Background: Psoriasis is a chronic common immune-mediated skin disease. About 25% of psoriasis patients have psoriatic arthritis (PsA) which is a chronic inflammatory disease affecting the joints, entheses, and axial skeleton. Delayed diagnosis of PsA is associated with joint damage and disability. Therefore, optimized screening methods including identifying predictors of arthritis in patients with psoriasis have become a medical priority. Collagens are major proteins in all tissues, including skin, bone, cartilage, and connective tissues, which are affected by inflammatory processes present in both psoriasis and PsA. Through-out degradation and remodelling of the extracellular matrix (ECM), proteases cleave collagens leading to protein breakdown products which are released into the circulation. These collagen fragments can be quantified in serum as biomarkers of tissue remodelling and may be helpful in screening patients with psoriasis that have or will develop PsA.

Objectives: Our aim is to identify serum biomarkers that can differentiate patients with psoriasis without PsA (PsC) from PsA.

Methods: Patients with PsC(n=67), mean ± SD age 42.01 ±12.20, 44% female; underwent a full rheumatologic assessment to exclude PsA and patients with PsA (n=99, mean ± SD age 45.94 ±12.47, 49% female) were recruited at the Toronto Western Hospital, Canada, after appropriate ethics approval. ECM remodelling was estimated using as indices serological anabolic biomarkers quantifying formation of type III, IV, and VI collagen (PRO-C3, PRO-C4, and PRO-C6 respectively), and catabolic biomarkers measuring degradation of type I, III, IV and VI collagen (C1M, C3M, C4M, C6M respectively). Data are presented as mean ± standard deviation (SD). Statistically significant difference between the two groups was calculated by Mann-Whitney U test and a p-value below 0.05 was considered significant. Area under the receiver operating characteristic (ROC) curve (AUC) analysis was performed to describe the discrimination accuracy of each biomarker between the two patient groups.

Results: Patients with PsA presented higher levels of C1M, C3M, C4M, and PRO-C6 compared to PsC (p<0.0460-p<0.0009, Figure 1 A, B, D, G), while biomarker levels of C4M, PRO-C3, and PRO-C4 were not significantly different between PsC and PsA patients (Figure 1 C, E, F). Moreover, C1M and C6M were able to separate between PsC and PsA patients with AUROC=0.6277 (p=0.0027) and AUROC=0.6448 (p=0.0010), respectively, indicating that these biomarkers may be markers of joint involvement (Figure 1 H, I).

Conclusion: This work provides evidence that serum degradation biomarkers of type I and VI collagen were able to differentiate patients with PsA from PsC and may be potential biomarkers of inflammatory systemic musculoskeletal involvement. These findings suggest that serological biomarkers may be used to identify the 25% of psoriasis patients that have PsA.

Disclosure of Interests: Solveig Skovlund Groen: None declared, Signe Holm Nielsen Employee of: Signe Holm Nielsen is employed by Nordic Bioscience, Anne-Christine Bay-Jensen Shareholder of: Anne C. Bay-Jensen holds stock in Nordic Bioscience, Mozghan Rasti: None declared, Darshini Ganatra: None declared, Katerina Oikonomopoulou: None declared, Vinod Chandran: None declared.


From risk assessment to societal outcomes

OP0032

AN ECONOMIC WINDOW OF OPPORTUNITY FOR PATIENTS WITH EARLY RHEUMATOID ARTHRITIS: 5-YEAR COST-EFFECTIVENESS ANALYSIS OF THE CARERA TRIAL

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Background: The CareRA trial showed that remission induction with methotrexate (MTX) and glucocorticoid (GC) bridging in a treat-to-target setting is cost-effective up to 2 years in early rheumatoid arthritis (eRA) patients.

Objectives: To evaluate the long-term cost-effectiveness of treat-to-target treatments among recently diagnosed (<1 year), DMARD naïve patients with eRA using MTX and a step-down GC scheme (COBRA-Slim) compared to (a) the same combination with either sulphasalazine (COBRA-Classic) or leflunomide (COBRA-Avant-Garde) in high-risk patients and (b) MTX without GCs (Tight-Step-Up TSU) in low-risk patients up to 5 years.

Methods: We used data from the 2-year RCT CareRA trial and its 3-year observational follow-up, CareRA plus. Patients completing the 2-year visit of CareRA were eligible for participation in CareRA plus, in which patients were evaluated every 6 months till year 5. Healthcare costs considered in this piggyback economic analysis were rheumatology visits, RA-related medication (synthetic and biological DMARDs, GCs, and all recorded analgesics including paracetamol, non-steroidal, tramadol and opioids), hospital admissions, laboratory tests and radiographs occurring during the 5-year trial. All pricing is based on December 2021 rates. Total costs per resource were calculated by multiplying the number of resources by the cost unit price extracted from Belgian national websites. Total costs per patient were obtained by summing costs of all resources. Effectiveness was measured with DAS28-CRP and compared between the originally allocated treatment arms. An incremental cost-effectiveness ratio (ICER) was calculated by dividing the cost difference by the DSAS2-CRP<2.6 remission difference per pair of treatment schemes. Multiple imputation was used to handle missing data and non-parametric bootstrapping with 25000 iterations of random sampling with replacement to calculate confidence intervals (95% CIs).

Results: Of 322 eligible patients, 252 were included in CareRA plus, of which 203 completed the trial. Rates of disease control (DAS28-CRP<2.6) at year 5 in high-risk patients were 68%, 72%, and 64% in the Classic, Slim and Avant-Garde group respectively (p=0.63) and related total costs were €11 358.39 (CI 7 776.84-14 939.93), €8 463.12 (CI 6 789.44-14 106.80), €11 752.47 (CI 7 705.11-15 799.82) respectively. In the low-risk population, 80% of patients in Slim and the TSU arm reached remission (DSAS2-CRP<2.6) at year 5. While the costs were €3148.21 (CI 3075.22-3221.20) in the high-risk group, Classic (ICER -€411.17) were more expensive and less effective compared to Slim. In the low-risk population, 80% of patients in Slim and the TSU arm reached remission (DSAS2-CRP<2.6) at year 5. While the costs were €3148.21 (CI 3075.22-3221.20) in the high-risk group, Classic (ICER -€411.17) were more expensive and less effective compared to Slim. In the low-risk group, Slim was less expensive (Δ -€4 065.64) and equally effective as TSU. Figure 1 depicts how the different medication costs evolved during the 5-year follow-up, 22% of all patients were ever on bDMARDs. More specifically in 23% (16/69) of Classic, 21% (16/75) of Slim high-risk, 25% (15/59) of Avant-Garde, 17% (4/23) of Slim low-risk, and in 15% (4/26) of TSU patients. On average a first bDMARD was started later in the Slim arms, more specifically at week 69 for Classic, week 106 for Slim high-risk, week 97 for Avant-Garde, week 102 for Slim low-risk and week 76 for TSU.