vitamin D levels, but only 2 of 14 (14%) with two sufficient 25-OHD levels developed extended OA during the first 3 years ($p=0.034$).

Conclusions: Overall, vitamin D levels were higher in JIA patients than in matched controls. JIA patients with higher disease activity had lower 25-OHD levels. In particular, complicated courses with uveitis or the development of polyarthritis seem to be associated with lower 25-OHD levels. Further studies are needed to substantiate these results.

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THU0585

PERSONALISED TREATMENT IN JUVENILE IDIOPATHIC ARTHRITIS – FUTURE OR FICTION? PRELIMINARY RESULTS OF USING S100A8A9, S100A12 AND VASCULAR ENDOTHELIAL CADHERIN AS DIAGNOSTIC AND PROGNOSTIC BIOMARKERS

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Background: Serological biomarkers with ability to predict outcome and therapeutic response of patients might be helpful in introducing the concept of treat-to-target into management of juvenile idiopathic arthritis (JIA). Among others, calprotectin (S100A8A9) and calgranulin C (S100A12) are considered to be valuable markers of disease activity and risk factors for flare after withdrawal of treatment. Vascular endothelial cadherin (VE-cadherin) is a marker of endothelial permeability which has been postulated to predict response to methotrexate therapy in rheumatoid arthritis (RA) patients.

Objectives: The aim of the study was to assess the clinical significance of measuring serum concentrations of S100A8A9, S100A12 and VE-cadherin in patients with freshly diagnosed JIA and those with exacerbated course of the disease.

Methods: Serum levels of the listed biomarkers were determined in 30 patients diagnosed with JIA and 21 age- and sex-matched healthy controls. In the study group blood samples were obtained in two time points in order to evaluate dynamics of concentrations of markers.

Results: S100A8A9 and S100A12 serum concentrations at baseline were positively correlated with ESR at second time point ($r=0.378$ and 0.425 , $p=0.0397$ and 0.0193 , respectively). S100A12 had equal correlation with CRP at second time point ($r=0.391$, $p=0.0329$). Patients freshly diagnosed with JIA had higher levels of S100A12 (8.49 ± 4.92 ng/ml vs. 5.49 ± 2.21 ng/ml, $p=0.007$) and VE-cadherin (5.31 ± 1.13 ng/ml vs. 3.50 ± 0.58 ng/ml, $p<0.001$) when compared to healthy controls. VE-cadherin level was elevated in JIA patients at second time point as well (4.10 ± 0.93 ng/ml, $p=0.0194$). Patients who underwent arthrocentesis at baseline had higher concentrations of S100A12 at second time point (6.69 ± 3.56 ng/ml vs. 3.84 ± 2.58 ng/ml, $p=0.0168$). Levels of markers were independent of sex and age.

Abstract THU0585 – Table 1. General characteristics of the study group

No. of patients (%)	30 (100.0%)
Age at diagnosis of JIA±standard deviation	9.6±4.8 years
Female (%)	23 (76.7%)
Oligoarticular JIA (%)	24 (80.0%)
Enthesitis-related JIA (%)	2 (6.7%)
Polyarticular RF-negative JIA (%)	3 (10.0%)
Polyarticular RF-positive JIA (%)	1 (3.3%)
Freshly-diagnosed JIA at 1st time point (%)	10 (33.3%)
Exacerbated course of the disease at 1st time point (%)	15 (50.0%)
Minimal disease activity at 1st time point (%)	5 (16.7%)
Arthrocentesis performed at 1st time point (%)	16 (53.3%)
Duration of period between time points±standard deviation	99.1±27.7 days
Exacerbated course of the disease at 2nd time point (%)	9 (30.0%)

Abstract THU0585 – Table 2. Serum concentrations of assessed biomarkers (values presented as mean±standard deviation)

Marker	Study group – 1st time point (n=30)	Study group – 2nd time point (n=30)	Control group (n=21)
S100A8A9 [ug/ml]	2.56±2.15	1.69±1.42	1.47±0.68
S100A12 [ng/ml]	9.08±5.25	5.36±3.41	5.49±2.21
VE-Cadherin [ng/ml]	4.85±0.93	4.10±0.93	3.50±0.58

Conclusions: Presented study group needs to be expanded with more patients, especially with minimal disease activity, in order to validate demonstrated preliminary results. VE-cadherin may be considered as a future diagnostic biomarker, however its specificity requires detailed assessment. S100A8A9 and S100A12 merit further evaluation as potential prognostic biomarkers for more aggressive course of the disease.

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THU0586

METHOTREXATE DRUG SURVIVAL AND ADVERSE EFFECTS IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS

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Background: Methotrexate is usually the first-line disease modifying anti-rheumatic drug (DMARD) for patients with juvenile idiopathic arthritis (JIA), due to its efficacy, the low-cost and favourable safety profile in patients. However, one of the most reported adverse effects of interest (AEIs) of methotrexate is nausea.

Objectives: The objectives of this analysis were to (i) calculate methotrexate monotherapy drug survival, (ii) describe AEIs over the first two years of treatment, and (iii) investigate factors associated with occurrence of AEIs among children with JIA.

Methods: Patients with all forms of JIA starting methotrexate monotherapy from both the UK BSPAR Etanercept Cohort Study (BSPAR-ETN) and Biologics for Children with Rheumatic Diseases study (BCRD) were included. Patient characteristics and anti-rheumatic therapy details were collected at treatment start. Follow-up data were collected at six months, one year, and annually thereafter, on changes to anti-rheumatic therapy and any adverse events. AEIs were grouped into gastrointestinal-related (nausea, vomiting, abdominal pain), raised liver enzymes, leukopenia, drug hypersensitivity (injection site reaction), rash, needle phobia, and any other event leading to permanent discontinuation of methotrexate. All person time was included from methotrexate start date until first methotrexate stop date, start of biologic therapy, last patient follow-up date, or 30-June-2017 (study cut-off date), whichever came first. Survival analysis was used to assess time on methotrexate monotherapy and time to first AEI on methotrexate monotherapy. Multivariable logistic regression was used to assess baseline characteristics associated with experiencing an AEI, and a gastrointestinal-related AEI only.

Results: Of 505 patients starting methotrexate between 01-January-2010 and 30-June-2015 (to allow at least two years of follow-up for all children), median time on monotherapy was 1.5 years (IQR 0.7, 2.3). At two years, 274 (54%) patients were no longer on methotrexate monotherapy. Reasons included: inefficacy ($n=174$; 64%) mostly due to start of biologic therapy ($n=161$), adverse events ($n=54$; 20%), remission ($n=24$; 9%), and patient/family decision ($n=9$; 3%). Within the first two years of methotrexate monotherapy, 181 (36%) patients experienced at least one AEI; the most common were gastrointestinal problems ($n=116$; 53%) and liver enzyme abnormalities ($n=42$; 19%). No clinical factors were associated with occurrence of any AEI, nor a gastrointestinal-related AEI.

Conclusions: After two years, over half of the patients were no longer on methotrexate monotherapy, whilst one-third experienced at least one AEI, most commonly gastrointestinal-related problems. Further research focussing on identifying which children will respond and/or experience an AEI with methotrexate is crucial, such that AEIs can be minimised or prevented and treatment benefit maximised.

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