Principal Investigator

First Name: Dafne
Last Name: Capelusnik
Degree: MD
Primary Affiliation: Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, the Netherlands
E-mail: capelusnikdafne@gmail.com
State or Province: Maastricht
Country: Netherlands

General Information

Key Personnel (other than PI):
First Name: Dafne
Last name: Capelusnik
Degree: MD
Primary Affiliation: Care and Public Health Research Institute (CAPHRI), Maastricht University, Maastricht, the Netherlands
SCOPUS ID:
Requires Data Access? Yes

Are external grants or funds being used to support this research?: No external grants or funds are being used to support this research.
How did you learn about the YODA Project?: Colleague

Conflict of Interest

https://yoda.yale.edu/wp-content/uploads/2025/01/COI.pdf

Certification

Certification: All information is complete; I (PI) am responsible for the research; data will not be used to support litigious/commercial aims.
Data Use Agreement Training: As the Principal Investigator of this study, I certify that I have completed the YODA Project Data Use Agreement Training

1. NCT00265083 - C0524T09 - A Multicenter, Randomized, Double-blind, Placebo-controlled Trial of Golimumab, a Fully Human Anti-TNFa Monoclonal Antibody, Administered Subcutaneously, in Subjects with Active Ankylosing Spondylitis
2. NCT00207701 - C0168T51 - A Randomized, Double-blind Trial of the Efficacy of REMICADE (Infliximab) Compared With Placebo in Subjects With Ankylosing Spondylitis Receiving Standard Anti-inflammatory Drug Therapy
3. NCT02186873 - CNTO148AKS3001 - A Study of Golimumab in Participants With Active Ankylosing Spondylitis

What type of data are you looking for?: Individual Participant-Level Data, which includes Full CSR and all supporting documentation

Research Proposal

Project Title

Validating a Personalised Ankylosing Spondylitis Metrology Index.

Narrative Summary:

The aim of this study is to assess the psychometric properties of the newly developed Personalised Ankylosing Spondylitis Metrology Index (PASMI) and to compare them with the psychometric properties from BASMI and the individual spinal mobility measurements in RCTs of patients with axSpA treated with biologic disease-modifying antirheumatic drugs (bDMARDs) and targeted synthetic disease-modifying antirheumatic drugs (tsDMARDs).

a) To compare the construct validity of the PASMI, BASMI and individual spinal mobility measures in patients with axSpA

b) To compare the discriminatory capacity of the PASMI, BASMI and individual spinal mobility measures in patients with axSpA

Scientific Abstract:

See Supplementary material

Brief Project Background and Statement of Project Significance:

The Bath Ankylosing Spondylitis Metrology Index (BASMI) has been widely used in research into axial spondyloarthritis (axSpA) since it was first published in 1994.(1) It is a composite index of four spinal measures (cervical rotation, tragus to wall distance, modified Schober?s test and lateral lumbar flexion) and one hip mobility test (intermalleolar distance). Although these tests have been validated as repeatable and clinically relevant, doubts remain about the responsiveness of BASMI particularly in trials studying patients with early axSpA and non radiographic axSpA (nr-axSpA). Several recent trials have failed to report any mobility tests and they have now been demoted from the mandatory ASAS core domains recommended for inclusion in all axSpA therapeutic studies, and included as important but optional for all trials.(2) Some of the reasons for this change are the floor effect, particularly in patients with short disease duration, the lack of standardisation and poor reliability and sensitivity to change.(3) Furthermore, in previous versions of the BASMI, the lower end of the reference range (0) for each measurement was supposed to represent the predicted ?normal? score (except for tragus to wall distance, that corresponds to the lower end), but it is now clear that these predicted values vary widely between individuals based on factors such as age, height, and gender. This has been shown even in a population of normal individuals, in the MOBILITY study, in which spinal mobility measures were shown to be influenced by age, and several also by gender and height. Consequently, no normal individual had a fully normal BASMI, i.e., BASMI linear score of zero.(4)

We therefore hypothesized that an adjusted version of the BASMI, taking age, height and eventually gender into account, would have better psychometric properties than the ones from the original BASMI. As a first step of this project, the Personalised Ankylosing Spondylitis Metrology Index (PASMI) was developed. The PASMI allows, by adjusting each individual spinal mobility measure for age, height and gender, as appropriate, to deliver a more ?truthful? representation of spinal mobility for each individual. The aim is now to validate the PASMI and assess its psychometric properties, particularly in comparison to the ones from the BASMI and the individual spinal mobility measures.

Construct validity of PASMI is being assessed in cohorts of patients with established axSpA, early axSpA and also of normal individuals. As part of the measurement properties assessment according

to the OMERACT filter previously mentioned(6), we need to proceed by conducting analyses to assess the discriminatory effect of the PASMI in patients included in RCTs. With this data request, we aim to obtain access to RCT data (including data on the individual BASMI components, demographic data ? age, gender and height, and treatment allocation) in order to analyse the psychometric properties of PASMI.

Specific Aims of the Project:

The aim of this study is to assess the psychometric properties of the newly developed PASMI and to compare them with the psychometric properties from BASMI and the individual spinal mobility measurements in RCTs of patients with axSpA treated with biologic disease-modifying antirheumatic drugs (bDMARDs) and targeted synthetic disease-modifying antirheumatic drugs (tsDMARDs).

a) To compare the construct validity of the PASMI, BASMI and individual spinal mobility measures in patients with axSpA

b) To compare the discriminatory capacity of the PASMI, BASMI and individual spinal mobility measures in patients with axSpA

Study Design:

Individual trial analysis

What is the purpose of the analysis being proposed? Please select all that apply.

New research question to examine treatment effectiveness on secondary endpoints and/or within subgroup populations

Other: To analyse the construct validity of a modified spinal mobility measure

Research Methods

Data Source and Inclusion/Exclusion Criteria to be used to define the patient sample for your study:

RCTs in patients with axSpA fulfilling the ASAS classification 2009 criteria or the modified New York criteria with available data of spinal mobility.
Different RCTs with diverse subpopulations of axSpA (early axSpA, established axSpA, non-radiographic axSpA (nr-axSpA), radiographic axSpA (r-axSpA), axSpA (complete spectrum) will be assessed.

Patients with available data of spinal mobility assessments at baseline and at the timing of the primary endpoint will be included.

Primary and Secondary Outcome Measure(s) and how they will be categorized/defined for your study:

Primary outcomes:
- Tragus-to-wall (TTW)
- Occiput to wall (OTW)
- Lumbar side flexion (LSF)
- Lumbar flexion (Schober test)
- Cervical rotation (seating) (CR)
- Intermalleolar distance (IMD)

Main Predictor/Independent Variable and how it will be categorized/defined for your study:

Sociodemographic and clinical characteristics
Age
Gender
Height
Symptom and disease duration

Other Variables of Interest that will be used in your analysis and how they will be categorized/defined for your study:

? Disease subtype

-nr-axSpA

-r-axSpA

? Disease activity

-BASDAI

-ASDAS

? Functional ability

-BASFI

? Structural damage

-mSASSS

-number of syndesmophytes

? Treatment

-Previous treatment (TNFi, IL17i, JAKi)

-Current treatment (TNFi, IL17i, JAKi))

Statistical Analysis Plan:

Modification/addition:
Due to the low number of patients with early disease (less than two years of symptom duration) in each RCT, the option of pooling data from all early disease patients across all RCTs will be evaluated. If carried out, the corresponding meta-analysis will be performed, including an assessment of heterogeneity between studies (e.g., using I^2).
Full analysis plan in Supplementary material.

Software Used:

STATA

Project Timeline:

The present study will be carried out over a period of 12 months after we obtain the data from all eligible RCTs. The schedule will be as follows:

- 6 months: to prepare the databases and perform the statistical analysis.

- 6 months: to discuss the main findings and their interpretation and to prepare the manuscript to be submitted.

Dissemination Plan:

The objective of this project is the presentation of a manuscript to be submitted in high impact factor journals in the field of Rheumatology, as well as presented in Annual International Congress (ACR, EULAR, Ghent). Some potential journal for submission are: Annal of Rheumatic Diseases, Rheumatology Oxford, Journal of Rheumatology, Seminars of Rheumatic Diseases.

Bibliography:

Jenkinson TR, Mallorie PA, Whitelock HC, Kennedy LG, Garrett SL, Calin A. Defining spinal mobility in ankylosing spondylitis (AS). The Bath AS Metrology Index. J Rheumatol. 1994;21(9):1694-8.
2. Navarro-Compn V, Boel A, Boonen A, Mease PJ, Dougados M, Kiltz U, et al. Instrument selection for the ASAS core outcome set for axial spondyloarthritis. Ann Rheum Dis. 2022.
3. Ogdie A, Duarte-Garca A, Hwang M, Navarro-Compn V, van der Heijde D, Mease P. Measuring Outcomes in Axial Spondyloarthritis. Arthritis Care Res (Hoboken). 2020;72 Suppl 10:47-71.
4. Ramiro S, van Tubergen A, Stolwijk C, van der Heijde D, Royston P, Landew R. Reference intervals of spinal mobility measures in normal individuals: the MOBILITY study. Ann Rheum Dis. 2015;74(6):1218-24.
5. Boers M, Brooks P, Strand CV, Tugwell P. The OMERACT filter for Outcome Measures in Rheumatology. J Rheumatol. 1998;25(2):198-9.
6. Beaton DE, Dyer S, Boonen A, Verstappen SM, Escorpizo R, Lacaille DV, et al. OMERACT Filter Evidence Supporting the Measurement of At-work Productivity Loss as an Outcome Measure in Rheumatology Research. J Rheumatol. 2016;43(1):214-22.
7. Ratner B. The correlation coefficient: Its values range between +1/?1, or do they? Journal of Targeting, Measurement and Analysis for Marketing. 2009;17(2):139-42.

Supplementary Material:

https://yoda.yale.edu/wp-content/uploads/2025/01/23.01.25_Data-Request-PASMI.docx