Conclusion: In this small study, seropositivity and disease activity were higher in responders. Baseline immunohistochemical staining was not a good discriminator of treatment responses

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POS0478

ASSOCIATION BETWEEN BODY SHAPES AND BODY SHAPE TRAJECTORIES, AND THE RISK OF RHEUMATOID ARTHRITIS IN THE FRENCH E3N COHORT

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Background: Several cohort and case-control studies have suggested that overweight or obesity is associated with the risk of Rheumatoid Arthritis (RA). Associations were based on Body Mass Index (BMI), although this measurement does not reflect the fat distribution [1].

Objectives: To study the relationships between anthropometric measurements and the risk of RA in women involved in the E3N cohort.

Methods: E3N is an ongoing French prospective cohort that enrolled 98,995 women aged 40-65 years in 1990. Women completed mailed questionnaires every 2-3 years on lifestyle and health-related information. A total of 698 incident RA cases have been validated among 78,452 women [2]. Available anthropometric measurements include birth height and weight, height and weight (collected at baseline and regularly updated during follow-up), and age-related body shapes (BS). Women had to identify the silhouette among 8 BS that best described their BS at 8 years, puberty, 20-25 years, 30-35 years, and study baseline. BS trajectories (from 8 to 30-35 years) were constructed using Nagin's approach to group-based trajectory modeling that identifies 6 different trajectories [3]. Hazard ratios (HRs) and 95% confidence intervals (CIs) for the risk of incident RA were estimated using Cox proportional hazards regression models with age as the time scale. Models were first adjusted for known risk factors of RA (model 1), and then multi-adjusted (model 2).

Results: Taking lean BS as reference, medium BS at puberty was associated with an increased risk of RA [HR=1.23 (95% CI 1.0-1.5)], in the fully adjusted model (table 1), as was large BS at baseline [HR =1.32 (95% CI 1.1-1.6)] (in model 1). Obesity (BMI>30 kg/m²) was marginally associated with RA in model 1 [HR=1.30 (95% CI 1.0-1.7)], but the association was no longer statistically

Table 1. Cox proportional-hazards analysis of anthropometric factors associated with RA

	RA	Non-cases	MODEL 1		MODEL 2	
			HRs (95%CI)	<i>ptrend</i>	HRs (95%CI)	<i>ptrend</i>
Baseline Body mass index (kg/m ²)						
<18	10	1,797	0.75 (0.4-1.4)	0.0532	0.85 (0.4-1.6)	0.6165
[18-25]	462	50,330	Ref		Ref	
[25-30]	171	19,716	1.10 (0.9-1.3)		1.00 (0.8-1.2)	
> 30	55	5,911	1.30 (1.0-1.7)		1.13 (0.8-1.6)	
Body shape at puberty						
Lean	332	40,485	Ref	0.0937	Ref	0.1490
Medium	179	17,903	1.24 (1.0-1.5)		1.23 (1.0-1.5)	
Large	147	15,984	1.14 (0.9-1.4)		1.12 (0.9-1.4)	
Body shape at baseline						
Lean	359	44,718	Ref	0.0055	Ref	0.1743
Medium	200	20,041	1.20 (1.0-1.4)		1.16 (0.9-1.4)	
Large	110	9,838	1.32 (1.1-1.6)		1.20 (0.9-1.6)	

ptrend: p for trend. Ref: reference.

significant in the multi-adjusted model, taking normal BMI [18-25 kg/m²] as the reference.

Birth weight and height, BS (at 8, 20-25 and 30-35 years), and BS trajectories were not significantly associated with RA in any model.

Conclusion: In E3N cohort, medium body shape at puberty was associated with an increased risk of RA independently of the BMI and smoking exposure.

Model 1 adjusted for age, smoking (past/current/never), passive smoking during childhood and/or adulthood (ever/never), educational level (<high-school, up to 2 years of university, ≥ 3 years of university).

Multi-adjusted model 2 included model 1 + body mass index (<18, 18-25, 25-30, >30 kg/m²), body shape at puberty, body shape at baseline adjusted for age, baseline physical activity (in quartiles), age at menarche (<13, 13-15, ≥15 years), age at menopause (≤45, 45-53, ≥53 years), age at the first pregnancy (<22, 22-27, ≥27 years), number of full-term pregnancies (≤1, 2, ≥3), and duration of premenopausal use of progestogen (0, 0-24, >24 months).

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POS0479

THE IMPACT OF FLARES ON PATIENT REPORTED OUTCOMES IN RHEUMATOID AND UNDIFFERENTIATED ARTHRITIS PATIENTS – A SUB-ANALYSIS OF THE IMPROVED STUDY

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Background: In rheumatoid arthritis (RA) patients in low disease activity, flares are associated with symptom deterioration. Patients in clinical remission may flare but still have low disease activity. How does this affect patient reported outcomes?

Objectives: To evaluate the prevalence of disease flares in patients treated to target drug free remission, and to study the impact of disease flares on patient-reported outcomes (PROs) for flares with different impact on disease activity.

Methods: In the IMPROVED study 610 patients with rheumatoid arthritis (RA) or undifferentiated arthritis (UA) were treated to target drug free remission (DAS <1.6) for 5 years. As soon as DAS was <1.6, treatment was tapered to discontinuation. Patients with at least 8 months follow-up were selected. A flare was defined according to three definitions; **A)** DAS ≥1.6 and ≥0.6 increase from the previous visit regardless of the previous DAS; **B)** minor flare from remission; a DAS ≥1.6 with <0.6 increase and previous DAS <1.6; **C)** major flare from remission; a DAS ≥1.6 with ≥0.6 increase and previous DAS <1.6. Linear mixed models were used to compare functional ability, measured by the health assessment questionnaire (HAQ), at visits where a flare occurred versus visits without a flare. Fisher's exact test were used to compare percentages with ≥0.22 HAQ increases between groups with and without LDA at the moment of flare. A generalized linear mixed model was used to calculate the odds ratio for a deterioration of ≥20mm in VAS of PROs global health (GH), disease activity, pain and morning stiffness (from the preceding visit) during a flare.

Results: Of the 585 patients with sufficient follow-up, 75% experienced a flare **A**, 26% a flare **B**, and 68% a flare **C**, at least once. Most flares were observed after t=8 and t=12 months. In 55%, 100%, and 69% of visits with a flare A, B or C, the patients were still in LDA (DAS=<2.4). In 55% of the visits where a flare was associated with a DAS increase ≥0.6 (flare A & C) there was also clinically relevant increase in HAQ of ≥0.22. The mean difference in HAQ was 0.27 with flare **A** (p<0.01), 0.03 with flare **B** (p=0.72) and 0.18 with flare **C** (p<0.01). If was DAS >2.4 (LDA) at the moment of flare, HAQ increased ≥0.22 in 68% of all flares A, and 77% of all flares C (p-values <0.01, compared to flares where patients were still in LDA, DAS=<2.4). The odds ratios of a >20mm deterioration in VAS global health, VAS disease activity, VAS pain and VAS morning stiffness was significant ≥1 for flares with a ≥0.6 increase in DAS (flares A and C), and ≤1 for minor flares (B) (table 1).