were evaluated against the clinical diagnosis of SLE as judged by the expert panel on the sensitivity and specificity, which was calculated by 2x2 contingency tables ("condition positive" = clinical diagnosis of SLE; "test positive" = criteria positive for SLE) with standard formulas (sensitivity = true positive/[true positive + false negative]; specificity = true negative / [true negative + false positive]). Receiver operating characteristic (ROC) curve was used to study the optimal cut-off points from the EULAR/ACR criteria for the highest summation of specificity and sensitivity.

Results: 3967 patients were screened; 1542 patients who were positive for ANA ($\geq 1:80$) were included (88.3% women). The mean age of these patients at first rheumatology clinic attendance was 45.6 ± 15.0 years and the duration of follow-up was 7.5 ± 7.0 years. A total of 567 patients were judged to have SLE by the expert panel (discrepancy of clinical diagnosis in 135 patients resolved with voting). The sensitivity and specificity of the three SLE classification criteria in our patients are listed in Table 1. ROC analysis showed that the best cut-off for a clinical diagnosis of SLE using the EULAR/ACR criteria was 10 points (area under the curve [AUC] 0.977; sensitivity 89.2% and specificity 89.6%). Similar figures were obtained for subgroups of patients stratified by gender and different age ranges.

Conclusion: In our cohort of Hong Kong Chinese patients, the 2019 EULAR/ACR criteria is more sensitive but less specific when compared with 1997 ACR criteria for classifying SLE. On the other hand, the EULAR/ACR criteria is less sensitive but more specific than the 2012 SLICC criteria. The specificity of the EULAR/ACR criteria for SLE is higher in male than female patients. In our patients older than 50 years, the EULAR/ACR criteria is less sensitive but more specific for a classification of SLE. Overall, the performance of the EULAR/ACR criteria for a diagnosis of SLE in our study is similar to that reported in recent Asian studies although the sensitivity is lower, which may be related to the inclusion of ANA+ patients only.

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Classification criteria	Sensitivity	Specificity
1997 ACR	85.9%	94.4%
2012 SLICC	97.5%	86.4%
2019 EULAR/ACR with 10 points as cut-off	89.2%	89.6%
2019 EULAR/ACR with 9 points as cut-off	93.6%	68.7%
2019 EULAR/ACR with 11 points as cut-off	86.9%	92.4%
2019 EULAR/ACR with 10 points as cut-off (men)	88.9%	94.5%
2019 EULAR/ACR with 10 points as cut-off (women)	89.2%	88.8%
2019 EULAR/ACR with 10 points as cut-off (age >50 years)	78.7%	94.1%
2019 EULAR/ACR with 10 points as cut-off (age ≤ 50 years)	91.7%	84.1%

Disclosure of Interests: None declared

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POS0772

PREVALENCE AND RISK FACTORS FOR HERPES ZOSTER REACTIVATION IN 1542 PATIENTS WITH RHEUMATIC DISEASES

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Objectives: To study the prevalence and risk factors of herpes zoster (HZ) infection in patients with rheumatic diseases.

Methods: Medical records of patients with rheumatic diseases who attended our out-patient rheumatology clinics between 2019 March and 2019 August were retrospectively reviewed. Patients who were using biological or targeted DMARDs were excluded. Episodes of HZ infection since disease diagnosis were identified and the prevalence over time was calculated. Laboratory parameters (total white cell count, neutrophil-to-lymphocyte ratio, serum albumin, globulin & creatinine), history of diabetes mellitus and the highest doses of immunosuppressive medications within 6 months of the first episode of HZ infection were compared with those within 6 months of last follow-up in patients who did not have HZ infection. Cox regression analysis was performed to identify factors associated with the first HZ infection in all patients.

Results: 1542 patients were studied (88% women, age 46.4 ± 15.0 years). The underlying diseases were systemic lupus erythematosus (SLE) (38%), rheumatoid arthritis (26%) and other rheumatic diseases (36%). After a total follow-up of 11,515 patient-years since diagnosis (7.5 ± 7.0 years), 122 (7.9%) patients developed 146 episodes of HZ infection, giving an overall prevalence of 1.27/100-patient years. The prevalence rates of HZ in SLE, RA and non-SLE/RA patients were 1.70, 0.64 and 0.76 per 100 patient-years, respectively. Patients who experienced HZ reactivation were younger (41.6 ± 14.7 vs 46.8 ± 15.0 years; $p < 0.001$), more likely to have SLE (74% vs 35%; $p < 0.001$) and diabetes mellitus (17% vs 7.3%; $p = 0.01$), and had a significantly lower albumin (38.6 ± 5.6 vs 41.3 ± 3.5 ; $p < 0.001$) and higher neutrophil-to-lymphocyte ratio (4.9 ± 6.2 vs 2.8 ± 2.6 ; $p < 0.001$). More patients with HZ reactivation were treated with prednisolone (54% vs 22%;

$p < 0.001$), azathioprine (20% vs 8%; $p < 0.001$), mycophenolate mofetil [MMF] (21% vs 12%; $p = 0.006$), cyclophosphamide [CYC] (4.9% vs 0.1%; $p < 0.001$) and hydroxychloroquine (48% vs 34%; $p = 0.002$) in the preceding 6 months compared with those who did not have HZ infection. Among those using immunosuppressive drugs, the doses of MMF (1.42 ± 0.64 vs 1.02 ± 0.31 ; $p = 0.005$) and prednisolone (15.6 ± 15.9 vs 5.5 ± 4.5 mg; $p < 0.001$) were significantly higher in those with HZ infection. The cumulative risk of having HZ reactivation in SLE patients at 24 and 48 months since diagnosis was 5.9% and 8.6%, respectively, which was significantly higher than that in non-SLE patients (1.9% and 2.5%, respectively; $p < 0.001$ by log rank test). Cox regression analysis revealed that having a diagnosis of SLE (HR 1.97 [1.17-3.31]), albumin level (HR 0.93 [0.90-0.97] per g/L; $p = 0.001$), serum creatinine (HR 0.995 [0.990-1.00] per $\mu\text{mol/L}$), higher neutrophil/lymphocyte ratio (HR 1.08 [1.05-1.11]) and the use of CYC (HR 6.69 [2.56-17.5]) and prednisolone (HR 1.61 [1.02-2.45]) in the preceding 6 months were independently associated with the development of HZ infection.

Conclusion: Reactivation of HZ is fairly common in patients with rheumatic diseases. Underlying SLE, prednisolone/cyclophosphamide therapy and the neutrophil/lymphocyte ratio, but not age, sex or other laboratory parameters, are the major risk factors for HZ reactivation.

Disclosure of Interests: None declared

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POS0773

CLINICAL PRESENTATION AND OUTCOMES OF THE ANTIPHOSPHOLIPID SYNDROME (APS) IN SOUTHERN CHINESE PATIENTS: THE HONG KONG APS REGISTRY

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Objectives: To report the clinical presentation and outcomes of the APS in Hong Kong Chinese patients.

Methods: The HKAPS registry was established in early 2020 by the Hong Kong Society of Rheumatology to study the outcomes of Chinese patients with APS treated in public hospitals in Hong Kong. Patients aged ≥ 18 years were identified by the Hospital Authority Clinical Data retrieval system using the ICD-10 diagnostic code of APS. The medical history and APS diagnosis was verified by sub-investigators in different hospitals using the 2006 modified consensus criteria for the APS. Eligible patients were classified into definite APS or probable APS, which was further categorized into primary (without underlying rheumatic diseases) and secondary types. The presentation, treatment and outcomes of these patients were summarized.

Results: 232 APS patients (76.3% women) were identified. All were ethnic Chinese. A total of 160 patients fulfilled the 2006 criteria for APS (definite APS) while 72 patients had probable APS (anti-phospholipid [aPL] antibodies positive once or with non-criteria manifestations). In those with definite APS, the mean age at diagnosis was 44.9 ± 15.8 years and the female to male ratio was 3.1:1. APS was primary in 82 patients while 78 patients had concomitant rheumatic diseases (SLE in 95% of patients). 130(81%) patients had thromboembolic manifestations, 20(13%) had obstetric morbidities and 10(6%) had both. In patients with secondary APS, 23% thrombotic or obstetric manifestations occurred before diagnosis of the rheumatic diseases (ie. evolved from primary APS). Lupus anticoagulant was present in 81(51%) patients, moderate/high titers of anti-cardiolipin were present in 90(56%) patients and anti- β_2 glycoprotein-1 was present in 6(4%) patients. Sixteen (10%) patients were double positive while 1 patient was triple positive for these aPL antibodies. Among the thromboembolic manifestations, arterial thrombosis (n=84) (ischemic stroke 77%, myocardial infarction 4.8%, peripheral vascular disease with limb/digital gangrene 2.4%, retinal artery 2.4%, splenic artery 1.2%, bowel infarct 1.2%) was more common than venous thrombosis (n=73) (calf vein thrombosis $\pm$ pulmonary embolism 86%, cerebral veins 2.7%, inferior vena cava/iliac veins 6.8%, retinal vein 2.7%, splenic vein 1.4%). The following treatment regimens were used in our APS patients: warfarin (71%), aspirin plus subcutaneous heparin (4%), aspirin + warfarin (3.1%), aspirin alone (17%) and the direct oral anticoagulant (DOAC) (5%). Bleeding complications developed in 35(22%) patients. Over a mean follow-up of 9.9 ± 7.0 years, recurrence of thromboembolic or obstetric manifestations recurred in 39(24%) and 6(4%) patients, respectively. A total of 29(18%) patients succumbed (median time to death: 6.4 years) and the causes of death were: pneumonia (24%), septicemia (17%), intracranial hemorrhage (14%), myocardial infarction (10%), ischemic stroke (3%), bowel infarct (3%), pulmonary hypertension (6.9%) and sudden death with unknown causes (14%).

Conclusion: APS in southern Chinese is relatively uncommon and most cases were associated with SLE. In contrast with the Caucasians, venous thrombosis related to APS is less frequent than arterial thrombosis in Chinese patients. With long-term anticoagulation treatment, the outcome is satisfactory with relatively low rates of recurrence and mortality. Expansion of the sample size to study factors associated with recurrence and mortality by involving more hospitals is in progress.

Disclosure of Interests: None declared

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POS0774

INFLUENZA INFECTION AS A TRIGGER FOR SYSTEMIC LUPUS ERYTHEMATOSUS FLARES RESULTING IN HOSPITALIZATION

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Background: Infections have been associated with a higher risk of systemic lupus erythematosus (SLE) flares, but the impact of influenza infection on SLE flares has not been evaluated.

Objectives: We evaluated the association between influenza infection and SLE flares resulting in hospitalization.

Methods: SLE flares resulting in hospitalization and influenza cases were ascertained from the Korean national healthcare insurance database (2014-2018). We used a self-controlled case series design. We defined the risk interval as the first 7 days after the influenza index date and the control interval was defined as all other times during the observation period of each year. We estimated the incidence rates of SLE flares resulting in hospitalization during the risk interval and control interval and compared them using a Poisson regression model.

Results: We identified 1,624 influenza infections among the 1,455 patients with SLE. Among those, there were 98 flares in 79 patients with SLE. The incidence ratio (IR) for flares during the risk interval as compared with the control interval was 25.75 (95% confidence interval 17.63 – 37.59). This significantly increased the IRs for flares during the risk interval in both women (IR 27.65) and men (IR 15.30), all age groups (IR 17.00 – 37.84), with and without immunosuppressive agent (IR 24.29 and 28.45, respectively), and with and without prior respiratory diseases (IR 21.86 and 26.82, respectively).

Conclusion: We found significant association between influenza infection and SLE flares resulting in hospitalization. Influenza infection has to be considered as a risk factor for flares in all SLE patients regardless of age, sex, medications, and comorbidities.

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Table 1. Incidence ratios for SLE flares resulting in hospitalization after influenza infection

Risk interval	Incidence ratio	95% CI
During risk interval for 7 days / control interval	25.75	17.63 – 37.59
Days 1-3 / control interval	21.81	14.71 – 32.35
Days 4-7 / control interval	7.56	3.69 – 15.47

SLE, systemic lupus erythematosus; CI, confidence interval

Disclosure of Interests: None declared

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POS0775

APLS-ASSOCIATED RETINAL VASCULOPATHY AS A PRESENTATION OF THROMBOTIC MICROANGIOPATHY

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Background: Persistent antiphospholipid antibodies (aPL) positivity was a recognized risk factor for thrombotic events, obstetric morbidity and a variety of manifestations beyond thrombosis. The presence of some non-criteria manifestations including thrombocytopenia, hemolytic anemia, and APS nephropathy should prompt consideration for thrombotic microangiopathy (TMA).¹ Patients with APS can also present with a variety of ocular and neuro-ophthalmic manifestations, such as retinal artery/vein occlusion, retinal arteritis, optic neuritis and ischemic optic neuropathy, with underlying mechanisms remained elusive. Retinal vasculopathy including retinal artery occlusion (RAO) or retinal vein occlusion (RVO) was recently found occurred more frequently in APS patients with thrombocytopenia², suggested other possible mechanisms besides thromboembolism.

Objectives: To explore risk factors and possible mechanisms of retinal vasculopathy among APS patients.

Methods: In this single-center case-control study among APS patients, we evaluated patients who fulfilled 2006 Sapporo APS Classification Criteria³ with or without retinal vasculopathy during 2018-2020 at Peking Union Medical College Hospital. Demographic data, aPL-related manifestations, cardiovascular risk factors and antibodies profile were compared and a logistical regression model was built. Hierarchical cluster analysis with the Euclidean distance and the Ward method was applied to identify clusters of variables.

Results: A total of 310 APS patients (67.4% female, mean age 38.1 years) were included, of whom 18 patients were diagnosed with retinal vasculopathy (9 with RVO and 9 with RAO). No significant differences was found among most demographic characteristics, clinical manifestations, or antibody profile. However, APS-related heart valve disease (OR 13.66, 95% confidence interval [CI] 4.55-40.98), APS nephropathy (OR 12.77, 95% CI 4.04-40.35), thrombocytopenia (OR 2.63, 95% CI 1.01-6.89) and high serum IgM (OR 3.67, 95% CI 1.30-10.40) were predictive of retinal vasculopathy (Figure 1 A). APS-related heart valve disease and nephropathy were also found statistical significant in multivariate logistical regression (Figure 1 B). They and other non-criteria manifestations were aggregated with retinal vasculopathy from cluster analysis of variables (Figure 1 C).

Conclusion: Patients with APS-related heart valve disease and nephropathy suffered a higher risk of retinal vasculopathy including RAO and RVO. The underlying mechanisms of aPLs-associated retinal vasculopathy may involve TMA, leading to a poor prognosis and therapeutic changes.

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Figure 1. A) Forest plot of univariate analysis; B) Forest plot of multivariate logistic regression; C) Cluster analysis of variables.

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POS0776

CORRELATION OF PERIPHERAL CD4+GRANZB+CTLs WITH DISEASE SEVERITY IN PATIENTS WITH PRIMARY SJÖGREN'S SYNDROME

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Background: Sjögren's syndrome (SS) is a chronic autoimmune disorder. The major histopathologic lesion of it is a focal lymphocytic infiltrate around ductal and acinar epithelial cells, which include a majority of CD4+T. Several studies have shown that the epithelial cells in SS present diverse phenomena, such as MHC class II overexpression. CD4+T cells with cytotoxic activity (CD4 CTL) have been detected in various immune responses. They are characterized by their ability to secrete perforin and granzyme B to kill the target cells in an MHC class II-restricted fashion.

Objectives: So this study was to investigate the correlation of peripheral CD4+GranzB+CTLs with disease severity and organ involvement in patients with primary Sjögren's syndrome.

Methods: We recruited 116 pSS patients and 46 healthy controls using flow cytometry to examine proportion of CD4+GranzB+CTLs in their peripheral blood, and immunofluorescence to test the expression of CD4+GranzB+CTLs in labial gland. The correlations of CD4+GranzB+CTLs and the relevant clinical data were analyzed.