

P101**A UK STUDY: VOCATIONAL EXPERIENCES OF YOUNG ADULTS WITH JUVENILE IDIOPATHIC ARTHRITIS**

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Introduction: Little is known about the experiences of young adults living with Juvenile Idiopathic Arthritis (JIA) preparing for employment and career development.

Objectives: The purpose of this study was to understand the impact JIA has on career planning and early employment experiences of young adults (16-30 years).

Methods: Using existing literature (including grey literature), an on-line survey (consisted of 152 questions, 29 items related to young adults two of which were free text questions) was developed and sent to National Rheumatoid Arthritis Society (NRAS) members and distributed to non-members via social media tools including Facebook, Twitter and HealthUnlocked. Data collected included views and experiences in career planning and employment. The data pertaining to young adults are presented here.

Results: Of 1241 respondents 19 were young adults with JIA (range 16-30 years), 89% were female and 84% had university or equivalent qualifications. Due to incomplete responses there is missing data on all 19 young adults. 4/13 young adults were studying at university, 9/13 were in paid employment. 9/17 respondents reported their school did not offer additional work-related activities to students with disabilities and/or additional needs. 10/14 young adults felt their school did not provide advice about coping with possible limitations on placements/traineeships due to their arthritis. 11/14 respondents thought about their condition when thinking about future career plans e.g. "I wanted to work as a ranger or similar for the National Trust but it's a fairly physically demanding job and I knew my joints would suffer so I changed track slightly". However, 8/14 felt their career advisors did not take their arthritis into account e.g. "I had to cease my physiotherapy master's degree as my arthritis got too bad to continue and change career choice. I wish there would have been more discussion about it not being a reasonable choice for me at the time as we just didn't have the information then". 8/14 young adults changed their career plans because of their arthritis. Managing JIA symptoms and a physically demanding role, as well as wanting to stay healthy, were the main reason for changing career. Important aspects of employment included: good relationships with your line manager, work you like doing and a job you can use your initiative.

Conclusion: Despite small numbers these results highlight potential current unmet vocational needs of young adults with JIA in the UK and the need for further research with this age group. There appears to be a lack of structured support within schools and universities offered to students with disabilities and/or additional needs, about work-related activities and careers. Young adults with JIA actively consider their condition whilst thinking about career opportunities and value a productive and challenging job with a good working environment, including relationships with colleagues and supervisors.

Disclosure of Interest

None Declared

P102**BODY MASS INDEX AND JUVENILE IDIOPATHIC ARTHRITIS: IS THERE A CORRELATION WITH SEVERITY, PROGNOSIS AND TREATMENT RESPONSE?**

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Introduction: There is evidence that obesity could be a risk of factor for the development of RA due both to the mechanical effect of overweight and to the potential pro-inflammatory effects of cytokines produced by adipose tissue.

Objectives: To evaluate the role of overweight and obesity in a cohort of JIA patients, in terms of incidence, disease activity, outcome and response to treatments.

Methods: This single-center retrospective cohort study evaluated 125 children affected by JIA under treatment with anti-rheumatic agents (NSAIDs/IAS, DMARDs, biologic agents). Change from baseline in ERS, CRP, number of active joints (with distinction between upper and lower limb joints), and BMI was analysed under each treatment until last visit. BMI categories of 5-84th (normal weight), 85-94th (overweight), and ≥ 95 th (obese) percentile were used. Patients with systemic JIA or chronic comorbidity under potentially confounding systemic treatments were excluded. Informed consent was obtained by the patients and their family.

Results: One hundred twenty-five JIA patients (36% oligoarticular JIA, 42,4% RF-negative polyarticular JIA, 0,8% RF-positive polyarticular JIA, 8% enthesitis related arthritis, 1,1,2% psoriatic JIA, and 1,6% undifferentiated unclassified arthritis) were enrolled in the study, 76,8% girls, 23,3 boys. The mean age was 5,9 years ($\pm 3,8$). Baseline BMI was ≤ 84 th percentile in 73,22% of patients, 85-94th in 19,64%, and ≥ 95 th in 7,14%.

We did not observe a significative association between BMI and ERS ($p=0,29$), CRP ($p=0,24$), or number of active joints ($p=0,45$) at baseline, while the involvement of the joints of lower limb was significantly greater ($p=0,025$) in overweight/obese patients.

We also demonstrated a substantial equality in remission and relapse rates in subjects with different BMI.

Conclusion: This study focuses on the complex relationship between overweight/obesity and JIA. A significant correlation between obesity and a greater involvement of the joints of the lower limbs was observed at baseline. Furthermore, we observed that obesity does not influence the course of the disease nor treatment response. These data seem to suggest a prevalent mechanical effect of ponderal excess on JIA, rather than a biochemical influence due to pro-inflammatory cytokines released by adipocytes.

Disclosure of Interest

None Declared

P103**JUVENILE IDIOPATHIC ARTHRITIS AND FITNESS: A TEAMWORK**

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Introduction: Patients with Juvenile Idiopathic Arthritis (JIA) have limited fitness and reduced aerobic and anaerobic exercise capacity vs. healthy peers. Furthermore, low intensity exercise programs are safe in children with JIA and may improve fitness, joint excursion and quality of life, reduce pain, fatigue and the employ to anti-inflammatory drugs.

Objectives: The purpose of the study was to evaluate postural and balance deficits and fitness with specific test battery in children and adolescents affected by JIA.

Methods: We enrolled 30 patients with JIA (13 M; 17 F; age: 8-18 years); among those, 7 were evaluated longitudinally in the period 2016-2018, comparing the tests in different periods of the illness. The posturography test was administered with the FreeMed posturography system (the FreeMed baropodometric platform and FreeStep v.1.0.3 software). A specific fitness test battery was used to evaluate the physical fitness level of the patients (Abalakov test, backsaver sit and reach, the toe touch test, sit-up test and hand grip test).

Results: 2 M and 5 F was in an acute phase of the disease (1 sJIA; 5 polyarticular JIA; 1 psoriatic JIA).

At the posturography test, the distribution of the weight between left and right was pathological in 15 (4 sJIA; 9 polyarticular JIA; 2 oligoarticular JIA).

The load distribution between forefoot and hindfoot was pathological in all the patients, with a more severe overload in polyarticular JIA patients.

Hand-grip test in 8 patients was <3°Centile; in 11 was < 20°Centile. The patients who performed a regular physical activity program showed fitness test in the normal range, and these parameters were not correlated with the type of JIA and/or the treatment for the arthritis.

Among the patients evaluated in follow up, 2 (1 with sJIA and 1 with polyarticular JIA) maintained an asymmetry in the weight distribution between left and right and a reduced fitness. 5 patients (2 M with sJIA and 3 F with polyarticular JIA) normalized their parameters.

Conclusion: The persistent asymmetry of the load distribution between left and right foot and the persistent pathological distribution between forefoot and hindfoot was more frequent in patients with polyarticular JIA.

A regular physical activity program is the best strategy to maintain an adequate fitness and the best control of the disease.

Disclosure of Interest

None Declared

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TITLE: "SERUM CALPROTECTIN AND JOINT ULTRASOUND IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS"

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Introduction: The identification of new biomarkers, the development of more effective outcome measures and the refinement of imaging techniques may foster the implementation of targeted and personalized therapeutic interventions in patients with juvenile idiopathic arthritis (JIA). Among new biomarkers, serum calprotectin (MRP8/MRP14), a complex of calcium- and zinc-binding proteins, seems to be promising. Besides, musculoskeletal ultrasonography (MSUS) is a useful imaging tool for evaluating JIA patient disease activity. Many studies have demonstrated that MSUS can improve the sensitivity and the accuracy in the detection of the exact sites of inflammation in the joint compared to the clinical examination only.

Objectives: To evaluate MRP8/MRP14 and MSUS in a group of JIA patients and to verify which of these tools best identifies disease activity.

Methods: 70 children with JIA referred to the Rheumatology Unit of the Department of Pediatrics of Chieti, were enrolled. Serum MRP8/MRP14 of each patient was detected by PhiCal Calprotectin ELISA. MRP8/MRP14 was defined normal for values < 3 µg/ml. JADAS-27 was used to define disease activity. At study enrollment, all patients

underwent an ultrasound assessment of all joints clinically affected. A total of 452 joints were scanned for the presence of synovial effusion (SE), synovial hyperplasia (SH) and power Doppler (PD) signal. The ultrasound examinations technique as well as definitions and scoring features were based on guidelines provided by the OMERACT study group. In each joint, SE, SH and PD signal were graded on a 0–3 scale. The threshold used for synovial abnormalities was 1.

Results: MRP8/MRP14 serum levels were increased in active vs inactive disease patients (p-value <0.001). Significant differences between active and inactive patients were found in CRP, ESR, JADAS score and the prevalence of synovitis (Table 1). According to the score evaluating SE or SH and PD, 20 out of 28 (71.4%) JIA patients with active disease had a score equal to 2 vs 2 out 40 (4.7%) patients achieving remission (p-value 0.001). ESR, CRP, MRP8/MRP14 and synovitis with its specific components were all positively related to JADAS-27. MRP8/MRP14 was positively correlated with presence of synovitis and its specific characteristics.

Conclusion: To our knowledge, this is the first study comparing MRP8/MRP14 and MSUS in a group of JIA patients. We found a significant association between MRP8/MRP14 levels, clinical and laboratory markers of disease activity. Moreover, we demonstrated an association between MRP8/MRP14 serum levels and ultrasonography-determined synovitis. Our study confirmed that both MSUS and MRP8/MRP14 may be considered valid and reliable tools in the assessment of synovial inflammation in JIA. Larger longitudinal studies are needed to establish the role of MRP8/MRP14 and MSUS in the diagnosis and follow-up of childhood arthritis.

Disclosure of Interest

None Declared

Table 1 (abstract P104). Clinical, laboratory and ultrasound data at baseline between active and inactive patients. Data represent means ± SD or median (interquartile range)

	Active n. 28	Inactive n. 42	p-value
Age at enrollment (years)	7.28±3.79	12.45±4.95	<0.001
JADAS-27 score	10.6±5.5	0.4±0.5	<0.001
Disease duration (years)	1.67±3.25	7.56±4.54	<0.001
MRP8/MRP14 (µg/ml)	3.920 (2.417-5.078)	1.990 (0.85-2.86)	<0.001
ESR (mm/h)	10.0 (6.0-32.0)	7.0 (5.0-9.2)	<0.001
CRP (mg/dl)	0.610 (0.29-1.720)	0.29 (0.29)	<0.001
Synovitis (Yes/no)	20/8	2/40	<0.001

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CREATION OF AN ONLINE LEARNING RESOURCE FOR JIA IN ADULTS

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Introduction: We present the development of an evidence based online learning resource for rheumatologists who manage adolescents and adults with JIA as part of their routine practice, including translation of a learning needs analysis into learning activity design and the creation of three interactive learning modules.

Objectives: Many children and young people with JIA will continue to have active disease as adults and will need treatment delivered by adult rheumatology services. A learning needs analysis of the UK adult rheumatology community identified key areas where further training in the management of JIA is required:

- Knowledge about JIA, including understanding JIA subtypes, how JIA manifests in adults, and how JIA differs from adult onset arthritis.
- Knowledge, skills and guidance for the management of adolescents and young adults with JIA.