Background: In Spondyloarthritis (SpA), the method of determination of IL-17 is questionable. Indeed, studies measuring plasma levels of IL-17A without stimulating have shown discordance in IL-17 levels.

Objectives: The objective of our study is to show the validity of an IL-17 assay method using both innate and acquired immunity stimulation.

Methods: We included volunteer SpAs presenting for consultation between February 2021 and March 2022 in the study. They were axial SpA meeting the ASAS criteria, naïve to any biological treatment, having failed at least two NSAIDs and in need of biological treatment. The control population was issued from a previous cohort of healthy subjects recruited between January 2020 and February 2021.

Results: A total of 45 patients with SpA (25 males and 20 females; median age, 41 ± 11 years) were included in the study, along with 27 controls (11 males and 16 females; median age 50.5 ± 28 years). Without stimulation levels of the pro-inflammatory cytokines TNF-α, IL-8, IL-6, and IL-17 were significantly increased in the patients with SpA group (compared to controls), co-ordinated and IL-8, IL-5, IL-12p70, and IL-17A levels in all patients with SpA were below the detection threshold (<2.1 pg/mL for IL-17A). After stimulation, Th17 cytokine IL-17A was significantly increased in the patient group with SpA compared to controls (IL-17A 317 pg/mL IQR [59–441] versus 59.9 pg/mL IQR [21.2–127, p = 0.0002]. On the other hand, the concentration of Th1 cytokines (INF-γ, IL-12p70 and TNF-α, INF-γ) were lower in the patient group with SpA than in the controls and the cytokines of the Th2 pathway (IL-4, IL-5) were higher in patients with SpA than in controls. Twenty-eight patients were treated with TNFi, and 14 patients with IL-17I. At three months, 55% of the treated patients had a BASDAI decrease of at least 50% (57.1% of the patients treated with TNFi and 64.3% treated with IL-17I). In SpA, patients, responders had higher baseline IL17A concentration (383 pg/mL IQR [109–887] vs. 30 pg/mL IQR [9–133] p = 0.049). A 145 ng/mL threshold was defined to distinguish the patients (responders and non-responders). Positive IL-17A activity was determined using receiver operating characteristic analysis, with a sensitivity of 75% and specificity of 88% (Area Under the receiver operating characteristic Curve = 0.88 p = 0.0415). There was no difference in TNF-α levels without or after stimulation between patients who responded to TNFi treatment and those who did not.

Conclusion: Our study shows the feasibility of a cytokine stimulation method that allows the determination of IL-17A in current practice in axial SpA. The potential interest in guiding the practitioner in their therapeutic choice (IL-17I or TNFi) should be confirmed in future studies.

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