AB0244

DEVELOPMENT OF AN ADJUSTED MULTI-BIOMARKER DISEASE ACTIVITY (MBDA) SCORE FOR RHEUMATOID ARTHRITIS (RA) THAT ACCOUNTS FOR AGE, SEX AND ADIPOSITY, WITH SUBSEQUENT EVALUATION OF ABILITY TO PREDICT RISK FOR RADIOGRAPHIC DAMAGE

J.R. Curtis¹, D.D. Flake II², M. Weinblatt³, N.A. Shadick⁴, M. Østergaard⁵, M. L. Hetland⁶, C. Heegaard Brahe⁶, Y.G. Hwang⁷, D.E. Furst⁸, V. Strand⁹, C. J. Etzel¹⁰, D. Pappas¹¹, X. Wang¹², C.C. Hwang¹², E.H. Sasso¹², A. Gutin², E. Hitraya¹², J.S. Lanchbury². ¹University of Alabama at Birmingham, Birmingham; ²Myriad Genetics, Inc., Salt Lake City; ³Brigham and Women's Hospital; ⁴Brigham and Women's Hospital and Harvard Medical School, Boston, USA; ⁵Copenhagen Center for Arthritis Research, Center for Rheumatology and Spine Diseases, Rigshospitalet; ⁶Copenhagen Center for Arthritis Research, Copenhagen, Denmark; ⁷University of Pittsburgh, Pittsburgh; ⁸David Geffen School of Medicine at UCLA, Los Angeles; ⁹Stanford University, Palo Alto; ¹⁰Corrona, LLC, Waltham; ¹¹Columbia University, New York City; ¹²Crescendo Bioscience Inc., South San Francisco, USA

Background: The MBDA score, based on 12 serum proteins, is a validated tool for assessing disease activity in RA patients. MBDA biomarkers may be influenced by age, sex and adiposity.

Objectives: To develop and validate an adjusted MBDA score that accounted for these three factors, using BMI or serum leptin as proxies for adiposity.

Methods: The MBDA score as a continuous variable was adjusted to account for age, sex and a proxy for adiposity (serum leptin) using data from 325,781 RA patients for whom MBDA tests had been ordered as part of routine care. Leptin values came from the MBDA test. As an alternative to using leptin to adjust for adiposity, a cohort of 1411 patients from 5 studies/registries (BRASS, Corrona-CERTAIN, InFoRM, OPERA, RACER) was used to adjust for BMI, which was not available in the larger cohort, adding this BMI adjustment to that for age/sex from the larger cohort. Both types of adjusted MBDA score use the low, moderate, and high disease activity cutpoints of the original MBDA score. The two adjusted MBDA scores and other variables were evaluated for the prediction of radiographic progression (RP) in the 2 cohorts with available data (OPERA, BRASS) using univariate and multivariate linear regression analyses. Rate of RP was assessed as the change in modified total Sharp score (Δ mTSS) per year after MBDA testing.

Results: The MBDA score increased with age, BMI and leptin concentration. In univariate analysis of the combined OPERA and BRASS cohorts (n=555), the significant variables predicting Δ mTSS were leptin-adjusted MBDA score, seropositivity for RF or anti-CCP, BMI-adjusted MBDA score, MBDA score, BMI, CRP, baseline mTSS, disease duration, DAS28-CRP, SDAI, CDAI and DAS28* (table 1). The leptin- and BMI-adjusted MBDA scores were the first and third most significant univariate predictors of Δ mTSS. To compare them directly, DAS28-CRP, MBDA score, BMI-adjusted MBDA score and leptin-adjusted MBDA score were combined in pairs in regression analyses of Δ mTSS; the BMI-adjusted (p=0.0027) and leptin-adjusted MBDA score were significant (p=0.00063) after adjusting for DAS28-CRP (p=0.87 and 0.74, respectively) and the leptin-adjusted MBDA score was significant (p=0.024 and 0.020, respectively) after adjusting for either the MBDA (p=0.32) or BMI-adjusted MBDA scores (p=0.094).

Abstract AB0244 – Table 1. Univariate Linear Regression Analysis of the Association of Clinical and Laboratory Variables with Δ mTSS in the OPERA and BRASS Combined Cohort

Variable	n	F-statistic	p-value
Leptin-adjusted MBDA Score	555	17.1	0.000040
RF or Anti-CCP Status	555	14.8	0.00013
BMI-adjusted MBDA Score	555	14.4	0.00016
MBDA Score	555	12.9	0.00036
BMI	555	10.9	0.001
log _e (CRP)	555	6.8	0.0093
Baseline mTSS	555	5.3	0.022
log _e (Disease duration + 1)	401	4.8	0.030
DAS28-CRP	536	4.6	0.032
SDAI	533	4.3	0.040
CDAI	533	3.9	0.049
DAS28*	536	3.1	0.079
Gender	555	1.5	0.23
Smoking Status	478	0.8 (2 df)	0.46
Age	555	0.1	0.76

DAS28* = DAS28 with no CRP or ESR component, i.e., $0.56(\text{TJC28})^{1/2} + 0.28(\text{SJC28})^{1/2} + 0.014(\text{GH})$.

Conclusions: We developed two adjusted MBDA scores that combine molecular and biometric variables to account for age, sex, and adiposity. The leptin-adjusted MBDA score, significantly outperformed DAS28-CRP and the original MBDA score in predicting radiographic progression in RA patients. These results suggest that the leptin-adjusted MBDA score may offer improved clinical utility for the personalised management of patients with RA.

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AB0245

PERFORMANCE OF THE EULAR DEFINITION OF ARTHRALGIA SUSPICIOUS FOR PROGRESSION TO RHEUMATOID ARTHRITIS IN COMBINATION WITH MUSCULOSKELETAL ECOGRAPHY WITH DOPPLER (USMD) IN CLINICAL PRACTICE

J. Calvo Gutiérrez, I.C. Aranda-Valera, M.A. Sastre Dominguez, R. Ortega Castro, M.C. Castro Villegas, A. Escudero Contreras, E. Collantes Estevez. *Rheumatology, Hospital Universitario Reina Sofia/IMIBIC/Universidad de Córdoba, Córdoba, Spain*

Background: The treatment at an early stage of rheumatoid arthritis (RA), even in the undifferentiated phase, which can prevent the progression and even the reversal of the inflammatory process¹. Identification in the preclinical phase is complicated. The detection of joint inflammatory activity through the use of UsMD would be useful for diagnosis in arthralgia suspicious for progression to RA (CSA)².

Objectives: To assess the usefulness of the EULAR definition of CSA in clinical practice.

To Describe the clinical, serological and ultrasound characteristics and the CSA evolution over time (0, 3, 6 months).

To determine the clinical and ultrasound characteristics that could influence in the RA progression.

Methods: A longitudinal prospective study that includes 27 patients referred from primary care (PC) or Rheumatology consultations with CSA according to EULAR criteria of more than 8 weeks and less than 6 months of evolution. All patients were evaluated at 0–3–6 months, including at each visit: serological parameters (RF, ACPA, ESR, CRP), measures of functionality (HAQ) and activity (DAS28); and image (Xray and UsMD). The ultrasound examination included: carpus (palmar and dorsal planes), MCFs 2°–5°, extensor cubital tendons, ankles, posterior tibialis, 5° MTFs and painful IFPs in a comparative and bilateral model. The Us scans were performed by the same researcher without access to the clinical data of the patients, collected by another independent researcher. Proportions were compared using the chi-square test to see which factors were related to RA development.

Results: 27 patients with CSA criteria according to EULAR definition have included. 59.3% were derived from PC, 92.6% were women with a mean age of 48.5 years (DS 11.95) and active labour 77.8%. Ten patients (37%) were smokers and dyslipidemias with an atherogenic index of 3.19 (DS1.04). 60.95% presented slight overweight with a BMI of 27.65 Kg/m² (DS 5.7). The most frequent form of presentation was polyarticular 12 (50%) followed by oligoarticular. 57.7% of the cases had symmetric involvement and 81.5% a duration of symptoms between 6–16 weeks. 52% patients presented RF + and 4 ACPA and ANA+. During the follow-up: 8 patients (29.6%) were classified as RA (ACR/^{EULAR 2010} all of them derived from Rheumatology, 3 (11.1%) microcrystalline arthritis, 1 Sjogren primary syndrome and 15 (55.5%) presented degenerative or tendinosis pathology.