Improving outcomes for children with JIA

OP0215 WHAT DOES THE PATIENT WELL-BEING VAS TELL US WHEN THE PHYSICIAN GLOBAL ASSESSMENT SCORE IS ZERO? ANALYSIS OF A LARGE MULTINATIONAL DATASET

M. Burrone[1], R. Naddei[1], F. Ridella[2], C. Trincianti[2], C. Herrera Mora[3], C. Malagon[4], A. Ibañez[5], O. Arguedas[6], N. Ruperto[1], A. Ravelli[1], A. Consolaro[1]. [1]*IRCCS Istituto Giannina Gaslini, Clinic of Paediatrics and Rheumatology, Genoa, Italy*; [2]*Giannina Gaslini Institute, University of Genova, Genova, Italy*; [3]*Hospital de Niños Roberto Gilbert Elizalde, Reumatología, Guayaquil, Ecuador*; [4]*Hospital Universitario Simon Bolivar, Clínica Infantil Colsubsidio, Bogota, Colombia*; [5]*National Institute Salud del Nino, Rheumatology, Lima, Peru*; [6]*Hospital Nacional De Ninos Dr. Carlos Saenz Herrera, Immunology, San Josè, Costa Rica*

Background: Parent- and child-reported outcomes (PCROs) are measures that reflect the parent and child perception of rheumatic disease course and effectiveness of therapeutic interventions. Among PCROs for the assessment of patients with juvenile idiopathic arthritis (JIA), the most widely adopted is the parent/patient global evaluation or well-being visual analogue scale (WB-VAS). Several studies in JIA have highlighted the discrepancies in the assessment of the disease status between the physician and the parent/patient. This difference might be due to the WB-VAS measuring a broader construct than the physician global assessment (PGA).

Objectives: To evaluate, in a large multinational sample of JIA patients, the disease characteristics of subjects considered as inactive by the physician with an increased WB-VAS score.

Methods: Data from the multinational dataset of patients enrolled in the Epidemiology Treatment and Outcome of Childhood Arthritis (EPOCA) study were analyzed. We have included only subjects with a PGA score of 0. PCROs were collected through the juvenile arthritis multidimensional assessment report (JAMAR). We compared demographic features, socio-economic status, level of education, subtype of JIA diagnosis and the main PCROs (pain level, presence of morning stiffness, count of joints with swelling or pain, functional ability, disease activity level, ongoing therapy, presence of medications side effects and health related quality of life measured with the pediatric rheumatology quality of life (PRQL) scale) between subjects with WB-VAS ≤ 1 and > 1.

Results: A total of 3537 patients were sorted into two groups according to the WB_VAS score: 2862 subjects were included in a first group (WB_VAS ≤1); 675 in a second one (WB-VAS >1). Respectively, 17,6% and 18,1% of families belonged to the lower socio-economic status, 70,5% and 71% to the intermediate, 11,9% and 10,8% to the higher. The percentages of patients in the three levels of education was not different in the two groups:20,2% and 22% in the lower, 48,9% and 50,1% in the intermediate, 30,8% and 27,9% in the higher level of education. No significant difference was observed in the distribution of JIA categories in the two groups. Subjects in first group were younger at disease onset (5.6 vs 6.4 years). Comparison of main PCROs results is presented in the Table 1 below.

Table 1.

PCROs	WB_VAS ≤1	WB_VAS >1	p
VAS_Pain (mean)	0.3 (0.9)	2.4 (2.4)	<0.001
Presence of morning stiffness (%)	227 (8.0)	285 (42.4)	<0.001
Patients under treatment (%)	1919 (67.2)	540 (80.2)	<0.001
Reporting side effects (%)	421 (22.1)	236 (43.9)	<0.001
Number of adverse events to the therapy (mean)	0.2 (0.7)	0.8 (1.5)	<0.001
Juvenile Arthritis Functionality Scale (JAFS)Total Score (mean)	0.5 (1.6)	3.0 (4.4)	<0.001
JIA Quality of Life (JQL) Total Score (mean)	1.6 (2.3)	6.4 (4.4)	<0.001
VAS-Disease Activity (mean)	0.4 (1.3)	2.3 (2.4)	<0.001
Count of active joints (mean)	0.2 (0.7)	1.4 (2.2)	<0.001

Conclusion: We have analyzed the variables that might determine a difference between the physician's assessment of inactive disease and the parent's/patient's perception of well-being. In particular, socio-economic status, level of education, and gender representation seem not to impact on the general perception of well-being, while pain seems to have the greatest influence on the parent/patient quality of life assessment. Finally, children with lower WB-VAS score were younger at disease onset.

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OP0216 DEVELOPMENT, REFINEMENT AND WEIGHTING OF CANDIDATE CRITERIA FOR AXIAL DISEASE IN JUVENILE SPONDYLOARTHRITIS: AN INTERNATIONAL COLLABORATION

P. F. Weiss[1,2], T. G. Brandon[1], A. Aggarwal[3], R. Burgos-Vargas[4], R. A. Colbert[5], G. Horneff[6], R. Joos[7], R. Laxer[8,9], K. Minden[10], A. Ravelli[11], N. Ruperto[12], J. Smith[13], M. L. Stoll[14], S. M. Tse[8], F. van den Bosch[15], W. P. Maksymowych[16,17], R. G. Lambert[18], D. M. Biko[19,20], N. A. Chauvin[21], M. L. Francavilla[19,20], J. L. Jaremko[18], N. Herregods[22], O. Kasapcopur[23], M. Yildiz[24], A. M. Hendry[25]. [1]*Children's Hospital of Philadelphia, Department of Pediatrics, Division of Rheumatology, Philadelphia, United States of America*; [2]*Perelman School of Medicine at the University of Pennsylvania, Center for Clinical Epidemiology and Biostatistics, Philadelphia, United States of America*; [3]*Sanjay Gandhi Postgraduate Institute of Medical Sciences, Department of Clinical Immunology and Rheumatology, Lucknow, India*; [4]*Hospital General de Mexico Eduardo Liceaga, Department of Rheumatology, Mexico City, Mexico*; [5]*NIH/NIAMS, Pediatric Translational Research Branch, Bethesda, United States of America*; [6]*Asklepios Clinic Sankt Augustin, General Pediatrics, Sankt Augustin, Germany*; [7]*Ghent University, Department of Pediatric Rheumatology, Ghent, Belgium*; [8]*The Hospital for Sick Children, Department of Paediatrics, Division of Rheumatology, Toronto, Canada*; [9]*St. Michael's Hospital, Medicine, Toronto, Canada*; [10]*German Rheumatism Research Center, Epidemiology Unit, Berlin, Germany*; [11]*IRCCS Istituto Giannina Gaslini, Direzione Scientifica, Genoa, Italy*; [12]*IRCCS Istituto Giannina Gaslini, Clinica Pediatrica e Reumatologia, Genoa, Italy*; [13]*University of Wisconsin-Madison, Department of Pediatrics, Madison, United States of America*; [14]*University of Alabama-Birmingham, Department of Pediatrics, Division of Rheumatology, Birmingham, United States of America*; [15]*Ghent University and VIB Center for Inflammation Research, Department of Internal Medicine and Pediatrics, Ghent, Belgium*; [16]*University of Alberta, Department of Medicine, Edmonton, Canada*; [17]*CARE Arthritis, Rheumatology, Edmonton, Canada*; [18]*University of Alberta, Department of Radiology and Diagnostic Imaging, Edmonton, Canada*; [19]*University of Pennsylvania, Department of Radiology, Philadelphia, United States of America*; [20]*Children's Hospital of Philadelphia, Department of Radiology, Philadelphia, United States of America*; [21]*Penn State Health, Department of Radiology, Hershey, United States of America*; [22]*Ghent University Hospital, Department of Radiology and Nuclear Medicine, Ghent, Belgium*; [23]*Istanbul University-Cerrahpasa, Cerrahpasa Medical School, Istanbul, Turkey*; [24]*Istanbul University-Cerrahpasa, Pediatric Rheumatology, Istanbul, Turkey*; [25]*Middlemore Hospital, General Medicine - (Incl. Obstetric Medicine and Adult Rheumatic Fever), Auckland, New Zealand*

Background: The lack of pediatric classification criteria for axial disease is a major impediment to the conduct of clinical trials for juvenile spondyloarthritis (JSpA).

Objectives: We aimed to develop classification criteria for axial JSpA that will enable identification of a more homogeneous group representative of children with SpA and axial disease for entry into observational or clinical trials. These criteria are not intended to capture all possible subjects, but instead most patients with shared key features of axial disease. Treatment and diagnostic decisions should adhere to evidence-based recommendations.

Methods: 304 cases with JSpA and suspected axial disease from 6 international centers were collected on a standardized case report form; all had an MRI that was reviewed by an independent team of experts in musculoskeletal imaging. Candidate criteria were developed in an earlier phase of the project through an iterative process that included an international Delphi exercise for item generation, systematic literature review, and an item reduction exercise. Using the preliminary candidate criteria, 14 international clinical SpA experts scored and rank-ordered 20 representative SpA cases. During four, 3-hour virtual meetings, the clinical expert panel reviewed the interrater reliability of case ranking, refined the criteria definitions and domain levels, and participated in a multi-criterion decision consensus methodology exercise to generate relative weights of the criteria. The expert panel assessed whether the criteria weighting was in accordance with their consensus clinical judgment as a test of face validation of the weighting/scoring system and revisions were made as necessary. Next, 30 cases from the derivation cohort were scored and ranked using the relative weights for each category and domain. Each expert independently determined the score or "threshold" below which they were no longer confident enough that a patient had axial disease to enroll the child in a Phase 3 randomized clinical trial of a drug with unclear efficacy and safety. Results of this exercise were discussed and a provisional threshold score for classification was achieved by consensus.

Results: The preliminary axial disease criteria for JSpA included the PRINTO provisional criteria for enthesitis/spondylitis-related JIA or a rheumatologist diagnosis of SpA as obligatory entry criteria as well as additive weighted criteria for 7 domains (SIJ active inflammation on imaging, SIJ structural lesions on imaging, pain chronicity, pain pattern, pain location, morning stiffness, and genetics) (Figure 1). Interrater reliability of the pre-consensus meeting case rankings was poor

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(Kendall's correlation coefficient was 0.20 for clinical data-only and 0.23 for clinical plus imaging data). The multi-criterion decision analysis was repeated for the imaging domains when the initial criteria weighting was not in accordance with the expert panel's opinion. The multi-criterion decision analysis involved a total of 58 pairwise decisions agreed by expert consensus. After criteria weights and additive scores were re-calculated, experts reached consensus for axial disease in JSpA for all cases scoring 55 and greater.

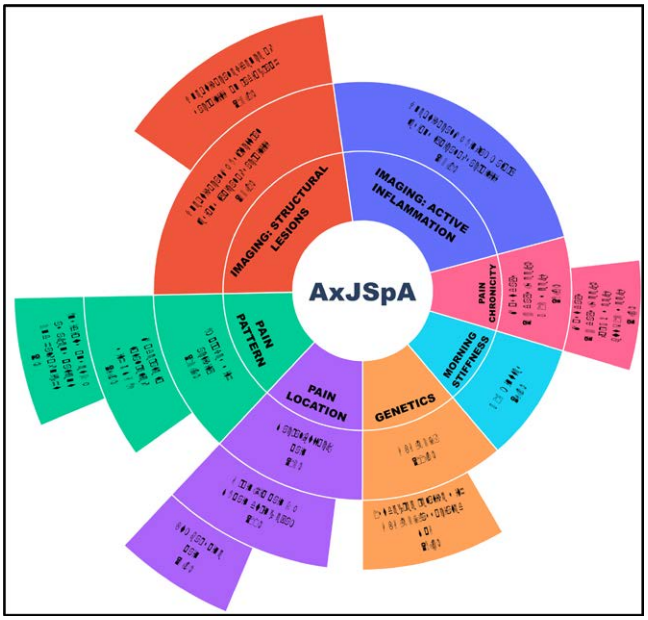


Figure 1. Axial juvenile spondyloarthritis (AxJSpA) classification criteria domains and levels. The first ring represents the domains and the items branching out are the levels moving from highest level (closest to center) to lowest level (farthest from center) in each domain. Assigned weights are shown below each item description.

Conclusion: Using an iterative process, the JSpA axial disease criteria definitions were refined, preliminary weights were generated, and a provisional threshold score for classification was determined. The most heavily weighted domains were active inflammation and structural lesions on imaging. Imaging typical of sacroiliitis was necessary, but not sufficient without any clinical criterion, to surpass the axial disease classification threshold.

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BMS, Lilly, Novartis, Robert A. Colbert: None declared, Gerd Horneff Speakers bureau: Pfizer, Novartis, Janssen, Chugai, Abbvie, Grant/research support from: Pfizer, Novartis, MSD, Chugai, Roche, Abbvie, Rik Joos Speakers bureau: Galapagos, Pfizer, AbbVie, Novartis, Amgen, BMS, Lilly, Grant/research support from: Pfizer, AbbVie, Roche, Ronald Laxer Consultant of: Abbvie, Novartis, Sobi, Sanofi, Eli Lilly Canada, Eli Lilly, Kirsten Minden Speakers bureau: Pfizer, Novartis, Consultant of: Pfizer, Novartis, Angelo Ravelli Speakers bureau: Abbvie, Novartis, SOBI, Angelini, Reckitt-Benkiser, Roche, Pfizer, Alexion, Grant/research support from: Novartis, Pfizer, Nicolino Ruperto Speakers bureau: NR has received honoraria for consultancies or speaker bureaus from the following pharmaceutical companies in the past 3 years: 2 Bridge, Amgen, AstraZeneca, Aurinia, Bayer, Brystol Myers and Squibb, Celgene, inMed, Cambridge Healthcare Research, Domain Therapeutic, EMD Serono, Glaxo Smith Kline, Idorsia, Janssen, Eli Lilly, Novartis, Pfizer, Sobi, UCB., Consultant of: NR has received honoraria for consultancies or speaker bureaus from the following pharmaceutical companies in the past 3 years: 2 Bridge, Amgen, AstraZeneca, Aurinia, Bayer, Brystol Myers and Squibb, Celgene, inMed, Cambridge Healthcare Research, Domain Therapeutic, EMD Serono, Glaxo Smith Kline, Idorsia, Janssen, Eli Lilly, Novartis, Pfizer, Sobi, UCB., Grant/research support from: The IRCCS Istituto Giannina Gaslini (IGG), where NR works as full-time public employee has received contributions from the following industries in the last 3 years: Bristol Myers and Squibb, Eli-Lilly, F Hoffmann-La Roche, Novartis, Pfizer, Sobi. This funding has been reinvested for the research activities of the hospital in a fully independent manner, without any commitment with third parties., Judith Smith Consultant of: Consulting panel of pediatric rheumatologists identifying issues in juvenile spondyloarthritis for Novartis. Paid < $5000, Matthew L. Stoll Consultant of: Currently consulting for Novartis, Shirley ML Tse: None declared, Filip van den Bosch Speakers bureau: Abbvie, Eli Lilly, Galapagos, Janssen, Novartis, Pfizer, UCB, Paid instructor for: Amgen, Eli Lilly, Consultant of: Abbvie, Eli Lilly, Galapagos, Janssen, Novartis, Pfizer, UCB, Walter P Maksymowych Speakers bureau: Abbvie, Eli-Lilly, Janssen, Novartis, Pfizer, UCB Pharma, Consultant of: AbbVie, Boehringer Ingelheim, Celgene, Eli Lilly, Galapagos, Janssen, Novartis, Pfizer, UCB Pharma, Grant/research support from: Abbvie, Novartis, Pfizer, Robert G Lambert Paid instructor for: Novartis, Consultant of: CARE Arthritis, Calyx, Image Analysis Group, Novartis, David M. Biko Employee of: Employee of Merck from 1998 to 2000, Nancy A. Chauvin Employee of: Forest Pharmaceuticals - Research scientist (1996) and Novartis - Pharmaceutical sales representative (1997), Michael L. Francavilla: None declared, Jacob L Jaremko: None declared, Nele Herregods: None declared, Ozgur Kasapcopur Speakers bureau: Pfizer, Abbvie, Novartis and Roche, Mehmet YILDIZ: None declared, Alison M. Hendry: None declared
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OP0217

EFFECTIVENESS AND SAFETY OF IL-6 INHIBITION (TOCILIZUMAB) VERSUS TUMOUR NECROSIS FACTOR INHIBITION IN POLYARTICULAR JUVENILE IDIOPATHIC ARTHRITIS: RESULTS FROM THE OBSERVATIONAL BIKER STUDY

A. Klein[1,2], A. Zimmer[1], T. Hospach[3], F. Weller-Heinemann[4], S. Hansmann[5], J. Kuemmerle-Deschner[5], M. Fasshauer[6], K. Minden[7,8], I. Foeldvari[9], C. Rietschel[10], D. Windschall[11,12], R. Trauzeddel[13], M. Hufnagel[14], D. Foell[15], R. Berendes[16], G. Boeschow[17], P. Oommen[18], F. Dressler[19], G. Horneff[1,2].
[1]Kinderklinik Sankt Augustin, Pediatric Rheumatology, Sankt Augustin, Germany; [2]Cologne Universitiy Hospital, Pediatrics, Köln, Germany; [3]Olgahospital and Women's Clinic, Pediatric Rheumatology, Stuttgart, Germany; [4]Professor Hess Klinik, Pediatric Rheumatology, Bremen, Germany; [5]Universitäts-Kinderklinik, Pediatric Rheumatology,Tübingen, Germany; [6]Klinikum St. Georg, Leipzig, Pediatric Rheumatology, Leipzig, Germany; [7]Deutsches Rheuma-Forschungszentrum Berlin (DRFZ), ein Institut der Leibniz-Gemeinschaft, Pediatric Rheumatology, Berlin, Germany; [8]Charité - Universitätsmedizin Berlin, Campus Benjamin Franklin, Pediatric Rheumatology, Berlin, Germany; [9]Center for Pediatric Rheumatology, Pediatric Rheumatology, Hamburg, Germany; [10]Clementine Hospital, Pediatric Rheumatology, Frankfurt am Main, Germany; [11]St.-Josef-Stift Sendenhorst, Northwest German Center for Rheumatology, Clinic of Paediatric and Adolescent Rheumatology, Sendenhorst, Germany; [12]Martin-Luther-University Halle-Wittenberg, Medical Faculty, Halle, Germany; [13]Helios Hospital Berlin-Buch, Pediatrics, Berlin, Germany; [14]Universitätsklinikum Freiburg, Pediatric Rheumatology, Freiburg im Breisgau, Germany; [15]Münster University Hospital, Pediatric Rheumatology, Münster, Germany; [16]Children's Hospital St. Mary's, Pediatric Rheumatology, Landshut, Germany; [17]Hospital Carl-Thiem-Klinikum Cottbus, Pediatric Rheumatology, Cottbus, Germany; [18]Universitätsklinikum Düsseldorf, Pediatric Rheumatology, Düsseldorf, Germany; [19]Medizinische Hochschule, Pediatric Rheumatology, Hannover, Germany

Background: Tocilizumab (TCZ) has been approved for treatment of juvenile idiopathic arthritis (JIA) for 10 years.
Objectives: Evaluation of 12-month efficacy and safety of TCZ compared to TNF inhibitors (TNFi).
Methods: BIKER WA 29358 is a 5-year multi-centre prospective, observational cohort study including polyarticular JIA patients in Germany starting treatment between 2015 and 2020 with TCZ and matched 1:1 by date of treatment start and region to patients starting an approved TNFi. Clinical disease activity (JADAS10), JADAS MDA (≦3.8)/remission (≦1.0), safety and drug adherence at 12 months were assessed and compared between cohorts.
Results: The analysis included 342 participants with 12-month treatment data (TCZ n=171; TNFi n=171). TCZ was used as 2nd line biologic in the majority of patients (84%) while TNFi were mostly 1st line biologics (86%). Patients starting TCZ had a longer disease duration. Efficacy was demonstrated by a marked decrease in JADAS10 in both cohorts (TCZ vs. TNFi at baseline: 15.0+/-6.7 vs. 14.6+/-6.3; at month 12: 3.8+/-5.1 vs. 3.4+/-4.5). Proportions of patients in TCZ/TNFi cohorts achieving JADAS remission at 12 months were 48%/41% in 1st line biologic users and 32%/33% in 2nd line biologic users. JADAS MDA was achieved in 64%/69% in 1st line and 52%/58% in 2nd line users of TCZ/TNFi.
After 12 months of treatment JADAS10 (mean +/SD) was higher in the 2nd line TNFi cohort compared to the 1st line (4.5+/-5.6 vs. 3.2+/-4.3), similar to patients receiving 2nd or 1st line TCZ (4.0+/-5.2 vs. 2.9+/-4.4). Patients receiving TCZ or TNFi as first biologic reached JADAS10 remission and MDA numerically more frequently but not statistically significant compared to 2nd line users.
Safety was assessed based on adverse event (AE) reporting. 57 (33%) patients in the TCZ cohort and 43 (25%) patients in the TNFi cohort reported AE. The AE

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