After RA diagnosis, 22.5% (55), 43.4% (106) and 3.3% (8) of patients were diagnosed with AHT, DL and DM. Delay in time to diagnosis was significantly associated with AHT, DL and DM diagnosis after RA diagnosis.

Conclusions: A higher inflammatory load, such as that accumulated in RA patients who have delayed the start of treatment, is associated with a higher probability of developing CVRF, which are associated with the appearance of vascular structural damage in the long term. These results are consistent with the effect of inflammatory cytokines on peripheral tissues (increased lipolysis in adipose tissue, increased insulin resistance, increased arterial stiffness).

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AB0381 CLINICAL AND RADIOGRAPHIC CHARACTERISTICS OF AIRWAY DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: Airway disease (AD) has drawn attention both clinically and etiologically in rheumatoid arthritis (RA), but is still poorly understood.

Objectives: We aimed to elucidate the clinical and radiographic characteristics of AD in patients with RA.

Methods: We retrospectively reviewed high-resolution computed tomography (HRCT) images and clinical data of 131 consecutive RA patients in whom HRCT were scanned for clinical purposes and screening. Overlap patients with other collagen tissue diseases and patients complicated with active infection or lung cancer were excluded. Patients who had a history of drug-induced lung disease, thoracic radiation, or exposure to dust were also excluded. HRCT images were reviewed independently by a pulmonologist and a radiologist in blind fashions, and cases of disagreement were discussed to reach a final consensus. AD was radiographically sub-categorised into 3 sub-groups: central AD, small AD, and middle lobe and lingular bronchiectasis. The associations between AD and interstitial lung disease (ILD) and each pair of the subtypes of AD were analysed by Fisher's exact test. The risk factors for AD and subtypes of AD were identified by multivariate logistic regression analyses.

Results: The mean age of the patients was 65 years old, the mean disease duration of the patients was 123 months, 69% of the patients were women, and 42% of the patients had past/current histories of smoking. The mean Disease Activity Score 28 (DAS28)-erythrocyte sedimentation rate (ESR) value was 2.87. AD and ILD were observed in 53 (40%) and 36 (27%) patients, respectively, and both in 19 (15%) patients. AD and ILD were not significantly associated ($p=0.11$). By multivariate logistic regression analyses, rheumatoid factor (RF) was identified as risk factors for whole AD (odds ratio [OR] 2.7; 95% confidence interval [CI], 1.0 to 6.9; $p=0.04$). Central AD, small AD, and middle lobe and lingular bronchiectasis were observed in 45 (34%), 31 (24%), and 17 (13%) patients, respectively. Each pair of these 3 subtypes were significantly associated with each other ($p<0.001$ in all comparisons). By multivariate logistic regression analyses without considering the overlaps with multiple subtypes of AD in the same patients, age and RF were identified as risk factors for central AD: the OR for age was 1.04 (95% CI, 1.00 to 1.08; $p=0.04$); the OR for RF was 3.0 (95% CI, 1.1 to 8.5; $p=0.034$). In contrast, DAS28-ESR values was identified as a risk factor for small AD: the OR for DAS28-ESR values was 1.5 (95% CI, 1.0 to 2.4; $p=0.0498$). Lastly, no significant risk factor was identified for middle lobe and lingular bronchiectasis by the multivariate logistic regression analysis, although disease duration tended to be longer in the patients with middle lobe and lingular bronchiectasis than in those without ($p=0.12$). In contrast, smoking histories was not significantly associated with whole AD or any subtypes of AD.

Conclusions: Radiologically defined AD was frequent comorbidity in RA patients, and multiple subtypes of AD were observed and coexisted. Furthermore, AD may be related to the pathology of RA, and different AD subtypes may have

distinct risk factors. Prospective studies with early RA patients were warranted to further clarify these findings and clinical impact of AD.

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AB0382 RAPAMYCIN SELECTIVELY INCREASES CIRCULATING TREG CELLS AND MAINTAIN REMISSION OF PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: It is thought that Rheumatoid arthritis (RA) arises from a breakdown in immunological self-tolerance. We have given a direct evidence for this conception that absolute number of peripheral CD4⁺ Regulatory T-cells (Tregs) decreased in RA patients^[1]. Furthermore, rapamycin can significantly induce immune tolerance through up-regulate Tregs and down-regulate Th17 cells^[2].

Objectives: To investigate the effect of rapamycin on the absolute numbers of Th17 and Treg cells and on maintenance of disease remission in RA patients instead of DMARDs.

Methods: Thirty-two patients, who achieved remission (DAS28 ≤ 2.6) by the treatment with two kinds of DMARDs for more than half a year, received rapamycin at a dose of 0.5 mg every other day for 12 weeks. Before and after treatment with rapamycin, the disease activity and immunological assessments of them were performed. In this study, BD Trucount tubes with the lyophilized pellet of a known number of internal counting beads were used for determining absolute counts of total CD4⁺ T cells in peripheral blood and then calculating the absolute number of Th17 cells and CD4⁺ Tregs.

Results: At week 12, 65.6% of the patients maintained remission (DAS28 ≤ 2.6). The DAS28 was increased from a median of 2.03 (at week 0) to 2.15 (at week 12) ($p>0.05$). The absolute number of Treg cells was increased significantly from a median of 22.16 (at week 0) to 32.19 (at week 12) ($P=0.039$). The absolute number of Th17 cells was decreased from a median of 5.98 (at week 0) to 5.56 (at week 12) ($p>0.05$). The ratio of Th17/Treg cells was also decreased from a median of 0.245 (at week 0) to 0.19 (at week 12) ($p>0.05$). At the same time, the mean dosage of prednisone decreased from 6.29 mg/d to 5.35 mg/d and that of DMARDs were also reduced from 93.75% to 56.25%.

Conclusions: Rapamycin was effective in the maintenance of remission (DAS28 ≤ 2.6) by increase of Treg cells and correcting the imbalance of Th17/Treg cells. Meantime, the mean dosage of conventional drugs such as glucocorticoid and DMARDs gradually decreased. In the future, rapamycin may replace current immunosuppressant for treatment of RA.

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AB0383 CHANGES OF METABOLIC BIOMARKER LEVELS UPON ANTI-TNF THERAPY IN RHEUMATOID ARTHRITIS PATIENTS

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Background: Rheumatoid arthritis (RA) has been associated with cardiovascular disease and metabolic syndrome. Numerous pro-inflammatory cytokines (e.g. TNF- α , IL-1, IL-6) are released, which cytokines cause increased reactive oxygen species (ROS) production and thereby contribute to the increased lipid peroxidation and reduction of many antioxidants. These processes not only lead to the deterioration of joints and other tissues but may also contribute to comorbidities, such as atherosclerosis.

Objectives: The aim of this study was to assess the effects of anti-TNF therapy on different metabolic markers, such as PON1 (paraoxonase 1), arylesterase, chemoerin and adiponectin. We also investigated whether these biomarkers correlated with various demographic, clinical and laboratory markers.