SAT0101

INTRAHOSPITAL MORTALITY IN PATIENTS WITH RHEUMATOID ARTHRITIS: OBSERVATIONAL STUDY AT THE NATIONAL LEVEL OVER A 17-YEAR PERIOD (TREND-AR STUDY)

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Background: There have been important changes in the management of RA in the last 20 years, such as T2T strategy or new biologic agents. The potential impact of these therapeutic strategies on important objectives such as intrahospital mortality due to different causes is not known.

Objectives: To analyze the incidence and tendency of mortality by different causes (global, cardiovascular, infectious, neoplasm, and others) in patients with RA, in Spain, during the period 1999-2015.

Methods: Retrospective cohort study based on the exploitation of the database that collects a minimum basic set of data (MBDS) of all income in patients with RA. Period: 1999 to 2015. We analyzed cases of intrahospital death and the main diagnosis of these cases. The causes of death were identified by the presence of the corresponding ICD 9 codes in the main diagnostic fields. The causes of death in the hospital, global, by sex and in periods 1999-2001, 2003-2006, 2007-2010 and 2011-2015 are described. The results are expressed in absolute numbers and in proportion to the total number of deaths.

Results: There was a total of 338,343 hospital admissions in patients with RA during the 17 years of the study period, corresponding to a total of 176,097 patients (117,985 women and 58,112 men). There was a total of 18,641 hospital exits (5.5% of the incomes). 63.4% were women. The mean age was 76.4 (SD 10.1) (in females of 77.2 (SD 10.2) and in men of 75.1 (SD 9.9) $p < .001$). The mean of Charlson index was 3.2 (SD 2.4). The mean age was increased linearly from 73.5 (1999-2002) to 78.23 (2011-2015). The following table shows the causes of death grouped by sex and period:

% of deaths (both sexes)	Periods (both sexes)				Total general
	1999-2002	2003-2006	2007-2010	2011-2015	
Row tags					
Cardiovascular (non infectious)	22.81%	24.36%	24.12%	24.16%	24.00%
Infections	18.51%	19.11%	20.20%	21.32%	20.16%
Respiratory (non infectious)	13.27%	14.38%	16.80%	15.86%	15.43%
Neoplasms	11.54%	11.87%	12.59%	13.43%	12.62%
Digestive (non infectious)	9.88%	9.41%	8.05%	7.82%	8.50%
Difficult classification	7.32%	6.74%	4.86%	3.57%	5.10%
External cause	4.64%	4.63%	4.09%	4.44%	4.41%
Nephrologic (non infectious)	3.47%	2.74%	2.26%	2.33%	2.56%
Extracuticular RA	3.21%	2.35%	2.03%	1.82%	2.18%
Hematologic (not neoplastic)	2.30%	1.59%	1.97%	1.93%	1.92%
Neurologic (non infectious)	1.09%	1.05%	1.14%	1.62%	1.30%
Endocrine	1.32%	1.20%	1.26%	1.08%	1.19%
Skin	0.64%	0.58%	0.63%	0.63%	0.62%

Conclusion: The main causes of intrahospital mortality in patients with RA in Spain were cardiovascular (24%), infections (20%), respiratory-non-infectious (15%) and neoplasms (12%). The average age of death increased 5 years in the study period. The deaths from infections, respiratory and neoplasms have increased, while those of digestive origin and AR extracuticular have decreased.

Disclosure of Interests: None declared

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SAT0102

ASSOCIATION BETWEEN BASELINE HAEMOGLOBIN LEVELS AND RADIOGRAPHIC JOINT DAMAGE PROGRESSION IN PATIENTS WITH RHEUMATOID ARTHRITIS TREATED WITH BARICITINIB OR STANDARD OF CARE

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Background: In patients with active rheumatoid arthritis (RA), haemoglobin (Hb) levels have been inversely associated with radiographic progression of structural joint damage.¹⁻³ In two randomized 52-week (wk) studies, baricitinib (BARI), a selective JAK1/JAK2 inhibitor, reduced radiographic progression in patients with moderate to severe active RA who had received no/minimal prior methotrexate (MTX; RA-BEGIN)⁴ or had inadequate response to MTX (RA-BEAM).⁵

Objectives: To assess the association between baseline Hb levels and structural damage progression and to study the effect of BARI 4-mg once daily on structural damage progression at 52 wks based on baseline Hb levels.

Methods: Data from the modified intention-to-treat (mITT) populations of RA-BEGIN (MTX=210; BARI 4-mg=159; BARI 4-mg + MTX=215 patients) and RA-BEAM (placebo [PBO]=488, adalimumab [ADA]=328, BARI 4-mg=487 patients) were included for analysis. Structural damage progression was defined as change from baseline (CFB) greater than the smallest detectable change (SDC) in the modified total Sharp score (mTSS) at wk 52. In RA-BEGIN SDC was 1.4 and in RA-BEAM SDC was 1.5. Missing mTSS data at wk 52 were imputed using linear extrapolation based on baseline data and the most recent radiographic data prior to the missed radiograph. Observed proportions of patients with CFB in mTSS >SDC at wk 52 were calculated for low (males:<13.0g/dL, females:<12.0g/dL) or normal baseline Hb for each treatment arm from both studies. Multivariate logistic regression (MLR) was used to study the association of baseline Hb with structural joint damage at 52 wks. The MLR included treatment, baseline Hb (g/dL), baseline hsCRP (Normal <3mg/L; Elevated >3mg/L), baseline CD4I, baseline HAQ-DI, BMI, smoking status (Yes/No), geographical area and joint erosion status at baseline (Yes/No in RA-BEGIN; >3/1 or 2 + seropositivity in RA-BEAM). Thirty-nine patients from RA-BEGIN (MTX=18; BARI 4-mg=5; BARI 4-mg + MTX=16) and 68 patients from RA-BEAM (PBO=36; ADA=18; BARI 4-mg=14) with missing baseline/post-baseline radiographic data were excluded from MLR analyses; in addition, 7 and 19 patients from RA-BEGIN and RA-BEAM with missing data for the covariates of the MLR were excluded. All analyses were post-hoc.

Results: Overall, RA-BEGIN and RA-BEAM patients with higher baseline Hb were less likely to show CFB in mTSS >SDC (RA-BEGIN: adjusted odds ratio [OR]=0.72, $p=0.001$; RA-BEAM: adjusted OR=0.76, $p<0.001$) at 52 wks, independent of other factors included in the MLR model. In RA-BEGIN (Figure A), CFB in mTSS >SDC was less frequent in patients with low baseline Hb who received BARI alone or BARI + MTX versus those on MTX alone; in patients with normal baseline Hb, the difference between treatments was less pronounced. In RA-BEAM (Figure B), CFB in mTSS >SDC was less frequent in patients with both low or normal baseline Hb for patients receiving BARI or ADA versus PBO.

Conclusion: In patients with RA, lower baseline Hb levels were associated with increased structural damage progression. Treatment with BARI 4-mg reduced structural progression, irrespective of patient baseline Hb status; structural progression at 52 wks was more pronounced in patients with low baseline Hb receiving MTX alone (RA-BEGIN) or PBO and background MTX (RA-BEAM).

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Figure. Observed proportions of patients with change from baseline in mTSS >SDC at week 52 based on baseline haemoglobin levels. ADA, adalimumab; BARI, baricitinib; CFB, change from baseline; Hb, haemoglobin; IR, inadequate response; mTSS, modified total Sharp score; MTX, methotrexate; PBO, placebo; SDC, smallest detectable change.

Figure A. RA-BEGIN (no/minimal previous MTX; N=545)

Figure B. RA-BEAM (MTX IR, on background MTX; N=1235)

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SAT0103 LONGITUDINAL PRE-DISEASE TO DISEASE SERUM SAMPLES IDENTIFY BIOMARKERS THAT ARE UPREGULATED PRIOR TO THE DIAGNOSIS OF RHEUMATOID ARTHRITIS

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Background: Rheumatoid Arthritis (RA) patients have autoantibodies reactive against several citrullinated peptides that develop 10-15 years before the clinical onset of disease. However, there is a more limited understanding of serological biomarkers of disease progression, specifically those that are upregulated in patients 6-18 months before the clinical diagnosis of RA.

Objectives: Identification of biomarkers that could classify patients 6-18 months before the clinical diagnosis of RA.

Methods: We identified 500 subjects with RA, 500 with Reactive Arthritis (ReA) (based on ICD9-CM code) as well as 250 age, gender and time-matched healthy control subjects from the Defense Medical Surveillance System (DMSS). For each subject, up to four serum samples were obtained from the Department of Defense (DoD) serum repository, 3 pre-disease diagnosis points and one immediately prior to or around disease

diagnosis. A discovery subset of these serum samples was assessed for soluble PD-1 (sPD-1), as well as 497 protein analytes measured by SomaLogic SOMAscan proteomic platform.

Results: Serum levels of sPD-1 increased over time from pre-diagnosis to RA but trended to decrease over time in ReA subjects and healthy controls. A composite score of 24 SOMAscan analytes associated with recently diagnosed RA increased in serum 6-8 months before RA diagnosis and, to a lesser extent, before ReA diagnosis. IFN-inducible chemokines CXCL9 (MIG), CXCL10 (IP-10), CXCL12 (I-TAC), and CXCL13 (BLC) increased over time preceding RA but not ReA diagnosis. Acute phase proteins (CRP, SAA, haptoglobin) and MMP-3 increased before diagnosis in serum samples from both RA and ReA patients. These protein analytes represent potential new biomarkers of early RA.

Conclusion: Samples from the US DoD serum repository have identified novel biomarkers (sPD-1 and IFN-inducible chemokines) of early RA that are elevated within 8 months of disease diagnosis. These protein analytes may afford the opportunity to develop novel biomarker(s) for diagnosis and disease progression to early RA. An understanding of the role of these proteins could provide increased insight into RA pathogenesis prior to disease diagnosis.

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SAT0104 INITIAL EVIDENCE FOR THE NEED OF A DUAL TREAT-TO-TARGET STRATEGY IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: The treat-to-target (T2T) strategy has been established as a key concept in the management of patients with rheumatoid arthritis (RA) aiming to achieve remission or at least low disease activity [1]. However, it might be more important for patients to set individual treatment goals which are related to their specific life context. For this reason, Ferreira et al [2] recently proposed a dual T2T strategy including both biological remission and individual patient reported symptom remission. It is currently unclear how achieving biological remission and individual patient treatment goals overlap and whether patients who reach the T2T target also reach their individual treatment goals.

Objectives: To explore if achieving T2T biological remission and individual patient treatment goals overlap in RA patients with initially low, moderate, or high disease activity (LDA, MDA, HDA).

Methods: We recruited a consecutive convenience sample of patients with RA diagnosed according to ACR/EULAR criteria and with LDA, MDA, or HDA into this observational longitudinal study. Disease activity was measured with the Clinical Disease Activity Index (CDAI) and the individual patient goals were assessed with the Goal Attainment Scale (GAS) at baseline and after three to five months. The number and proportion of patients who reach the T2T target, but not their individual goals and vice versa were calculated.

Results: We enrolled 162 patients in the study (131 [80.9%] women, median age 59.0, IQR= 49-71). 101 patients (62%) had a follow up visit with no missing data after three months. Of these, 48 (47.6%) patients had LDA, 43 (42.6%) had MDA, and 10 (9.9%) had HDA at baseline. 62 patients (61.4%) reached remission (14.7%) or stayed in LDA (46.1%), and 66 patients (65.3%) achieved their individual goal(s) (Table 1). 18 (17.8%) patients did not achieve their individual treatment goals, even if T2T was successful and 22 (21.8%) patients achieved their individual goals despite not reaching remission or LDA.

Conclusion: Our results indicate that most patients achieving T2T attain their individual treatment goals but a respectable part of T2T outcomes