

antibody (anti-Sm) on BBB integrity via matrix metalloproteinase (MMP)-2 and evaluate the effect of captopril, a MMP-2 inhibitor on preventing BBB breach.

**Methods** Human umbilical vein endothelial cells (HUVEC) were stimulated with monoclonal anti-Sm or anti-RNP antibody (anti-RNP). BBB integrity was evaluated with claudin-5 expression, the tight junction composing protein by q-PCR, and western blot. MMP-2 activity was measured by gelatin zymography.

**Results** Antibody stimulation with anti-Sm or anti-RNP did not affect the expression of MMP-2 and claudin-5 at mRNA level. However, Claudin-5 protein expression was significantly reduced by anti-Sm stimulation compared to isotype control ( $p=0.004$ ), but not by anti-RNP ( $p=0.496$ ) (figure 1A). Active MMP-2 in culture supernatant was significantly increased after anti-Sm stimulation ( $p=0.015$ ), but not by anti-RNP ( $p=0.688$ ) (figure 1B). Addition of captopril restored claudin-5 mRNA expression that was reduced by anti-Sm stimulation ( $p=0.031$ ) (figure 1C).

**Conclusions** Anti-Sm reduced claudin-5 expression in HUVEC through up-regulation of active MMP-2 expression. Our results suggest that Captopril can be protective for BBB breaches mediated by anti-Sm in patients with NPSLE.

#### LSO-072 COMPARISON OF COVID-19 VACCINATION WITH INFLUENZA VACCINATION IN KOREAN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: PERCEPTION, ADVERSE EVENTS, AND FLARES FROM THE CIVIL STUDY

<sup>1</sup>Seonghoon Park\*, <sup>2</sup>Seung Cheol Shim, <sup>3</sup>Ji Soo Lee, <sup>4</sup>Young Ho Lee, <sup>5</sup>Seung-Ki Kwok, <sup>6</sup>Yong-Gil Kim, <sup>7</sup>Yong-Beom Park, <sup>8</sup>Sung-Hwan Park, <sup>9</sup>Sang-Cheol Bae, <sup>9</sup>Chang Hee Suh, <sup>8</sup>Yoon-Kyung Sung, <sup>10</sup>Shin-Seok Lee, <sup>6</sup>Chang-Keun Lee, <sup>8</sup>Hye-Soon Lee, <sup>11</sup>Seung Min Jung, <sup>12</sup>Hoon-Suk Cha. <sup>1</sup>Internal medicine, Daegu catholic university school of medicine, Republic of Korea; <sup>2</sup>Rheumatology, Daejeon Rheumatoid and Degenerative Arthritis Center, Chungnam National University Hospital, Republic of Korea; <sup>3</sup>Internal medicine, Ewha Womans University Medical Center, Republic of Korea; <sup>4</sup>Rheumatology, Korea University College of Medicine, Republic of Korea; <sup>5</sup>Internal medicine, Seoul Saint-Mary's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea; <sup>6</sup>Rheumatology, Asan Medical Center, University of Ulsan College of Medicine, Republic of Korea; <sup>7</sup>Internal medicine, Institute for Immunology and Immunologic Disease, Yonsei University College of Medicine, Republic of Korea; <sup>8</sup>Rheumatology, Hanyang University Hospital for Rheumatic Diseases and Hanyang University Institute for Rheumatology, Republic of Korea; <sup>9</sup>Rheumatology, Ajou University Hospital, Republic of Korea; <sup>10</sup>Internal medicine, Chonnam National University Medical School and Hospital, Republic of Korea; <sup>11</sup>Internal medicine, St. Vincent's Hospital, College of Medicine, The Catholic University of Korea, Republic of Korea; <sup>12</sup>Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Republic of Korea

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**Background** Vaccines are widely credited for their role in reducing the incidence and the severity of various infections. The aim of the COVID-19 and Influenza Vaccine In Lupus (CIVIL) study was to compare the perception and safety profile between COVID-19 vaccine and influenza vaccine in Korean patients with systemic lupus erythematosus (SLE).

**Methods** We conducted a cross-sectional study based on a 34-question web-based survey on COVID-19 and influenza vaccination in 207 confirmed SLE patients. Patients were recruited from 12 academic hospitals affiliated with Korean society of SLE research (KSSR) from DEC 2022 to JAN 2023. The primary outcome was the perception of patients and physicians on the vaccines, and the occurrence of side effects including flare.

**Results** 94.1% of two hundred respondents were females aged in 20's (19.8%), 30's (24.3%), 40's (27.7%), 50's (16.8%), and 52% was treated more than 10 years. More than 50% of patients were in stable condition for recent 6 months (below 20mm in 100mm visual analogue scale with lower than 10mg prednisolone equivalent dose). COVID-19 vaccine and influenza vaccine were completed in 77.7% and 87.6% of SLE patients, respectively. Reasons for willing not vaccinated included fear of lupus flare (56.3% vs 24.5%), worried about side effects (52.1% vs 26.6%), and not recommended from physicians (35.4% vs 7.4%) on COVID-19 and influenza vaccines, respectively. Adverse events (AEs) occurred much higher in COVID-19 vaccine (65.8%) than influenza vaccine (12.4%). However, only 4.4% of patients experiencing AEs from COVID-19 vaccine required hospitalization. Most common AEs were pain/redness on injection site, myalgia and/or arthralgia, fatigue, febrile sense. 10.3% of patients taking COVID-19 vaccine experienced lupus flare (arthralgia, skin rash, hair loss, and deterioration of proteinuria/laboratory parameter), which lead to medication change or hospitalization.

**Conclusions** COVID-19 vaccine has a worse perception and higher adverse events compared to influenza vaccine in Korean SLE patients.

#### LSO-109 CHARACTERISTICS ASSOCIATED WITH POOR COVID-19 OUTCOMES IN PEOPLE WITH RHEUMATIC DISEASE: DATA FROM ONE SINGLE CENTER FROM CHINA

Haihong Yao\*. *Rheumatology and Immunology, Peking University People's Hospital, China*

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**Background** To investigate factors associated with severe COVID-19 in people with rheumatic disease.

**Methods** Demographic data, clinical and laboratory characteristics and COVID-19 outcome severity of adults with rheumatic disease were collected from a single center in China from December 10, 2022 to January 31, 2023. A three-point ordinal COVID-19 severity scale was used to measure the severity of the disease. Multivariable ordinal logistic regression was used to estimate the odds ratios.

**Results** A total of 190 cases were included in the study. The most common rheumatic diseases were systemic lupus erythematosus (33.5%), rheumatoid arthritis (31.02%), Sjögren's syndrome (10.7%), systemic sclerosis (6.42%), idiopathic inflammatory myopathy (5.88%), and vasculitis (8%). More than half of the cases (52.3%) were hospitalized, and 12 (6.3%) died. Over 60% of patients were on a stable stage of disease, and more than 18% were on biologics. Additionally, over 60% had not been vaccinated against COVID-19. The mortality rate for those without the COVID-19 vaccine is significantly higher than for those who have been vaccinated (9.5% vs.1.4%,  $P=0.03$ ). Patients with pneumonia who died had significantly lower levels of lymphocytes than those who survived ( $0.45 \pm 0.07 \times$

$10^9/L$  vs.  $(0.99 \pm 0.12) \times 10^9/L$ ,  $P=0.01$ ). Logistic regression analysis also revealed that older age, lymphopenia was associated with more severe COVID-19.

**Conclusions** Older age, low lymphocyte levels and no vaccination are risk factors for severe disease in COVID 19 in rheumatic diseases.