exists no disease-specific testing for TAK, identification of autoantigens would be extremely important.

Objectives: To identify major autoantigens in TAK using SARF and analyze clinical significance of autoantibodies

Methods: Two hundred and seventy-eight patients with collagen diseases were enrolled: 80, TAK; 10, giant cell arteritis (GCA); and 188, other collagen diseases. A cDNA library of human umbilical vein endothelial cells (HUVECs) was retrovirally transduced into a rat myeloma cell line. Cells expressing the cDNA library were stained with prototype AECAs and fluorescent-conjugated secondary anti-human IgG, and cells with fluorescence were sorted with flow cytometry. Autoantigen identification was performed by analyzing the cDNA inserted into the sorted cells. Cells expressing the identified autoantigens were generated, and the presence of autoantibodies was confirmed. The autoantibodies against identified autoantigens were measured in TAK and other collagen diseases, and the prevalence and clinical characteristics of each autoantibody were evaluated.

Results: AECA activity against HUVECs were measured in patients with TAK and nine AECA serum samples were selected for subsequent SARF. Four distinct AECA-positive clones were successfully isolated using serum IgG from TAK patients. Two clones were identical to the cDNA of *PROCR* encoding protein C receptor (EPCR), and others, to *SCARB1* encoding scavenger receptor class B type 1 (SR-BI). A validation experiment involving 52 patients with TAK confirmed disease specificity in TAK; autoantibodies against EPCR or SR-BI accounted for 34.6% or 36.5% cases, respectively, with minimal overlap (3.8%). Measurement of these autoantibodies in other collagen diseases was performed, and the sensitivity and specificity of these two autoantibodies were 67.3% and 96.5%, respectively. Importantly, these autoantibodies were not detected in patients with GCA who were positive for temporal artery biopsy. TAK was classified into three subtypes based on the profile of these autoantibodies. Anti-EPCR positive group showed high prevalence of stroke, ulcerative colitis, and type II artery lesion. Anti-SR-BI positive group presented higher levels of inflammatory markers, type V artery lesion, and older age at onset. Aortic regurgitation was rare in anti-SR-BI positive group. Double-negative group presented higher rates of vascular surgery.

Conclusion: We identified EPCR and SR-BI as novel autoantigens in TAK. Autoantibodies against EPCR or SR-BI were observed in 66.7% of patients, and different types of autoantibodies showed distinct clinical characteristics. These autoantibodies would aid in clinical application and elucidating pathomechanisms.

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THU0318

ANCA-ASSOCIATED GLOMERULONEPHRITIS WITHOUT CRESCENT FORMATION HAS ATYPICAL CLINICOPATHOLOGICAL FEATURES; A MULTICENTER RETROSPECTIVE STUDY

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Background: The most typical histopathological feature of ANCA-associated glomerulonephritis (ANCA-GN) is crescentic GN. However, ANCA-GN is also complicated by other renal lesions, including vascular ones (arteritis and arteriolitis) and tubulointerstitial ones (tubulitis and peritubular capillaritis) [Reference 1], and tubulointerstitial or vascular-dominant inflammation without glomerulopathy sometimes exists. Few reports have focused on ANCA-GN without crescent formation in a large multicenter study.

Objectives: To identify the clinicopathological features of ANCA-GN without crescent formation.

Methods: We enrolled 122 Japanese ANCA-GN patients who were subjected to renal biopsy in 16 hospitals from 2001 to 2018. We measured various clinical parameters at the time of renal biopsy, including creatinine (Cr), estimated glomerular filtration rate (eGFR), C-reactive protein (CRP), MPO-ANCA, PR3-ANCA in the sera, urinalysis findings, and presence of comorbidities (hypertension, hyperlipidemia, diabetes mellitus, and hyperuricemia). Renal biopsy findings were evaluated by light microscopy. We also measured serum Cr and eGFR at the last patient visit, and recorded medications prescribed for ANCA-GN. We retrospectively compared these clinical and histological findings between those with crescent (C+ group) and without crescent (C- group). The primary endpoint was the cumulative percentage of patients who died from any cause.

Results: Of 122 patients (63 females; mean age 69.5 years; observational period 37.1±41.8 years), C- group included 20 (16.4%). Although C- group had higher CRP levels (11.2±8.5 vs 6.6±6.2 mg/dl, p=0.01), they had less proteinuria (0.8±0.9 vs 1.6±1.7 g/gCr, p=0.04) and better renal function (eGFR; 52.1±29.5 vs 32.0±25.4 ml/min/1.73m², p<0.01) than C+ group. There were no significant differences in any other clinical findings including ANCA serology. In histological findings, C- group had a higher frequency of arteritis (40.0% vs 16.8%, p=0.03), while other histological findings such as arteriolitis, tubulitis and peritubular capillaritis did not differ. There were no significant differences in medications or observational period. C- group had better latest renal function (eGFR; 57.3±27.8 vs 39.0±23.6 ml/min/1.73m², p=0.02) than C+ group. However, overall survival rate did not differ (68.4% vs 78.7%, p=0.37).

Conclusion: ANCA-GN without crescent formation had specific clinicopathological features including higher systemic inflammation and frequency of renal arteritis than ANCA-GN with crescent formation. Though renal function throughout the clinical course was better in ANCA-GN without crescent formation, overall survival rate was similar with ANCA-GN with crescent formation.

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THU0319

TAKAYASU'S ARTERITIS: BEYOND THE VESSELS

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Background: Takayasu arteritis (TAK) is an inflammatory disease which primarily affects large vessels¹. However, as a systemic disease, the spectrum of its manifestations is not limited to the arterial wall².

Objectives: To describe characteristics of extravascular manifestations of TAK patients from a single Italian Centre.

Methods: Data records of TAK patients diagnosed according to the 1990 ACR criteria and followed-up at our Large Vessel Vasculitis Clinic were reviewed. Any significant inflammatory/autoimmune comorbidity and family history for inflammatory/autoimmune diseases were considered. For each comorbidity, temporal correlation with TAK diagnosis was assessed. Need for biological therapy for TAK control, as an indirect measure of TAK aggressiveness, was evaluated. Non-parametric statistic tests were used.

Results: In our cohort of 129 TAK patients, 46 patients (35.7%) were identified as having an inflammatory/autoimmune comorbidity, for a total of 64 comorbidities (14 patients experienced >1 comorbidity). Comorbidities were classified into 6 categories: systemic inflammatory diseases (17.2%); gastro-intestinal (9.4%), articular (10.9%), ocular (20.3%) and muco-cutaneous (39.1%) involvement; miscellaneous (autoimmune hepatitis (1.6%), retroperitoneal fibrosis (1.6%)). In 33 cases (51.6%) the comorbidity onset preceded, in 25 (39%) followed and in 6 (9.4%) was synchronous with TAK diagnosis (Table 1). In 25 patients (54.3%) use of a biological therapy to control TAK activity was needed (versus 35.4% in patients without comorbidities, p=0.042). Having a comorbidity increased the risk for the introduction of a biologic therapy, odds ratio=2.176 (1.042-4.541). Of the 129 TAK patients, 17 (13.2%) had a positive family

Abstract THU0319 –Table 1. Prevalence and characteristics of inflammatory/autoimmune extravascular comorbidities in a cohort of 129 TAK patients, temporal correlation with TAK diagnosis, and need for biological therapy.

	DISEASE	N° OF CASES	ANTECEDENT TO TAK DIAGNOSIS	SUBSEQUENT TO TAK DIAGNOSIS	SYNCHRONOUS WITH TAK DIAGNOSIS	NEED FOR BIOLOGICAL THERAPY
AUTO-INFLAMMATORY	Pericarditis	4	3	0	1	3
	Relapsing Polychondritis	4	4	0	0	3
	Sarcoidosis	3	0	1	2	1
	TOT.	11	7	1	3	7 (63.7%)
GUT	Ulcerative Rectocolitis	3	2	1	0	2
	Crohn Disease	1	1	0	0	1
	Undifferentiated Colitis	1	1	0	0	1
	Celiac Disease	1	0	1	0	0
	TOT.	6	4	2	0	4 (66.7%)
ARTICULAR	Psoriatic Arthritis	4	0	4	0	3
	Enteropathic Arthritis	2	0	2	0	2
	Seronegative Rheumatoid Arthritis	1	1	0	0	1
	TOT.	7	1	6	0	6 (85.7%)
EYE	Scleritis	6	3	3	0	4
	Anterior Uveitis	3	2	1	0	1
	Posterior Uveitis	1	0	1	0	0
	Optic Neuritis	2	2	0	0	1
	Serpiginous Choroiditis	1	1	0	0	0
SKIN/MUCOSA	TOT.	13	8	5	0	6 (46.2%)
	Erythema Nodosum	18	8	8	2	10
	Chronic Urticaria	4	3	1	0	3
	Chronic Recurrent Oral Aphthous Ulcers	2	1	1	0	2
	Skin Psoriasis	1	1	0	0	0
MISCELLANEOUS	TOT.	25	13	10	2	15 (60%)
	Retroperitoneal fibrosis	1	0	0	1	0
	Autoimmune Hepatitis	1	0	1	0	0
		64 (46 patients)	33 (51.6%)	25 (39%)	6 (9.4%)	38 (25 patients)

history for inflammatory/autoimmune diseases (8 psoriasis, 5 rheumatoid arthritis, 3 inflammatory bowel disease, 1 sarcoidosis).

Conclusion: In TAK patients, extravascular involvement is a common finding and usually precedes the vascular involvement (the only significant exception is represented by inflammatory arthritis). Inflammatory and autoimmune extravascular comorbidities seem to be associated with a significant higher burden of vascular inflammation, as inferred by the higher rate of biological therapies use in these TAK patients.

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THU0320

RISK FACTORS OF INTRAVENOUS IMMUNOGLOBULIN RESISTANCE AND CORONARY ARTERIAL LESIONS IN TURKISH CHILDREN WITH KAWASAKI DISEASE

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Background: Kawasaki Disease (KD) is an acute, systemic, febrile vasculitis that occurs during infancy and is the most common cause of childhood coronary artery disease. The incidence of coronary artery lesions (CALs) has declined with the routine use of intravenous immunoglobulin (IVIG) treatment, but there is still considerable risk for resistance to IVIG treatment and development of CALs (1).

Objectives: Previously defined risk scoring systems have limited predictive capacity for IVIG resistance of KD in Turkish children. The present study

was aimed to determine the risk factors in Turkish children with IVIG resistant KD and coronary artery involvement.

Methods: Clinical, laboratory and echocardiographic data were retrospectively analyzed in 94 Kawasaki patients. IVIG resistant and responsive groups were compared.

Results: Of the 94 patients included in the study, 55 (58.5%) were male and 39 (41.5%) were female and the ratio was 1.41. The median (25-75 percentage) age at the time of diagnosis was 35 (19-52) months. CALs were observed at echocardiographic evaluation in 31 patients (33%) and 17 patients (18.1%) were IVIG resistant. IVIG resistant group had a higher rate of CALs compared to the IVIG responsive group ($p < 0.05$). When two groups were compared prior to IVIG, neutrophil/lymphocyte ratio (NLR) and C-reactive protein (CRP) parameters were statistically higher in IVIG resistant group. NLR values still remained as statistically higher in the IVIG-resistant group after initial IVIG.

Regarding IVIG resistance, duration of fever ≥ 9.5 days, CRP ≥ 88 mg/L and NLR ≥ 1.69 were the best cutoff values. The criteria for at least two of these three predictors were considered to be statistically significant risk factors for detecting IVIG resistance in KD before treatment (76.47% sensitivity, 71.05% specificity and 95% confidence intervals were 50.1-93.19% and 59.51-80.89%, respectively).

Regarding risk for CALs, duration of fever ≥ 9.5 days before IVIG, (OR: 3.4) and Plt count after IVIG $\geq 670 \times 10^3/uL$, (OR: 5.5), were the best cutoff values.

Abstract THU0320 –Table 1. ROC analyses and Odds ratios for best cut-off values of variables for predicting IVIG resistance before IVIG treatment.

Variable	Value	Sensitivity	Specificity	Discriminative ability	Odds ratio
Duration of fever before IVIG	9.5 days	58.8%	72.7%	0.667±0.080 (95% CI: 0.510-0.824, p=0.032)	3.809 (95% CI: 1.28-11.31, p=0.016)
	88.0 mg/L	70.0%	64.7%	0.669±0.076 (95% CI: 0.520-0.817, p=0.032)	4.40 (95% CI: 1.38-13.97, p=0.012)
CRP before IVIG	1.69	93.3%	43.4%	0.679±0.070 (95% CI: 0.541-0.817, p=0.031)	4.40 (95% CI: 1.38-13.97, p=0.012)

$p < 0.05$