and SSc pts with interstitial lung disease (ILD) and high systolic pulmonary artery pressure (PAP). A linear negative correlation between the high hybrid M1/M2 cell percentage and diffusing capacity of the lungs for carbon monoxide (DLCO)% and the forced vital capacity (FVC)/DLCO ratio higher than 1.5 was observed. No significant correlations were reported with SSc duration, other treatments, NVC patterns, renal artery resistive index, heart and kidney involvements, digital ulcers, telangiectasias, calcinosis.
Conclusion: The study identified a circulating cell population expressing both M1 and M2 surface markers, which is increased together with circulating M2 cells in SSc pts, in particular affected by ILD and high PAP, suggesting their possible involvement in the pathogenesis of those disease complications. Further evaluations are in progress.

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Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.6748

THU0349 AUTOLOGOUS FAT GRAFTING IN THE TREATMENT OF PATIENTS WITH SYSTEMIC SCLEROSIS: CURRENT EXPERIENCE AND FUTURE PROSPECTS

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Background: Systemic Sclerosis (SSc) is a connective tissue disease, characterized by endothelial dysfunction and fibrosis, potentially affecting internal organs and reducing life expectancy. Digital ulcers (DUs), as well as hand and face skin thickening, are the hallmarks of the disease. These alterations lead to pain, functional impairment, aesthetic damages, and psychological distress. Autologous fat grafting (AFG) is a surgical technique used also to promote tissue regeneration. In the last decade, AFG has been successfully developed to treat clinical conditions characterized by skin atrophy or fibrosis. AFG composition of multipotent cells, carrying angiogenic, and immunogenic properties, may be able to restore the damaged tissues.
Objectives: Evaluate our experience with AFG to treat and prevent damage and disability due to DUs and SSc skin complications.
Methods: We analyzed 25 SSc patients, extrapolated from a larger series of 45 subjects, complaining about mouth and/or hand impairment, due to skin involvement, and, in some cases, long-lasting DUs (M/F 6/19, mean age 55.69±9.25-SD-years, mean disease duration 184.68±121.09-SD-months, L/D cutaneous subsets 21/4). Surgical procedures consisted in the injection of centrifuged and purified autologous fat, harvested from hips or abdomen. 2ml of fat were grafted in each of the 8 sites around the mouth, while 0.5 or 1 ml around the neurovascular bundle at the base of each finger. The study included: preoperative data collection; 2 or 3 surgical sessions at a distance of 6 months one from the other; data collection at 3 months after each surgical session; data collection at 3 and 6 months of follow up-FU after the last surgical procedure. Data collection consisted of clinic-serological SSc features and clinimetric measures about hand and mouth, if present DUs were assessed as well. Furthermore, patients were asked to fill in questionnaires in order to express their level of satisfaction with hand and mouth functionality.
Results: Overall 63 surgical procedures were performed. After 1 to 3 procedures, patients reported an improvement of perioral skin tension (p=0.0238) and a reduced dry mouth feeling (p=0.0269). Similarly, patients stated an improvement of hands tension (p=0.0037). Furthermore, we observed a complete healing of DUs in 8/9 patients (p=0.0297). These positive clinical changes were mirrored by a subjective amelioration. In particular, pain decreased, evaluated by short-form McGill Pain Questionnaire (SF-MPQ), scrutinizing sensory (p=0.3340) and affective (p=0.2234) descriptors. The perception of disability improved too, showing an amelioration trend in Health Assessment Questionnaire-HAQ (p=0.4301) and Mouth Handicap in Systemic Sclerosis scale-MHISS-(p=0.9775).
Conclusion: Our results confirm the potential efficacy of AFG to treat SSc skin complications and DUs. We reported an almost complete healing of DUs and a promising improvement of skin thickness and hardness both at hands and mouth, with good safety profiles. These clinical results were reflected by the subjective improvement of patients' well-being. Population enlargement and extended FU is ongoing to identify more responsive SSc subsets. Long term results with soft tissue biopsies will give us further data to finally evaluate the efficacy of this approach that aims to improve the care and quality of life of our SSc patients.
Disclosure of Interests: None declared
DOI: 10.1136/annrheumdis-2019-eular.5623

THU0350 ANTI-INFLAMMATORY AND ANTI-FIBROTIC EFFECTS OF INTRAVENOUS ADIPOSE-DERIVED STEM CELL TRANSPLANTATION IN A MOUSE MODEL OF BLEOMYCIN-INDUCED SCLERODERMA

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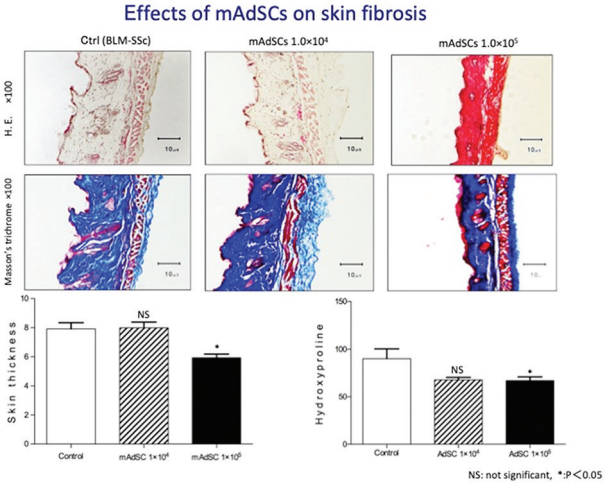
Background: Systemic sclerosis (SSc) is a systemic autoimmune disease characterized by microvascular damages and fibrosis. The main lesions of SSc are peripheral circulation insufficiency, sclerodermia, and interstitial pneumonia. Skin lesions are related to patient's ADL and QOL, however there is no effective treatment for normalizing the disease state. Adipose-derived stem cells (AdSCs) have recently been considered a useful treatment tool for autoimmune disease because of their anti-inflammatory and immunosuppressive effects (ref).
Objectives: We investigated the therapeutic effect of intravenous mouse AdSCs (mAdSCs) transplantation in a SSc mouse model.
Methods: SSc was induced by bleomycin (BLM) in Balb/c mice, and the mice were assigned in the following groups: 1. Control (BLM-SSc), 2. mAdSCs (1.0×10^4 cells), 3. mAdSCs (1.0×10^5 cells). After the administration of BLM, mAdSCs were injected via a tail vein on day 7. The mice were sacrificed at 14 days after mAdSCs injection, and the skins were harvested for histological analysis.
Results: In mAdSCs (1.0×10^5 cells) group, thickening of skin, hydroxyproline content, infiltration of inflammatory cells, gene expression of inflammatory cytokines, and fibrotic factors were significantly reduced compared with control group (Figure). But in mAdSCs (1.0×10^4 cells) group, there were no reduction of them. mAdSCs did not accumulate in skin. The levels of MMP-2, MMP-9, and COL1A1 mRNA expression at 21 days after BLM administration were significantly lower in mAdSCs (1.0×10^5 cells) group compared with those in control group.



Abstract THU0350 – Figure 1

Conclusion: Intravenous mAdSCs inhibited both skin inflammation and fibrosis of BLM-SSc mice in a dose-dependent manner.

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Acknowledgement: This study was supported by Grants-in-Aid for Scientific Research-KAKENHI- of Japan (Young Scientists B; 17K15761, 17K16216).