Squibb, Celgene, Eli Lilly, Janssen, Merck Sharp & Dohme, Novartis, Sanofi, UCB, Roche, Pfizer, Florenzo Iannone Consultant of: Speaker and consulting fees from AbbVie, Eli Lilly, Novartis, Pfizer, Roche, Sanofi, UCB, MSD, Speakers bureau: Speaker and consulting fees from AbbVie, Eli Lilly, Novartis, Pfizer, Roche, Sanofi, UCB, MSD

DOI: 10.1136/annrheumdis-2020-eular.6428

FRI0231

TREATMENT OF DIGITAL ULCERS IN PATIENTS WITH SYSTEMIC SCLEROSIS: PROSPECTIVE COHORT STUDY

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Background: Digital ulcer (DU) is a common clinical manifestation in patients with systemic sclerosis (SSc). About 70% of patients with SSc experience DUs during the first 10 years, which limit daily activities and may result in digital gangrene or amputation. Several vasoactive/vasodilating agents have been suggested for treatment, but few studies have compared the efficacy of those drugs.

Objectives: The objective of our study was to compare the efficacy of medical treatment for SSc related-DUs, focusing on endothelin receptor antagonist (ERA) and phosphodiesterase-5 inhibitors (PDE5inh).

Methods: In this prospective observational cohort study, we recruited patients who had one or more active SSc-related DUs and newly started or changed a medical treatment for SSc-related DUs from 13 medical centers in South Korea. The primary outcome was to compare the time to resolution of cardinal DU (CU) according to the treatments. The secondary outcomes included changes in the size or number of CU and changes in the number of DUs. CU was defined as the most clinically significant DU chosen by the investigators. Patients were followed up at every 4 weeks after enrollment until 12 weeks and finally at 24 weeks.

Results: Seventy-one patients were enrolled. Seven patients were excluded due to follow-up loss or withdrawal of consent. A total of 64 patients were analyzed. Seventy-eight percent (n=50) were female. The mean age at enrollment was 49.6 ± 11.6 year-old, and the mean disease duration was 7.1 ± 5.9 years. Twenty-eight patients (43.8%) were limited SSc. Forty-nine patients (n=76.6%) started ERA treatment (bosentan=49). Eleven patients (17.2%) started PDE5inh treatment (n=9 for sildenafil, n=1 for udenafil, and n=1 for tadalafil). Four patients who started medication other than ERA or PDE5inh classified as other treatment groups. Seventeen patients (26.6%) were on background calcium channel blockers (CCBs). CU healed in 25 patients (39.1%) at 12 weeks and 43 patients (67.2%) at 24 weeks. The mean time to heal CUs were 54.4 ± 22.7 days at 12 weeks and 91.6 ± 49.2 days at 24 weeks. Time to heal CU was comparable among patients on ERA, PDE5inh, and others (p=0.53, figure 1). The CU area was comparable among the three groups at baseline, 12, and 24 weeks. The mean area of CU in patients on ERA at baseline at 12, and 24 weeks was 21.3±19.4 mm², 8.2±14.6 mm², and 4.6±7.7 mm², respectively. The mean area of CU in patients with PDE5inh at baseline at 12, and 24 weeks was 26.2±28.1 mm², 3.5±3.6 mm², and 1.3±4.3 mm². New DUs developed in 4 patients (8.3%) in ERA, whereas 4 patients (40.0%) in PDE5inh at 4 weeks. The use of ERA was significantly associated with less new DUs development than the use of PDE5inh at 4 weeks follow-up (RR for developing new DU patients on ERA, 0.21; 95% CI 0.06-0.70; p=0.02) At 24 weeks follow-up, none of the patients on CCB developed new DUs.

Conclusion: The time to heal CU for ERA and PDE5inh users was comparable in the current study. ERA treatment was associated with reduced new DU occurrence compared with PDE5inh treatment. None of the patients with CCB treatment developed new DU development at 24 weeks.

Acknowledgments: This study was supported by Handok Pharmaceutical Inc., Seoul, Republic of Korea.

Disclosure of Interests: Sung Hae Chang: None declared, Jae-Bum Jun Grant/research support from: Clinical trials; Corbus, JW Pharmaceutical, Speakers bureau: SK Chemical, Yun Jong Lee: None declared, Tae Young Kang: None declared, Yongbeom Park: None declared, Seung-Geun Lee: None declared, Shin-Seok Lee: None declared, Eun Bong Lee: None declared

DOI: 10.1136/annrheumdis-2020-eular.3684

Figure 1

FRI0232

ALTERED FIBRIN CLOT PROPERTIES IN PATIENTS WITH SYSTEMIC SCLEROSIS

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Background: Vasculopathy in Systemic sclerosis (SSc) is connected with the activation of coagulation. However, the fibrinolytic activity still remains unclear since the most preliminary evidences are discordant (1, 2).

Objectives: To assess the haemostatic function, fibrin clot density and clot lysis time in SSc patients and healthy controls (HC) to determine their relation to disease findings.

Methods: Patients who fulfilled the 2013 ACR/EULAR SSc criteria and have never been treated with endothelin receptor antagonist, phosphodiesterase 5 inhibitors or prostanoids were eligible. Our study included 58 SSc patients [36 limited (lcSSc) and 22 diffuse cutaneous SSc (dcSSc)] and 46 sex/age-matched HC. Clinical evaluation of patients was performed, including high-resolution CT (HRCT), pulmonary function tests and the revised EUSTAR activity index. The interstitial lung disease (ILD) group (n = 15) was defined as moderate or severe changes on HRCT, with a forced vital capacity (FVC) < 85% predicted, without evidence of significant pulmonary arterial hypertension. The serum concentration of ICAM1 and von Willebrand factor antigen (VWF) were measured by ELISA. Haemostatic potential parameters; including overall haemostasis (OHP), overall coagulation (OCP) and overall fibrinolysis (OFF) potential, were assessed and endogenous thrombin potential (ETP) was determined. Maximum absorbance (Cmax), reflects the fibrin clot density and clot lysis time (Lys50t0), reflects fibrinolytic susceptibility, were calculated from OHP and OCP curves (3). Fibrin structure was visualised using scanning electron microscopy (SEM).

Results: The OFF value was significantly decreased, Lys50t0 prolonged (p<0.05), while OHP and ETP were increased (p<0.05) in patients. In dcSSc group ETP, OHP, Cmax and Lys50t0 were higher compared to HC (p<0.05). In SSc group, a positive association was found between coagulation parameters (OCP, OHP, Cmax) and the erythrocyte sedimentation rate (ESR), fibrinogen and ICAM1 (respectively p<0.05). Lys50t0 was positively correlated with ICAM1, ESR and VWF (respectively p<0.001, p<0.05, p<0.05). An inverse correlation was found between Cmax and both the diffusing capacity of the lungs for carbon monoxide (r=-0.408, p<0.01) and FVC (r=-0.318, p<0.01). Increased Cmax was found in ILD respect to HC (p<0.01). Denser plasma clot was associated with active disease (p<0.01). Longer Lys50t0 was observed in pitting scars group (p<0.01). Prolonged Lys50t0 was independently predicted by ICAM1 (OR 1.12, 95% CI 1.03-1.2, p<0.01).

Conclusion: Our results provide evidences of denser plasma fibrin clot among patients with lung involvement and impaired fibrinolysis, selectively presented among SSc patients with pitting scars. Thus, these patients might be at risk for thrombotic complications. Raised ICAM-1 levels could reflect impaired fibrinolysis, giving insight the important role of this molecule in endothelial homeostasis.

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