SAT0627

PSYCHOLOGICAL PROFILE IN PATIENTS WITH RHEUMATIC DISEASES IN CHINA: A STUDY OF HADS SELF-ASSESSMENT WITH SMART SYSTEM OF DISEASE MANAGEMENT (SSDM)

Yonglu Wang1, Li Yang2, Li Yang3, Hua Wei4, Henglian Wu5, Jinli Ru6, Xiaoxi Chen7, Bin Wu8, Fang He9, Li Zhenbin10, Wenzhong Fan11, Feng Wang12, Lirong Kang1, Hui Xia2, Yuhua Ji1, Fei Xiao1, Miaoxia Zhang1, SSDM Collaboration Group, China; 1The First Affiliated Hospital of Bao Tou Medical College, Bao Tou, China; 2The Second Affiliated Hospital of Harbin Medical University, Harbin, China; 3Zhejiang Provincial People’s Hospital, Hangzhou, China; 4Northern Jiangsu People’s Hospital, Yangzhou, China; 5Dongguan Donghua Hospital, Dongguan, China; 6The Second Hospital of Shanxi Medical University, Taiyuan, China; 7Zhongnan Hospital of Wuhan University, Wuhan, China; 8The First People’s Hospital of Jiangzhou, Jingzhou, China; 9Sunning University, Suning, China; 10The 989th Hospital of PLA Joint Logistic Support Force, Shijiazhuang, China; 11Central Hospital of XinXiang, XinXiang, China; 12Central Hospital of Xiangyang, Xiangyang, China; 13Shanghai Gothic Internet Technology Co., Ltd., Shanghai, China; 14Jiangsu Province Hospital, The first affiliated hospital of Nanjing medical university, Nanjing, China

Background: The patients with chronic diseases such as rheumatic diseases suffer from physical pain and/or disability. In addition, psychological morbidities have also been found in patients with rheumatic diseases. Hospital Anxiety and Depression Scale (HADS) is commonly applied to assess the mental health of patients with rheumatic disease. Smart System of Disease Management (SSDM) is a mobile application which has two application systems for both patients and doctors for rheumatic diseases management. The patient application system provides functions including self-assessment, medication management, adverse events management and laboratory records. After input by patients, all the data will be synchronized to the mobile terminal of authorized rheumatologists. Based on these data, rheumatologists can evaluate and follow up with their patients and provide consultation service through SSDM in text or voice method. The rheumatologists can also adjust therapeutic regimens based on patients’ profiles.

Objectives: The purpose of this study is to explore the profile of psychological morbidities in patients with rheumatic diseases.

Methods: The patients were educated and trained to perform HADS self-assessments using SSDM by the rheumatologists. The HADS self-assessments data could be extracted from the mobile terminal for further analysis. The HADS score consists of two subscales for anxiety (HADS-A) and depression (HADS-D) which have 7 items, respectively. Both subscales range from 0 to 21, with higher scores indicating greater anxiety and depression. A score between 11 and 14 indicates a probable case of anxiety or depression.

Results: From June 2016 to January 2019, 13,830 adult patients (81% females; 19% males) with a mean age of 47.5 ± 17.29 years from 25 hospitals performed self-evaluation of HADS using SSDM. 34 rheumatic diseases were assessed, including RA (4,594; 33%), SLE (3054; 22%), SS (1,253; 9%), AS (975; 7%), gout (607; 4%), OA (590; 4%), MCTD (490; 4%), UCTD (443; 3%), PM/DM (405; 3%), etc.

Conclusion: In this Italian RA cohort, the adherence to MD was significantly associated with a better GH, but higher MD score was not significantly associated with lower disease activity. Arterial hypertension was significantly associated with a better GH, but higher MD score was not significantly associated with lower disease activity. Arterial hypertension was significantly associated with a better GH, but higher MD score was not significantly associated with lower disease activity. Our study suggests an overall beneficial effect of MD in RA patients. Further studies are needed to better understand the impact of lifestyle modification (e.g. diet) in achieving RA disease control.

References:

Disclosure of Interests: None declared


SAT0628

VALIDATION OF METHODS FOR PREDICTING LONG-TERM OUTCOME IN JUVENILE IDIOPATHIC ARTHRITIS: RESULTS FOR CANADIAN AND NORDIC PREDICTION MODELS IN THE NORDIC COHORT

Veronika Rydpdal1, Jaime Guzman3, Andrew Henrey2, Thomas Loughin3, Mia Glenup4, Anders Fasth5, Ellen Danen Arntzen1, Lillemor Berntson3, Susan Nielsen1, Marek Zak6, Marite Rygg7, Kristina Aalto8, Troels Herlin9, Martin Rydpdal10, Ellen Nordal10, ReACCh-Out Investigators and the Nordic Study Group of Pediatric Rheumatology (NoSPeR).

1University Hospital of North Norway, Tromsø, Norway; 2University of British Columbia, Vancouver, Canada; 3Aarhus University Hospital, Aarhus, Denmark; 4University of Gothenburg, Gothenburg, Sweden; 5NTNU – Norwegian University of Science and Technology, Trondheim, Norway; 6Uppsala University, Uppsala, Sweden; 7Rigshospitalet University Hospital, Copenhagen, Denmark; 8Helsinki University Hospital, Helsinki, Finland; 9University of Tromsø – The Arctic University of Norway, Tromsø, Norway

Background: Models predicting outcome in juvenile idiopathic arthritis (JIA) have recently been proposed by Guzman et al. and Rydpdal et al. Guzman et al. constructed a model for predicting severe disease course followed by the ReACCh-Out study, and Rydpdal et al. constructed models for prediction of non-remission, functional disability and joint damage.

Objectives: To validate methods for prediction of long-term outcome in JIA by testing the ability of Guzman’s model and Rydpdal’s model to predict severe disease course (the ReACCh-Out outcome) in the Nordic cohort.

Methods: The Nordic cohort is a prospective longitudinal multicenter cohort from defined geographical areas of 4 Nordic countries. Children with a baseline and an 8-year study visit were included. Missing data were imputed using low rank matrix factorization, and a K-medoids algorithm was used to identify clusters corresponding to severe disease course in the ReACCh-Out study. With this outcome, the prediction model of Guzman et al. was tested with no re-estimation of parameters. A Receiver operating characteristic (ROC) curve and the corresponding area

Table 1 presents the number and percentage of patients with rheumatic diseases accompanied by anxiety or depression. The ratio of probable anxiety was 12% in RA, 14% in SLE, 15% in SS, 16% in AS, 10% in Gout, 11% in OA, 12% in MCTD, 14% in UCTD and 10% in PM/DM. The prevalence of probable depression was 19% in RA, 21% in SLE, 20% in SS, 21% in AS, 17% in Gout, 19% in OA, 21% in MCTD, 18% in UCTD and 16% in PM/DM.
under the curve (AUC) were computed. For the same outcome, prediction models were built using the method of Rydpal et al. on randomly sampled training sets, and tested on disjoint validation sets.

**Results:** In the Nordic cohort 98/440 (22%) patients were identified with a severe disease course. This ratio is similar to the 125/610 (20%) found in the ReACCh-Out study. Characteristics of groups of patients with severe and non-severe disease course are similar in the two cohorts. The model of Guzman et al. had an AUC of 0.85 for prediction of severe disease course and an AUC of 0.66 for predicting remission off medication. In repeated cross-validations, the model of Rydpal et al. had a median AUC of 0.90 (IQR 0.86-0.92) for prediction of severe disease course, and a median AUC of 0.78 (IQR 0.72–0.82) for remission off medication.

**Conclusion:** Tests in the Nordic cohort validate the ability of the model of Guzman et al. to predict severe disease course. Repeated cross-validations of the model of Rydpal et al. indicate that validation results are highly dependent of the chosen outcome, and that prediction of long-term remission status is more challenging than prediction of a severe disease course.

**REFERENCES**


**Disclosure of Interests:** Veronika Rydpal: None declared. Jaime Guzman: None declared, Andrew Henrey: None declared, Thomas Loughlin: None declared, Mia Gluerup: None declared, Anders Fasht: None declared, Ellen Dalen Arstad: None declared, Lillemor Berntson Consultant for: AbbVie, Susan Nielsen: None declared, Marek Zakoń: None declared, Marte Rygg: None declared, Kristin Aalto: None declared, Troels Herlin: None declared, Martin Rydpal: None declared, Ellen Nordal: None declared

**DOI:** 10.1136/annrheumdis-2019-eular.2577

There are 4 main questionnaires to assess adherence in inflammatory arthritis but none of them perform well: a systematic literature review

Deborah Puyraymond-Zemmour1, Xavier Romand2, Matthieu Lavelle1, Anna Molto3, René-Marc Filpo1, Christophe Richez4, Alain Saraux5, Loriane Gutermann6, Maryse Mezière7, Maxime Dougados8, Laure Gosses1, Rencontres d’Experts 2017 Working Group, Paris France. 1 Sorbonne University, Rheumatology, Paris, France; 2 Grenoble Hospital, Grenoble, France; 3 Cochin Hospital, Paris, France; 4 Lille Hospital, Lille, France; 5 Bordeaux Hospital, Bordeaux, France; 6 Brest Hospital, Brest, France.

**Background:** Insufficient patient adherence to treatments in inflammatory arthritis (IA) including rheumatoid arthritis (RA), spondyloarthritis (SpA), psoriatic arthritis (PsA), crystal-induced arthritis and connective tissue diseases (CTD) may lead to complications, unnecessary treatment switches, and increased costs. Patient adherence to treatment should be assessed, however how to evaluate it has not been determined.

**Objectives:** To assess the psychometric properties of questionnaires to measure adherence to treatment in IA.

**Methods:** We performed a systematic literature review (SLR) using three central databases (PubMed, Cochrane, Embase) and several websites in January 2019. The search was limited to IA (i.e., RA, SpA, PsA, CTD, crystal-induced arthritis, vasculitis, and auto-inflammatory diseases), and disease-modifying drugs (i.e., mainly conventional DMARDs, biologics and targeted synthetic DMARDs). All questionnaires used to assess adherence were collected, then a specific search using the questionnaire name was run to obtain data on their psychometric properties including overall validity (sensitivity (Se), specificity (Sp) and Cronbach coefficient (CC), reliability, and sensitivity of change, following the OMERACT filter. These properties were analyzed semi-quantitatively.

**Results:** After screening 1209 publications and 194 other documents, 242 relevant papers were analyzed for measuring adherence (63.6% in RA, 8.7% in SpA, 6.6% in PsA, 14.5% in CTA and 19.0% in CTD). The number of articles using adherence questionnaires for disease was: 69/154 in RA, 14/21 in SpA, 27/40 in systemic lupus erythematosus (SLE), 9/16 in PsA, 8/35 in crystal induced arthritis and 4/6 in other CTD. Four questionnaires were used to evaluate drug adherence (Table 1). The most used questionnaire was the MMAS in all diseases except in RA where the CQR was more used. The CQR was validated in 85 patients with IA against as external standard, electronic medication monitoring (Se 62 to 98%, Sp 67 to 97% and CC of 0.71 to 0.85). The MASRI was validated in 55 patients with SLE against adherence based on pharmacy refill information (Se 87%, Sp 86% and CC of 0.70). The MMAS was validated in 91 patients with gout against medication possession ratio Se 81 to 93%, Sp 44 to 53% and CC of 0.54). The MARS was validated in 108 patients with RA (Se 13 to 53%, Sp 57 to 94% and CC 0.60 to 0.79). Reproducibility was correct but copyright posed issues (Table 1).

<table>
<thead>
<tr>
<th>Questionnaires performances to assess adherence in IA</th>
<th>Compliance</th>
<th>Medication Adherence</th>
<th>Medication Adherence Self-report Inventory</th>
<th>Morisky Medication Adherence</th>
<th>N studies on the questionnaire</th>
<th>Copyright</th>
<th>Reproducibility</th>
<th>Validity</th>
<th>Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMAS-8/4</td>
<td>Se 62 to 98%</td>
<td>Sp 67 to 97%</td>
<td>CC of 0.71 to 0.85</td>
<td>Yes</td>
<td>++ ++ ++ ++ ++++++</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CQR-19/5</td>
<td>Se 87%</td>
<td>Sp 86%</td>
<td>CC of 0.70</td>
<td>Yes</td>
<td>++ ++ ++ ++ ++++++</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARS/10, SRA/6/5</td>
<td>Se 81 to 93%</td>
<td>Sp 44 to 53%</td>
<td>CC of 0.54</td>
<td>Yes</td>
<td>++ ++ ++ ++ ++++++</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMAS/8-4</td>
<td>Se 13 to 53%</td>
<td>Sp 57 to 94%</td>
<td>CC 0.60 to 0.79</td>
<td>Yes</td>
<td>++ ++ ++ ++ ++++++</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The + represents a semi-quantitative summary of the available literature with more + meaning higher/better results (from - to +++). **Conclusion:** Four questionnaires are being used to measure medication non-adherence in IA; the most used is the MMAS which is unfortunately copyrighted and not fully validated in rheumatology. The CQR and MASRI questionnaires were the most validated in rheumatology, but the CQR is long and the MASRI only used for SLE. Thus it appears that to date, a simple, reliable and valid questionnaire to assess drug adherence is lacking.

**REFERENCES**


**Acknowledgement:** Abbvie France funded this initiative.

**Disclosure of Interests:** Deborah Puyraymond-Zemmour Grant/research support from: Abbvie, Xavier Romand Grant/research support from: Abbvie, Anna Molto: None declared, René-Marc Filpo Consultant for: Advisory board: Bristol-Myers Squibb, Christophe Richez: None declared, Alain Saraux Consultant for: Roche SAS, Speakers bureau: Chugai Pharma France, Loriane Gutermann: None declared, Maryse Mezière Grant/research support from: Abbvie, Christophe Richez: None declared, Alain Saraux Consultant for: Roche SAS, Speakers bureau: Chugai Pharma France, Loriane Gutermann: None declared, Maxime Dougados Grant/research support from: Abbvie, Laure Gosses: None declared, René-Marc Filpo Consultant for: Advisory board: Bristol-Myers Squibb, Christophe Richez: None declared, Alain Saraux Consultant for: Roche SAS, Speakers bureau: Chugai Pharma France, Loriane Gutermann: None declared, Maxime Dougados Grant/research support from: Eli Lilly and Company, Pfizer, Abbvie, and UCB Pharma, Consultant for: Eli Lilly and Company, Pfizer, Abbvie, and UCB Pharma, Laure Gosses Grant/ research support from: Abbvie, BMS, Celgene, Janssen, Lilly, MSD, Novartis, Pfizer, Roche, Sanofi, Eli Lilly and Company, Pfizer, Abbvie, and UCB Pharma, Consultant for: Eli Lilly and Company, Pfizer, Abbvie, BMS, Celgene, Janssen, Lilly, MSD, Novartis, Pfizer, Roche, Sanofi, and UCB, Consultant for: L Gossic has received honoraria from Celgene as investigator for this study.

**DOI:** 10.1136/annrheumdis-2019-eular.2577

There are 4 main questionnaires to assess adherence in inflammatory arthritis but none of them perform well: a systematic literature review

Deborah Puyraymond-Zemmour, Xavier Romand, Matthieu Lavelle, Anna Molto, René-Marc Filpo, Christophe Richez, Alain Saraux, Loriane Gutermann, Maryse Mezière, Maxime Dougados, Laure Gosses, Rencontres d’Experts 2017 Working Group, Paris France. Sorbonne University, Rheumatology, Paris, France; Grenoble Hospital, Grenoble, France; Cochin Hospital, Paris, France; Lille Hospital, Lille, France; Bordeaux Hospital, Bordeaux, France; Brest Hospital, Brest, France.

Background: Insufficient patient adherence to treatments in inflammatory arthritis (IA) including rheumatoid arthritis (RA), spondyloarthropathies (SpA), psoriatic arthritis (PsA), crystal-induced arthritis and connective tissue diseases (CTD) may lead to complications, unnecessary treatment switches, and increased costs. Patient adherence to treatment should be assessed, however how to evaluate it has not been determined.

Objectives: To assess the psychometric properties of questionnaires to measure adherence to treatment in IA.