measured with Health Assessment Questionnaire (HAQ) and 36-Item Short Form Health Survey (SF-36). Reduced health was defined as HAQ >0, and SF-36 <40 (according to the physical component summary score/mental component summary score (PCS/MCS)). Pain was measured with 10 cm visual analogue scale (VAS), 0 = no pain, >0 = pain. Remission was defined according to the preliminary criteria described by Wallace. A Norwegian healthy cohort was used for comparison. Multivariable logistic regression analyses were performed.

Results: Among 434 eligible JIA participants 377 completed a Fatigue Severity Scale (FSS) measurement at the 18-year follow-up and were included. Of these 72% were girls, 53% had oligoarticular disease six months after onset, median age at onset was 5.6 (IQR 2.6-9.7) years, and age at the 18-year visit was 23.1 (IQR 20.3-27.2). Mean total FSS (±SD) was 3.2 (±1.5), and participants with active disease scored 3.6 (±1.6) compared to 2.9 (±1.4) for those in remission off medication. The highest total FSS was found in those with SF-36 PCS and/or MCS <40 (4.7 (±1.6) and 4.6 (±1.6), respectively). Severe fatigue was considerably more frequent in participants with active disease (36%, odds ratio (OR) 2.5) compared to those in remission off medication (19%), HAQ score >0 (47%, OR 4.1) compared to HAQ score =0 (18%), SF-36 PCS/MCS <40 (64/61%, OR 7.1/6.9) compared to SF-36 PCS/MCS ≥40 (20/19%), and VAS pain >0 (36%, OR 3.8) compared to VAS pain =0 (13%). The proportion of severe fatigue in a healthy Norwegian control cohort was 12%.

Conclusion: At 18-year follow-up fatigue was a prominent symptom in JIA, and we found consistently higher fatigue burden and considerably more severe fatigue among participants with active disease, pain and self-reported health problems, compared to those without. We suggest fatigue to be measured at long-term follow-up both in clinical and research settings.

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