

## **1- Title**

Remission and low disease activity matrix tool: results in real-world Rheumatoid Arthritis patients under anti-TNF $\alpha$  therapy

## **2- Introduction**

Cost-effectiveness of treatments in rheumatoid arthritis (RA) is of growing importance. Thus, in the ideal world, we aim to have useful tools that could help us to select those patients who most likely respond to biologic DMARDs. Nowadays, remission or low disease activity are the main treatment targets but we also aim for the reduction of structural damage, morbidity and mortality and functional improvement. Therefore, personalized therapy increased likelihood of remission, cost reduction and adverse events. Several independent predictors of RA remission had been described in the literature, namely: baseline clinical and laboratory characteristics and genetic markers. Vastesaeger N. et al published in *Rheumatology 2016;55:1466-1476*, two tools who showed the ability to predict golimumab treatment outcomes in patients with RA. These matrices are based on a combination of six baseline characteristics (Sex, presence/absence of comorbidities, age, and HAQ category, ESR and TJC28).

These tools could help, providing a practical guidance in the selection of candidates for anti-TNF therapy and consequently it is important to assess its applicability in a different database in order to validate it.

## **3- Objectives:**

To assess the relationship between predicted disease states and the observed amount of improvement;

To estimate the accuracy of remission and low disease activity matrix tools in the Reuma.pt population.

## **4- Methods:**

Study Design: This is a multicenter, retrospective, observational study, using data from the Rheumatic Diseases Portuguese Register (Reuma.pt).

### Population:

Inclusion criteria: biologic naïve RA patients under anti-TNF therapy as first line biologic with at least 6 months of therapeutic duration;

Exclusion criteria: biologic naïve RA patients under anti-TNF therapy for less than 6 months or under biologic therapy with another mechanism of action.

Variables: Sex, presence/absence of comorbidities, age, HAQ category, ESR, TJC28, DAS 28 4v at baseline and at 6 months and EULAR and ACR responses at 6 months evaluation. Additionally, to better characterize the sample, another clinical and demographic variables will be collected like disease duration, RF and ACPA positivity, erosive disease, extraarticular manifestations, smoking habits, association with DMARD's and corticotherapy, drug switches and also C-Reactive protein, PG-VAS, pain-VAS, PhG-VAS and SJC28 at baseline and 6 months.

Note: The comorbidities that will be considered are anaemia, hypothyroidism, gastritis, gastroesophageal reflux disease, dyspepsia, drug hypersensitivity, latent tuberculosis, hypercholesterolaemia, diabetes mellitus, hyperlipidaemia, dyslipidaemia, obesity, osteoporosis, osteoarthritis, osteopenia, spinal osteoarthritis, back pain, Sjögren's syndrome, depression, insomnia, asthma, menopause, hypertension and varicose veins.

Statistical Analysis: The accuracy of these matrix tools will be assessed by likelihood-ratio tests, sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and area under the curve (AUC).

## **5. Expected results and limitations**

To validate the remission and low disease activity matrix tool in the Reuma.pt population with a perspective in adding a new tool in daily practice. The major limitations are related to possible missings in variables. In order to decrease the missings it will be assumed a linear variation across time and thus we will use data from evaluations with a 3 month variation from the analysed time. Furthermore we will try to recover some variables like analytic parameters and presence/absence of comorbidities that may be absent from the database. However we will not be able to retrieve HAQ and TJC28 missings but we will try to do the imputation of the missing value.

## **6. Timeline**

Data extraction: September-October/2018

Data analysis: until 15th October/2018

First results presentation: November/2018

## **7. Research team**

- Proponent: Sara Ganhão - Rheumatology department, Centro Hospitalar de São João, EPE

- Research team: Teresa Martins-Rocha, Diana-Rosa Gonçalves, Eva Mariz, Miguel Bernardes, Lúcia Costa - Rheumatology department, Centro Hospitalar de São João, EPE; Rheumatologists from all collaborating centers and Raquel Lucas – Faculty of Medicine of Porto University and Public Health's Institute of Porto University.

## **8. Funding**

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