POS1321

MENTAL HEALTH SCREENING IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS

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Background: Mental disorders often begin in the vulnerable phase of adolescence and young adulthood. Young people with chronic diseases are particularly at risk. Early recognition of mental health problems is necessary in order to be able to support those affected in a timely and adequate manner. By implementing a web-based generic screening tool for mental health in routine care, patients with juvenile idiopathic arthritis (JIA) and mental health conditions can be identified and provided with targeted treatment.

Objectives: To investigate the prevalence of mental health conditions in young people with JIA in routine rheumatology care.

Methods: Mental health screening is implemented as an add-on module to the National Paediatric Rheumatology Database (NPRD). The current data was gathered over a period of 24 months. Patients complete the screening tool which includes the Patient Health Questionnaire¹ (PHQ-9, score 0-27) and the Generalized Anxiety Disorder scale² (GAD-7, score 0-21) via a web-based questionnaire. The cut-off for critical values in PHQ-9 and GAD-7 were defined as values ≥ 10 . Simultaneously, other data, such as sociodemographic data, disease activity (cJADAS10, score 0-30), functional status (CHAQ, score 0-3) were collected as well.

Results: The analysis included 245 patients (75% female) with a mean age of 15.7 years and a mean disease duration of 8.8 years. 38.8% of the patients had oligoarthritis (18.0% OA, persistent/20.8% OA, extended) and 23.3% RF negative polyarthritis. At the time of documentation 49 patients (30.6%) had an inactive disease (cJADAS10 ≤ 1) and 120 (49.4%) no functional limitations (CHAQ = 0). In total, 53 patients (21.6%) had screening values in either GAD-7 or PHQ-9 ≥ 10 . Patients with critical mental health screening values showed higher disease activity and more frequent functional limitations than inconspicuous patients (cJADAS10 (mean $\pm$ SD): 9.3 $\pm$ 6 vs. 4.9 $\pm$ 4.9; CHAQ: 0.66 $\pm$ 0.6 vs. 0.21 $\pm$ 0.42). When compared to males, females were significantly more likely to report either depression or anxiety symptoms (11.7% vs. 24.9%, $p = 0.031$). 17.6% of all patients with valid items for these data reported to receive psychological support, meaning psychotherapeutic support (14.5%) and/or drug therapy (8.6%). Among those with a critical mental health screening score, 38.7% received psychological support (psychotherapeutic support (35.5%) and/or drug therapy (16.1%)).

Conclusion: Every fifth young person with JIA reported mental health problems, however, not even every second of them stated to receive psychological support. The results show that screening for mental health problems during routine adolescent rheumatology care is necessary to provide appropriate and targeted support services to young people with a high burden of illness.

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- [3] The screening data were collected as part of COACH (Conditions in Adolescents: Implementation and Evaluation of Patient-centred Collaborative Healthcare), a project supported by the Federal Ministry of Education and Research (FKZ: 01GL1740F).

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POS1322

A DATA SCIENCE EVALUATION OF THE JUVENILE ARTHRITIS MULTIDIMENSIONAL ASSESSMENT REPORT (JAMAR) QUESTIONNAIRE FOR IMPROVING MANAGEMENT OF JIA PATIENTS

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Background: The Juvenile Arthritis Multidimensional Assessment Report (JAMAR) is a questionnaire developed to comprehensively assess Juvenile Idiopathic Arthritis (JIA) patients. Despite being translated into 54 languages, there is still limited literature about it. The length of the questionnaire could have been influencing its clinical practicality.

Objectives: The purpose of this study is to answer the following questions:

- a) "Which are the most informative questions?"
- b) "How well do the collected data correlate with other clinical variables?"
- c) "Are there discrepancies between the perceptions of patients and parents?"

Methods: We included 71 children with JIA according to ILAR criteria, all of them receiving treatment and we followed them up for a year. JAMAR questionnaires were answered by both children and parents at baseline, 6 and 12 months. Also, a thorough clinical examination was performed in every visit: all the joints were clinically assessed for swelling, tenderness, and limited range of motion, and Juvenile Arthritis Disease Activity Score (JADAS), disease activity state, parents and patients assessment through Visual Analogue Scale (VAS), physician's VAS, Erythrocyte Sedimentation Rate (ESR) and C-reactive protein (CRP) were recorded. We applied state of the art machine learning methods in order to find the most relevant questions in JAMAR. Additionally, we utilized tensor decomposition to identify relevant patient clusters. Furthermore, we correlated these critical questions with clinical and biological parameters recorded. We have compared the discordance rate between patients vs parents responses in 5 of JAMAR parameters as previously reported [1]. We explored the relation between discordance and demographic and clinical variables.

Results: A total of 374 JAMAR questionnaires are analyzed with our Machine Learning algorithms. First, we identify a small group of questions as the most relevant for patients and parents. The identified questions exhibit better correlations with the JADAS scores than the non-relevant ones. Second, 96% of the pairs (child-parent) are discordant for at least one item, but the differences are small and VAS well being is the only score with a statistically significant difference ($P < 0.0001$). We observe a higher rate of activity in the patients exhibiting discordant evaluations with their parents. In addition, the observation patient-parent agreement in Juvenile Arthritis Functionality Scale (JAFS) is better than Pediatric Rheumatology Quality of Life Scale (PRQL).

Conclusion: In this study, we revisited the JAMAR questionnaire by applying modern data mining techniques in a longitudinal dataset. Our results suggest that a small number of questions in the JAMAR questionnaire provide significant information and correlate well with the JADAS scores. We argue that this reduced set of questions could make the data collection easier by trading off the number of questions for frequency and ease of self-reported data collection.

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POS1323

SACROILIAC JOINT MRI ABNORMALITIES IN JUVENILE SPONDYLOARTHRITIS: AN UPDATE OF DEFINITIONS AND SCORING OF THE OMERACT JUVENILE IDIOPATHIC ARTHRITIS MRI SCORE

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Background: Preliminary definitions for SIJ lesions in the OMERACT Juvenile Idiopathic Arthritis Magnetic Resonance Imaging score has been reported¹. Investigators identified the need to revise the JAMRIS-SIJ item definitions.

Objectives: To update the JAMRIS-SIJ definitions and scoring method.

Methods: The OMERACT JAMRI working group was convened to discuss the performance of the score in a reliability exercise using 30 patients. Twenty investigators (12 radiologists, 8 rheumatologists) decided which definitions and scoring methods to be revised, retained or added.

Results: The revised JAMRI-SIJ is in the Table 1.

Table 1. Revised OMERACT JAMRIS-SIJ.

Component	Definition	Segmentation/ slice	Score range/ slice
Bone Marrow Edema (BME)	An ill-defined area of high bone marrow signal intensity within the subchondral bone in the ilium or sacrum on fluid sensitive images	4 quadrants/ SIJ	0-8
BME Intensity	Presence of hyperintensity of the marrow on fluid sensitive images using the signal of the presacral veins or cerebrospinal fluid as reference	1 score/SIJ	0-2
BME Depth	Continuing increased signal on fluid sensitive images of depth $\geq 5\text{mm}$ or $\geq 1\text{cm}$ from the articular surface using the signal of the presacral veins or cerebrospinal fluid as reference	1 score/SIJ	0-2
Osteitis	An ill-defined area of high bone marrow signal intensity within the subchondral bone in the ilium or sacrum on contrast enhanced T1 weighted sequences	4 quadrants/ SIJ	0-8
Capsulitis	Increased signal on fluid sensitive or contrast enhanced T1 weighted sequences involving the superior portion of the SIJ capsule	superior halves/SIJ	0-2
Joint space fluid	High signal intensity equivalent to the CSF on fluid sensitive sequences within the joint space of the cartilaginous portion of the SIJ	halves/SIJ	0-4
Joint space enhancement	Increased signal intensity on contrast enhanced T1 weighted sequences within the joint space of the cartilaginous portion of the SIJ	halves/SIJ	0-4
Inflammation in erosion cavity	Increased signal intensity on fluid sensitive or contrast enhanced T1 weighted sequences in an erosion cavity of the cartilaginous portion of the SIJ	halves/SIJ	0-4
Enthesitis	Increased signal intensity in bone marrow and/or adjacent soft tissue on fluid sensitive or contrast enhanced T1 weighted sequences at sites where ligaments and tendons attach to a bone excluding retroarticular enthesitis	Score per case	0-1
Damage Domain Sclerosis	A substantially wider than normal area of very low bone marrow signal intensity within the subchondral bone in the ilium or sacrum on a non-fat suppressed sequence, preferably a non-fat suppressed T1 weighted sequence. This feature must also be present on all other sequences, as available	4 quadrants/ SIJ	0-8
Erosion	A focal loss of the low signal of cortical bone at the osteochondral interface and adjacent marrow matrix on T1 weighted images	4 quadrants/ SIJ	0-8
Fat metaplasia lesion	Homogeneous increased signal intensity within the subchondral bone marrow on T1 weighted images	4 quadrants/ SIJ	0-8
Backfill	A high signal on non-contrast enhanced T1 weighted sequences in a typical location for an erosion, with signal intensity greater than normal bone marrow, clearly demarcated from adjacent bone marrow by an irregular band of low signal reflecting sclerosis at the border of the original erosion	halves/SIJ	0-4
Ankylosis	Presence of signal equivalent to regional bone marrow continuously bridging a portion of the joint space between the iliac and sacral bones	halves/SIJ	0-4

Statement of overarching consideration for all definitions: "[...] in comparison to physiological changes normally seen on MRI examinations of age- and sex-matched children, and visible in 2 planes wherever available."

Conclusion: Revised JAMRIS-SIJ has been developed. Validation steps are underway.

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POS1324

TREATMENT OF UVEITIS ASSOCIATED WITH JUVENILE IDIOPATHIC ARTHRITIS: A SEVEN YEARS' SINGLE-CENTRE EXPERIENCE

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Background: Uveitis (U) is one of the most common extra-articular manifestation of juvenile idiopathic arthritis (JIA). It is usually revealed in 10-20% of children with JIA, often asymptomatic and sometimes the onset of U precedes the onset of arthritis. Being inappropriately treated, U leads to vision loss in up to 20% of children. Despite the efforts of the Standardization of Uveitis Nomenclature (SUN) Working Group and the European initiative Single Hub and Access point for pediatric Rheumatology in Europe (SHARE) which optimized management of JIA-associated U [1], the actual treatment is mostly based on physicians' experience. Initial treatment typically includes topical glucocorticoids (G) or systemic immunosuppressive therapy if topical G don't work. Methotrexate (MTX) is the first-line systemic immunosuppressive agent, followed by tumor necrosis factor inhibitors (TNFi) [1,2].

Objectives: To provide treatment recommendations for JIA-associated U based on monitoring of 221 patients during 7 years.

Methods: Data collected during 2240 hospitalisations of 221 patients aged 3 - 17 years treated at the State Pediatric Medical University in years 2014 - 2020 were analyzed. U and JIA were diagnosed according to the SUN and ACR recommendations. Initial treatment of U included topical G or non-steroidal anti-inflammatory drugs (NSAIDs). Treatment of JIA included systemic NSAIDs, cytostatics (MTX, Cyclosporine or Cyclophosphamide) and biologics: Adalimumab (Ada), Infliximab (Inf), Etanercept (Eta), Abatacept (Aba), Tocilizumab (Toc), Golimumab (Gol). Statistical analysis included traditional Descriptive Statistics, Spearman Rank Order Correlation (SROC) and Multivariate Exploratory Techniques [Statistica for Windows, Statsoft].

Results: Of all patients with JIA-associated U the proportion of those treated with biologics during the monitoring increased from 60 to 70% (of them, Ada 79 - 93%, Inf 7 - 1%, Eta 5 - 1%, Aba 7 - 3%, Toc 7 - 0%, Gol 0 - 3%). Of all children in whom U was diagnosed later than arthritis 36% were treated with systemic NSAIDs, 25% - with cytostatics (MTX - 84%, Cyclosporine - 8%, Cyclophosphamide - 8%), 23% - with systemic G, 6% - with biologics (Eta - 83%, Toc - 17%). Of patients in whom U and arthritis were diagnosed simultaneously, 95% were treated with cytostatics (MTX - 95%, Cyclosporine - 15%), 93% - with topical G, 91% - with topical NSAIDs, 81% - with systemic G, 60% - with systemic NSAIDs. Efficacy of treatment in terms of SROC showed evidence of steady improvement already after 1 month of therapy with TNFi or with MTX (increase of r during the first year from 0.37 to 0.62, p<0.02; from 0.37 to 0.55, p<0.05 respectively), though r was never higher than 0.84 during the first 3 years of treatment. Topical NSAIDs and G were less effective: improvement was revealed after 3 months of treatment, it was not so steady and r was never higher than 0.35. Systemic NSAIDs were not effective at all.

Conclusion: 1. The likelihood of improvement of U treated with TNFi (Eta excepted) after one month, after 1 and after 3 years of therapy was 37%, 62% and 84% respectively. For MTX this likelihood was 37% after 1 month and 55% after 3 months.

2. TNFi (Eta excepted) in treatment of JIA prevents the onset of U, thereby supposing its early administration.