Table 1. Demographic, clinical characteristics and response to treatment in SpA groups.

	Without syndesmophytes n= 92	Advanced spinal disease n= 99	Bamboo spine n= 78	p
Age, years*	42.2 ± 8.8	51.3 ± 10.2	55.5 ± 9.3	< 0.001*
Age at disease onset, years*	25.01 (11)	36.6 (20)	33.3 (18)	< 0.001*
Male, n (%)	55 (59.8)	78 (78.8)	66 (84.6)	< 0.001*
Disease duration, years*	13.8 (5)	12.3 (15)	17.6 (13)	< 0.001*
Delay in diagnosis, months*	12.02 (43)	36.01 (89)	36.01 (100)	0.013*
HLA-B27 positivity/total, n (%)	21/42 (50)	31/45 (69)	16/28 (57)	0.19
BMI*	26.3 (8)	29.7 (7)	29.4 (7)	< 0.001*
Smoking (ever), n (%)	56 (61)	78 (79)	58 (74)	0.019*
Hip involvement, positivity/total (%)	11/84 (13.1)	34/86 (39.5)	37/75 (49.3)	< 0.001*
ESR, mm/h	Onset 21.5 (34) Last 12.5 (18)	Onset 25.5 (29) Last 14.5 (17)	Onset 23 (31) Last 14 (14)	p (onset) 0.6 p (last) 0.59
CRP, mg/dL	Onset 1.5 (4) Last 0.4 (0.6)	Onset 1.7 (2) Last 0.65 (1)	Onset 1.8 (3) Last 0.64 (0.8)	p (onset) 0.4 p (last) 0.001*
ASDAS-CRP	3.6 (0.8)	1.9 (1)	3.4 (0.9)	0.4
BASDAI score	5.7 (2.6)	2.4 (4.5)	5.6 (3.3)	0.23
BASFI score	5.4 (4)	2 (4)	4.5 (4)	0.31
BASFI score > 4, n (%)	29 (59)	23 (25)	32 (32)	0.1
ASAS PR, n (%)	26 (28)	15 (15)	17 (22)	0.014*
ASAS PR, n (%)				0.09

*p < 0.05, *mean ± SD, *median (IQR)SD: Standard deviation; IQR: Inter-quartile rangeBASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index; BMI: Body mass index; ESR: Erythrocyte sedimentation rate; CRP: C-reactive protein; ASAS PR: Assessment in SpondyloArthritis International Society partial remission; ASDAS: Ankylosing spondylitis disease activity score

Figure 1. Retention rate of the first bDMARD

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POS0932 REGULATION OF INTESTINAL FLORA RESTORES IMMUNE BALANCE IN PATIENTS WITH UNDIFFERENTIATED SPONDYLOARTHRITIS

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Background: Undifferentiated spondyloarthritis (USpA) is the most common subtype of the spondyloarthritis with a prevalence between 0.7% and 2.0%¹. Inflammatory back pain, peripheral arthritis and less frequently enthesitis are the main clinical features of USpA². Recently the role of dysregulated microbiome

along with migration of T lymphocytes and other cells from gut to the joint ("gut-joint" axis) has been recognized^{3,4}. However, the detailed lymphocyte statuses of USpA patients and the effect of regulating the intestinal flora on the lymphocyte subsets is unclear.

Objectives: To investigate the status of lymphocyte subsets in peripheral blood (PB) of USpA patients and the variation after regulation of intestinal flora.

Methods: A total of 39 newly diagnosed patients with USpA who fulfilled the European Spondyloarthritis Study Group (ESSG) classification criteria and 60 age- and sex- matched healthy controls (HC) were enrolled in this study. All patients were given intestinal flora regulation therapy for six months, including clostridium butyricum capsule or bacillus coagulans tablet. The peripheral lymphocyte subsets of these participants were assessed by flow cytometry. Methane hydrogen breath test as well as cytokines were measured in all patients before and after treatment. Mann-Whitney U test was applied for the lymphocyte status between USpA patients and HC and Wilcoxon test for the comparison before and after treatment. The results of methane hydrogen breath were counted by the Chi-Square test. All P-values reported herein are two-tailed and P-value<0.05 was taken as statistically significant.

Results: Compared with HC, patients with USpA had a lower numbers of T cells (P=0.001), NK cells (P=0.026), CD8+T cells (P=0.046) and Treg cells (P<0.05) but higher ratios of Th17/Tregs (P=0.001), indicating a disturbance of immune microenvironment (Figure 1). After given therapy, T cells (P=0.003), B cells (P=0.018), NK cells (P=0.003), CD8+T cells (P=0.001) and Treg cells (P=0.009) were distinctly increased while the ratio of Th17/Treg decreased (P=0.046), suggesting a rebalance of immune systems (Figure 2a-c). Moreover, there were increase in the level of IL-6 (P<0.001), IL-17 (P=0.029) and TNF-α (P=0.003) as well as decrease in IL-10 (P=0.045) and IFN-γ (P=0.001) (Figure 2d). Further, the positive rate of intestinal bacterial overgrowth decreased significantly after regulation (P=0.029) (Figure 2e).

Conclusion: Imbalance of immune environment is closely related to the incidence of undifferentiated spondyloarthritis. The regulation of intestinal flora restores the balance and improve the growth of bacteria in the small intestine simultaneously. Therefore it is essential to focus on the alteration of intestinal flora to prevent the outbreak of inflammation and disease progression.

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Figure2 (a-e) Variation of peripheral lymphocyte subsets cytokines after regulation of intestinal flora. (d) Variation of after regulation of intestinal flora. (e) Change of positive rate of methane hydrogen breath test after treatment. *P < 0.05, **P < 0.01, ***P < 0.001.

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