

SAT0421 FAT MASS NEGATIVELY AFFECTS THE RESPONSE TO TNF ALPHA BLOCKERS IN ANKYLOSING SPONDYLITIS PATIENTS

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Background: Women with Ankylosing Spondylitis (AS) seem to be less responsive to TNF-α blockers and have a shorter drug survival. This might be explained by differences in body composition (BC), as women have higher total body fat (BF). **Objectives:** Assess the relationship between gender, BC and response to TNF-α blocker treatment in a cohort of TNF-α blocker naïve AS patients. **Methods:** AS patients (Modified New York criteria), ≥18 years old, who had a Dual-Energy X-ray Absorptiometry BC analysis before the start of TNF-α treatment and at least 6 months thereafter were included. Demographic information and the disease activity measures ASDAS CRP and BASDAI were reported. Fat Mass (FM) was reported as BF% (FM/Total body mass), and Fat Mass Index (FMI= FM kg/height²). Fat Free Mass (lean mass + bone mineral content) was reported as its index (FFMI kg/m²). BF%, FMI, and FFMI percentiles, according to the reference population tables, stratified by age and gender, were also reported. **Results:** Forty-one patients were included, 61% were men. Demographic characteristics were similar in men and women. The FFMI percentile was remarkably low in men, probably reflecting muscle wasting (figure 1). The percentiles increased in men and decreased in women after treatment. The clinically important improvement (CII) of ASDAS CRP was achieved by 52% of men and only 37.5% of women. The minimum CII for BASDAI was achieved by 64.7% of men, and only 35.7% of women that had a BASDAI ≥4 at baseline. After multivariate analysis we found a significant relationship between higher BF%, FMI or FMI percentile at baseline and a lower chance of achieving at least a CII of ASDAS CRP; the same relationship was found between FMI percentile at baseline and the minimum CII for BASDAI (table 1).

Table 1. Multivariate logistic regression analysis results^a

Outcome	Variable	OR (95% CI)
Clinically important or major improvement of ASDAS CRP	Body Fat % at baseline	0.8 (0.7–0.98)
	Fat Mass Index at baseline	0.7 (0.4–0.99)
	FMI percentile ^b at baseline	0.9 (0.9–0.99)
	FMI percentile ^b at baseline	0.95 (0.91–0.99)
BASDAI MCII ^c		
	FMI percentile ^b at baseline	0.95 (0.91–0.99)

^a Controlled for gender, age, years with symptoms, days of follow up, use of DMARDs and NSAIDs and baseline outcome value. ^b Percentiles according to the reference population tables, stratified by age and gender. ^c Only for patients with a BASDAI ≥4 at baseline. CRP = C-reactive protein, ASDAS = Ankylosing Spondylitis Disease Activity Score, BASDAI = Bath Ankylosing Spondylitis Disease Activity Index, MCII = minimum clinically important improvement, FMI = Fat Mass Index.

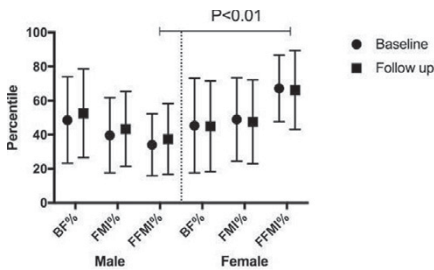


Figure 1. Body Fat % (BF%), Fat Mass Index (FMI) and Fat Free Mass Index (FFMI) percentiles according to reference population tables, stratified by gender. At baseline and follow-up the FFMI was significantly higher in female patients (P<0.001).

Conclusions: Higher body fat content at baseline is independently associated with a worse response to treatment with TNF-α blockers, measured by ASDAS-CRP and BASDAI change, and might contribute to the lower response to treatment rates in female patients. Also, there is a trend toward muscle mass recovery in male patients after treatment with TNF-α blockers.

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SAT0422 EFFECTS OF VITAMIN D REPLACEMENT ON THE DISEASE ACTIVITY AND INFLAMMATORY PARAMETERS SUCH AS IL-1, IL-6, TNF-α, ASYMMETRIC DIMETHYLARGININE (ADMA) AND ARGININE/ADMA RATIO IN ANKYLOSING SPONDYLITIS

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Background: Asymmetric dimethylarginine (ADMA) levels in AS patients were

found to be higher than controls (1). The relationship between vitamin D level and disease activity was shown in AS (2). But the effects of vitamin D replacement on the disease activity, inflammatory parameters and ADMA pathway were not investigated in AS.

Objectives: To determine the effects of vitamin D replacement on the disease activity, inflammatory parameters and ADMA pathway in AS.

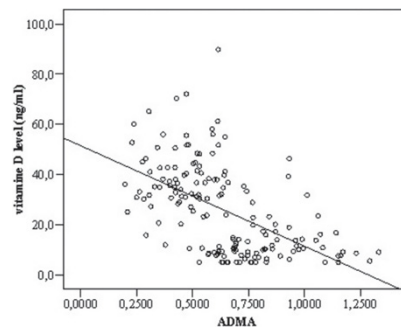
Methods: All AS patients with vitamin D level of <20 ng/ml who consecutively attended the outpatient rheumatology clinic were enrolled. C-reactive protein, erythrocyte sedimentation rate, Bath AS disease activity index (BASDAI), Bath AS Functional Index (BASFI) TNF-α, IL-1, IL-6, ADMA, symmetric dimethylarginine (SDMA), NG-monomethyl-L-arginine (LNMM), arginine, arginine/ADMA ratio and citrulline levels were analyzed when vitamin D level was <20 ng/ml and ≥20 ng/ml, after replacement.

Results: The study population was represented by 82 patients, 48 women (58.5%), mean age 39 years old and mean disease duration 5.5 years. When vitamin D levels were increased to normal levels, levels of IL-1 (4.8±9.7 and 3.1±4.0 p<0.001), IL-6 (7.1±14.1 and 4.7±2.1 p=0.009), ADMA (0.8±0.2 and 0.4±0.1 p<0.001), SDMA (0.9±0.2 and 0.4±0.2 p<0.001), LNMM (0.08±0.02 and 0.06±0.02 p<0.001), arginine (385.8±106.4 and 269.2±79.0 p<0.001) and citrulline (91.1±34.3 and 75.3±23.5 p<0.001) were reduced. Levels of arginine/ADMA ratio was increased (498.7±136.5 and 576.7±170.7 p<0.001) (Table 1). Also BASDAI, BASFI and erythrocyte sedimentation rate were decreased but it was statistically meaningless. In Pearson correlation analysis, ADMA, SDMA, LNMM, arginine and citrulline were negatively correlated with vitamin D levels. Multiple regression analysis showed that SDMA, arginine and citrulline were significantly related with vitamin D levels. Negative correlation between ADMA and vitamin D levels was shown in Figure 1

Table 1

	Vit D <20 (ng/ml)	Vit D ≥20 (ng/ml)	P
TNF-α (pg/mL)*	19.04±14.39	19.36±8.18	0.041
IL-6 (pg/mL)*	7.17±14.19	4.75±2.15	0.009
IL-1 (pg/mL)*	4.86±9.70	3.17±4.05	<0.001
ADMA (μmol/L)**	0.80±0.21	0.49±0.16	<0.001
SDMA (μmol/L)**	0.93±0.26	0.49±0.20	<0.001
LNMM (μmol/L)**	0.08±0.02	0.06±0.02	<0.001
Arginine (μmol/L)**	385.83±106.43	269.22±79.08	<0.001
Arginine/ADMA	498.72±136.51	576.74±170.76	<0.001
Citrulline (μmol/L)**	91.14±34.34	75.30±23.52	<0.001

*Wilcoxon sign test **paired samples t test.



Conclusions: Vitamin D replacement in AS with low vitamin D levels improves antioxidant status via ADMA pathway and shows anti-inflammatory effects on IL-1 and IL-6. In literature, there is no other study investigating the effects of increased vitamin D levels on disease activity, inflammatory parameters and ADMA pathway in AS.

References:

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SAT0423 INCREASED PREVALENCE OF EXTRA-ARTICULAR MANIFESTATIONS AMONG INDIVIDUALS WITH ANKYLOSING SPONDYLITIS IN CANADA: RESULTS FROM THE RHUMADATA® MULTICENTRE REGISTRY

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Background: Among populations with ankylosing spondylitis (AS), the frequency and severity of extra-articular manifestations (EAMs) vary widely; due to underlying geographic and genetic differences, individual characteristics, and the impact of treatment with anti-tumour necrosis factor [TNF] agents. The frequency of EAMs