Disclosure of Interest: J. Braun Grant/research support from: AbbVie (Abbott), Amgen, BMS, Boehringer, Celgene, Celltrion, Centocor, Chugai, EBEWE Pharma, Medac, MSD (Schering-Plough), Mundipharma, Novartis, Pfizer (Wyeth), Roche, Sanofi-Aventis, UCB, Consultant for: AbbVie (Abbott), Amgen, BMS, Boehringer, Celgene, Celltrion, Centocor, Chugai, EBEWE Pharma, Medac, MSD (Schering-Plough), Mundipharma, Novartis, Pfizer (Wyeth), Roche, Sanofi-Aventis, UCB, Speakers bureau: AbbVie (Abbott), Amgen, BMS, Boehringer, Celgene, Celltrion, Centocor, Chugai, EBEWE Pharma, Medac, MSD (Schering-Plough), Mundipharma, Novartis, Pfizer (Wyeth), Roche, Sanofi-Aventis, UCB, J. Sieper Grant/research support from: AbbVie Inc., Pfizer Inc., and Merck, Consultant for: AbbVie Inc., Pfizer Inc., Merck, UCB, and Novartis, Speakers bureau: AbbVie Inc., Pfizer Inc., Merck, and UCB, R. Landewé Grant/research support from: Abbott, Amgen, Centocor, Novartis, Pfizer, Roche, Schering-Plough, UCB, Wyeth, Consultant for: Abbott/AbbVie, Ablynx, Amgen, AstraZeneca, Bristol-Myers Squibb, Centocor, GlaxoSmithKline, Novartis, Merck, Pfizer, Roche, Schering-Plough, UCB, Wyeth, Speakers bureau: Abbott, Amgen, Bristol-Myers Squibb, Centocor, Merck, Pfizer, Roche, Schering-Plough, UCB, Wyeth, X. Baraliakos Grant/research support from: AbbVie, BMS, Celgene, Chugai, Merck, Novartis, Pfizer, UCB, Werfen, Consultant for: AbbVie, BMS, Celgene, Chugai, Merck, Novartis, Pfizer, UCB, Werfen, Speakers bureau: AbbVie, BMS, Celgene, Chugai, Merck, Novartis, Pfizer, UCB, Werfen, C. Miceli-Richard Grant/research support from: Abbott/AbbVie, Bristol-Myers Squibb, Novartis, Merck, Pfizer, Wyeth, Consultant for: Pfizer, Roche, UCB, Wyeth, Merck, Speakers bureau: Abbott, Bristol-Myers Squibb, Merck, Pfizer, Roche, Schering-Plough, Wyeth, E. Quebe-Fehling Employee of: Novartis, B. Porter Shareholder of: Novartis Pharmaceutical Corporation, Employee of: Novartis Pharmaceutical Corporation, Employee of: Novartis Pharmaceutical Corporation, D. van der Heijde Consultant for: AbbVie, Amgen, Astellas, AstraZeneca, BMS, Boehringer Ingelheim, Celgene, Daiichi, Eli-Lilly, Galapagos, Gilead, Glaxo-Smith-Kline, Janssen, Merck, Novartis, Pfizer, Regeneron, Roche, Sanofi, Takeda, UCB

DOI: 10.1136/annrheumdis-2018-eular.2052

SAT0289

LONG-TERM EFFECTS OF TNF-ALPHA INHIBITORS ON BONE MINERAL DENSITY AND THE INCIDENCE OF VERTEBRAL FRACTURES IN PATIENTS WITH ANKYLOSING SPONDYLITIS

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Background: Ankylosing Spondylitis (AS) is not only characterised by pathological bone formation leading to ankylosis, but also by bone loss which may lead to vertebral fractures (VFX). TNF-alpha inhibitors (TNFi) have proven to be effective in blocking the inflammatory process. A few studies also showed an increase of Bone Mineral Density (BMD) in AS patients treated with TNFi¹⁻³; however, the incidence of VFX after two years of treatment was increased.³⁻⁴

Objectives: To evaluate the long-term effect of TNFi on BMD and the incidence of VFX in patients with AS.

Methods: Consecutive TNFi naive AS patients (who fulfilled the Modified New York criteria) were included. Patients were recruited from the VUmc and Reade and were treated with TNFi for 4 years. BMD at hip and lumbar spine (LS) were measured at baseline and after 4 years. T-scores were categorised as 'normal BMD', 'osteopenia' and 'osteoporosis', based on the WHO osteoporosis criteria.⁵ The incidence of VFX was determined by two observers using the Genant method.⁶

Results: In total, 107 AS patients with complete datasets (68.2% male) were included. The mean age was 42.6 years and the disease duration (time since diagnosis) was 11.0 years. The use of steroids or osteoporosis prophylaxis varied respectively between 0.9% and 2.8%. At baseline 40.1% of the patients had a decreased BMD of the hip and 40.2% of the spine, of whom 27 patients (26%) had both a decreased hip BMD as well as a decreased lumbar BMD. The BMD of spine and hip improved after 4 years of TNFi treatment (table 1). In 13 patients (12.1%), 14 VFX were observed both at baseline and after 4 years of TNFi-treatment, 26 VFX were observed in 21 patients.

After 4 years, 4 out of 21 patients with ≥ 1 VFX had a decreased BMD at hip and lumbar spine whereas the other 17 patients had a normal BMD. The majority of VFX was localised in the mid or lower thoracic spine.

Table 1 BMD measurement in spine and hip of 107 AS patients treated with TNFi.

	Baseline*	After 4 years of TNFi**
Osteopenia LS	34 (31.8)	25 (23.4)
Osteoporosis LS	9 (8.4)	2 (1.9)
Abnormal BMD LS	43 (40.2)	27 (25.3)
Osteopenia total hip	39 (36.4)	31 (29.0)
Osteoporosis total hip	4 (3.7)	3 (2.8)
Abnormal BMD total hip	43 (40.1)	34 (31.8)
Patients with VFX	13 (12.1)	21 (19.6)
Total number of VFX	14	26

* 1 patient with spondylolysis; 4 patients with a total hip replacement

** 2 patients with spondylolysis; 5 patients with a total hip replacement

LS: lumbar spine, Abnormal BMD = osteopenia and/or osteoporosis according to WHO guideline⁶

Vertebral fractures (VFX) are presented in number of patients with a VFX and the actual prevalence of VFX. Outcomes are presented in n (%)

* p < 0.05, ** p < 0.001

Conclusions: The percentage of relatively young AS patients with a decreased BMD at baseline of the hip and lumbar spine was high (40%). After 4 years of TNFi-treatment, the BMD of the lumbar spine improved in 14.9% of the patients and of the hip in 8.3% of the patients. At baseline, 12% of the patients had vertebral fractures which increased to 21% after 4 years of treatment. A normal population of 1984 individuals above 50 years showed a prevalence of 8.9% osteoporotic spinal fractures.⁷ Probably, the start of treatment with TNFi at an earlier stage of the disease might prevent the onset of fractures in AS.

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Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4769

SAT0290

CANADIAN ADALIMUMAB POST-MARKETING OBSERVATIONAL EPIDEMIOLOGICAL STUDY ASSESSING THE EFFECTIVENESS OF ADALIMUMAB VS. NON-BIOLOGIC DMARDS IN ANKYLOSING SPONDYLITIS (COMPLETE-AS): 12-MONTH EFFECTIVENESS DATA

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Background: COMPLETE-AS is an ongoing Canadian observational study of anti-TNFα naive adults with active AS per the judgment of the treating physician, who require change in current AS treatment to either¹ a subsequent NSAID or non-biologic disease modifying antirheumatic drug (nbDMARD group), or² to adalimumab (ADA group).

Objectives: The aim of this analysis was to describe and compare the baseline demographic and disease parameters of patients in the nbDMARD and ADA groups and to compare the 12 month effectiveness of the two treatment methods.

Methods: In the current analysis patients enrolled between July/2011 – Jun/2016 were included. Outcome measures analysed were extra articular manifestations (EAM 1: IBD, psoriasis, uveitis, enthesitis; EAM 2: IBD, uveitis, enthesitis), disease activity (BASDAI), functional status (BASFI), and quality of life (QoL; SF-12). Between-group differences in baseline parameters were assessed with the Chi-square test for categorical variables and the independent samples t-test for continuous variables. Baseline-adjusted changes in BASDAI and BASFI over time were compared between the two groups using linear mixed models.

Results: A total of 609 patients (nbDMARD n=177, ADA n=432) were included in the current analysis. No significant differences in baseline demographics were observed between the two groups. However, at baseline, patients initiating ADA were more likely to be unemployed (38% ADA vs. 27.1% nbDMARD, p=0.009), had higher mean BASDAI (6.4 vs. 5.0; p<0.001) and BASFI (5.5 vs. 3.7; p<0.001) scores, and worse QoL (SF-12 PCS: 24.4 vs. 24.7, p=0.002) at baseline. The baseline prevalence of EAMs was comparable between the two groups (EAM 1: 34.7% vs. 31.6%, p=0.454; EAM 2: 25.9% vs. 22.6%, p=0.381). However, IBD was more common among patients initiating ADA treatment (9% vs. 4.5%, p=0.062).

After 12 months of treatment the prevalence of EAMs decreased significantly in the ADA group (EAM 1: p=0.004; EAM 2: p=0.033) but not in the nbDMARD group. After adjusting for baseline values, patients treated with ADA had numerically lower BASDAI score (least square means – LSM: 3.7 vs. 4.3, p=0.171) significantly lower BASFI score (2.9 vs. 3.6, p=0.031) scores, and comparable SF12-

PCS (24.9 vs. 24.7, $p=0.210$) and SF12-MCS (19.1 vs. 18.9, $p=0.532$) scores at 12 months.

During follow-up, 7.4% of ADA patients initiated another biologic and 23.7% of patients in the nbDMARD group initiated biologic treatment ($p<0.001$).

Conclusions: AS patients initiating ADA in Canadian routine clinical care have significantly greater disease severity and impaired quality of life at baseline compared with those initiating non-biologic treatment. Treatment with ADA for 12 months resulted in greater reduction in the prevalence of EAMs and a greater reduction in disease severity scores compared to treatment with non-biologic agents.

Acknowledgements: JSS Medical Research, Montreal, Canada

Disclosure of Interest: L. Bessette Consultant for: Amgen, BMS, Janssen, Roche, UCB, AbbVie, Pfizer, Celgene, Lilly, Novartis, Speakers bureau: Amgen, BMS, Janssen, Roche, UCB, AbbVie, Pfizer, Merck, Celgene, Lilly, Novartis, M. Khraishi Consultant for: AbbVie, Speakers bureau: AbbVie, A. Chow Consultant for: AbbVie, Amgen, BMS, Celgene, Janssen, Lilly, Merck, Novartis, Pfizer, Roche, Speakers bureau: AbbVie, BMS, Janssen, Pfizer, Takeda, V. Pavlova Grant/research support from: UCB, Consultant for: Amgen, Abbvie, BMS, Janssen, Lilly, Merck, Novartis, Roche, UCB, Pfizer, Speakers bureau: Amgen, Abbvie, BMS, Janssen, Lilly, Merck, Novartis, Roche, UCB, Pfizer, S. Silverberg Consultant for: AbbVie, Janssen, J. Stewart Consultant for: Pfizer, Abbvie, Amgen, Celgene, Roche, Novartis, V. Rempel Shareholder of: AbbVie, Employee of: AbbVie

DOI: 10.1136/annrheumdis-2018-eular.3769

SAT0291

CREATION OF A EUROPEAN DATABASE OF PATIENTS WITH AXIAL SPONDYLOARTHRITIS TREATED IN CLINICAL PRACTICE— INITIAL, PRELIMINARY FINDINGS FROM THE EUROSPA RESEARCH NETWORK COLLABORATION

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Background: A research network collaboration of 15 European registries sharing data on patients with spondyloarthritis (SpA). "EuroSpA", has recently been created to strengthen research capabilities in the real world setting¹. Here we present the first results from the collaboration.

Objectives: To investigate the feasibility of creating a common database for axial SpA (axSpA), including non-radiographic SpA and ankylosing spondylitis, within the EuroSpA collaboration and to conduct proof-of-concept analyses by investigation of baseline characteristics, disease activity at baseline and after 6 months, and crude 12 months' Tumour Necrosis Factor inhibitor (TNFi) retention rate in patients with axSpA initiating TNFi.

Methods: A common data model was agreed upon by the EuroSpA Scientific Committee. Virtual meetings between the EuroSpA and registry data managers clarified data availability and structure. This was followed by upload of anonymized data through the secure Virtual Private Network pipelines to the EuroSpA server. Baseline characteristics and disease activity at baseline and after 6 months were investigated with non-parametric descriptive statistics. Kaplan-Meier estimation was used to investigate TNFi retention rates.

Results: By January 8th 2018, four of the 15 registries participating in EuroSpA had completed data upload to the EuroSpA database resulting in 6756 patients with AxSpA in a pooled dataset. Baseline characteristics of the participating registry populations at initiation of first TNFi are shown in Table I. Crude 12 months' TNFi retention rate varied from 66%–85% for 1 st TNFi and 61%–78% for 2nd TNFi (see figure 1). For the pooled dataset crude 12 months' TNFi retention rates were 73% and 66% for the 1 st and 2nd TNFi, respectively.

Abstract SAT0291 – Table 1. Baseline demographic and disease characteristics of patients with social spondyloarthritis registered in four registries participating in the EuroSpA Research Network Collaboration.

	DANBIO (Denmark)	Biorx.si (Slovenia)	TURKBIO (Turkey)		ICEBIO (Iceland)			
	N = 3848	N = 616	N = 1977		N=315			
Age, years	41 (32-50)	45 (36-55)	37 (30-45)		43 (34-53)			
Male,n(%)	2353 (61)	306 (64)	1231 (62)		210 (67)			
HLA-B27, n(%)	2065 (90)	404 (90)	720 (62)		78 (91)			
esDMARD, n(%)	1071 (28)	93 (15)	372 (19)		69 (22)			
Disease duration, years	1 (0-6)	5 (1-15)	3 (1-8)		3 (0-11)			
Smoking status, current, n (%)	1157 (33)	135 (22)	653 (41)		50 (26)			
First TNFi drug, n(%)								
• INF	1371 (36)	96 (15)	527 (27)		258 (82)			
• ETA	542 (14)	139 (23)	579 (29)		28 (10)			
• ADA	1091 (28)	268 (44)	547 (27)		6 (2)			
• CER	272 (7)	7 (1)	99 (6)		0 (0)			
• GOL	572 (15)	106 (17)	225 (11)		23 (6)			
First TNFi start, n(%)								
• Before 2009	963 (25)	112 (18)	159 (8)		115 (37)			
• 2009-2011	860 (22)	179 (29)	211 (11)		46 (15)			
• 2012-2017	2025 (53)	324 (53)	1659 (84)		154 (48)			
	Baseline	6 months	Baseline	6 months	Baseline	6 months	Baseline	6 months
BASDAI, mm	66 (47-73)	28 (13-48)	70 (57-80)	28 (15-47)	56 (36-62)	16 (5-32)	60 (46-75)	29 (9-40)
BASFI, mm	49 (32-67)	25 (8-47)	58 (40-73)	25 (12-46)	31 (17-51)	10 (0-27)	43 (32-57)	16 (7-33)
VAS Patient global, mm	72 (53-85)	29 (12-60)	70 (60-80)	40 (20-50)	70 (51-78)	27 (10-50)	67 (50-81)	16 (8-40)
VAS Pain, mm	66 (48-78)	25 (10-50)	70 (50-80)	30 (10-50)	72 (50-80)	28 (10-50)	65 (46-77)	14 (6-33)

Data are as observed, median (QQR) or percentage; esDMARD: conventional synthetic Disease Modifying Anti Rheumatic Drug; TNFi: tumor necrosis factor inhibitor; INF: infliximab; ETA: etanercept; ADA: adalimumab; CER: certolizumab pegol; GOL: golimumab; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index; VAS: Visual Analogue Scale

Data are as observed, median (IQR) or percentage; esDMARD: conventional synthetic Disease Modifying Anti Rheumatic Drug; TNFi: tumor necrosis factor inhibitor; INF: infliximab; ETA: etanercept; ADA: adalimumab; CER: certolizumab pegol; GOL: golimumab; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Function Index; VAS: visual analogue scale.

Conclusions: Preliminary analyses showed differences across European registries regarding baseline characteristics and crude retention rates in axSpA patients initiating TNFi. These initial, preliminary analyses demonstrate that the creation of a large European database of axSpA patients treated in routine care based on a common data model is feasible, offering important opportunities for future research.

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Acknowledgements: The authors acknowledge Novartis Pharmaceuticals AG for financial support and Natasha Pillai and Carol Lines from QuintilesIMS and Craig Richardson from Novartis Pharmaceuticals AG for their assistance in setting up the EuroSpA collaboration.

Disclosure of Interest: L. Ørnbjerg: None declared, M. Østergaard: None declared, F. Onen: None declared, G. Can: None declared, Z. Rotar: None declared, M. Tomsic Consultant for: AbbVie, Eli Lilly, Johnson and Johnson, Medis, MSD, Novartis, Pfizer and Roche, B. Gudbjörnsson: None declared, A. Geirsson: None declared, M. Santos: None declared, A. Barcelos: None declared, D. Nordström Consultant for: AbbVie, Celgene, BMS, Lilly, MSD, Novartis, Pfizer, UCB, K. Aaltonen: None declared, M. J. Nissen: None declared, A. Ciurea: None declared, E. Kristianslund: None declared, T. Kvien Grant/research support from: AbbVie, Biogen, BMS, Boehringer Ingelheim, Celgene, Celltrion, Eli Lilly, Epirus, Hospira, Merck-Serono, MSD, Mundipharma, Novartis, Orion Pharma, Hospira/Pfizer, Sandoz, UCB, C. Codreanu: None declared, E.-M. Hauge: None declared, L. Jacobsson: None declared, H. Mann: None declared, G. Jones: None declared, F. Iannone: None declared, M. V. Hernandez: None declared, I. van der Horst-Bruinsma: None declared, L. H. Hyldstrup: None declared, N. S. Krogh: None declared, M. Hetland Grant/research support from: AbbVie, Biogen, BMS, Celltrion, MSD, Orion, Pfizer, Samsung, UCB

DOI: 10.1136/annrheumdis-2018-eular.2053