Results: Among 72 (66 female) patients, mean (SD) age was 57.1 (11.1) years, modified Rodnan skin score 10.6 (10.5), SHAQ 0.64 (0.61) and 6MW distance 473.5 (85.5) m. Mean BHT time was 35.05 (14.90) sec at the first time, 39.92 (16.14) sec at the second time, and 41.11 (17.71) sec at the third time. The BHT time showed a statistically significant negative correlation with Borg scale (pre-test, r = -0.336, p = 0.002; post-test, r = -0.252, p = 0.034; Figure 1 and Table 1), while 6MW showed a negative correlation with only post-test Borg scale (pre-test, r = -0.113 p = 0.343; post-test, r = -0.351 p = 0.002; Table 1). The BHT time was positively correlated with DLCO (%), r = 0.409, p < 0.001 and FVC (litters, r = 0.402, p < 0.001) (Table 1). We also found a statistically significant correlation between BHT time and SHAQ score (r = 0.451, p < 0.001; Table 1). However, EF and PASP by TTE showed no significant relationship with BHT time (EF, r = -0.108, p = 0.374; PASP, r = -0.246, p = 0.054; Table 1).

Figure 1. Association of Borg dyspnea scale with breath-holding time.

Table 1. Pearson’s correlation coefficients (r) for the relation between BHT and clinical parameters in comparison to 6MW.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pre-test Borg scale</th>
<th>Post-test Borg scale</th>
<th>DLCO (%)</th>
<th>FVC (%)</th>
<th>FVC (L)</th>
<th>FVC (L)</th>
<th>EF</th>
<th>PASP</th>
<th>SHAO (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHT (sec)</td>
<td>-0.366*</td>
<td>-0.252</td>
<td>0.409</td>
<td>0.019</td>
<td>-0.244</td>
<td>-0.108</td>
<td>-0.246</td>
<td>-0.451*</td>
<td></td>
</tr>
<tr>
<td>6MW (m)</td>
<td>-0.113</td>
<td>-0.351</td>
<td>0.297</td>
<td>0.321</td>
<td>0.063</td>
<td>-0.250</td>
<td>0.137</td>
<td>-0.354</td>
<td>-0.531*</td>
</tr>
</tbody>
</table>

Conclusion: The BHT is a simple, safe, and less time-consuming test, reflective of pulmonary parameters and SHAQ, as compared with 6MW. Our results suggest that the BHT might be a useful surrogate marker of cardiopulmonary capacity in SSc patients.

REFERENCES:

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Background: Although interstitial lung disease (ILD) occurs in the majority of patients with systemic sclerosis (SSc), treatment options for this manifestation is empirical and at present consists of Cyclophosphamide (CyP) or Mycophenolate Mofetil (MMF). However, the immunosuppressants (IS) use leads to rather limited improvement of ILD and is associated with many adverse reactions. The search for novel, more efficacious agents has been continued, such as attracting much attention RTM. However, the limited number of RTM-treated patients, considerably different dose regimens, cumulative doses, and observation periods does not allow univocal conclusions on RTM efficacy or definitive recommendations on RTM use in the patients with SSc.

Objectives: To compare the impact of IS and RTM a single-agent therapy on SSc clinical manifestation and activity, and the safety of these agents in the open-label prospective non-randomized study.

Methods: 116 patients with the confirmed SSc diagnosis and ILD evidence based on MSCT findings were enrolled into the study. All patients received low and moderate-dose glucocorticoids regimens. Group A (n=35) received RTM as a single therapy agent for 13.3±2.3 months at total dose 1.35±0.5g (the patient’s average age was 45.0±15 years, with female proportion 80%; SSc duration 6.3±2.3 years; diffused/localized forms 1/3/1). Group B (n=36) received paren-teral CyP for 12±6 months at total dose 10.6±5g (the average age 47±12 years, females 92%, SSc duration 5.0±4.8 years; diffused/localized forms 1/3/1). The time courses of FVC, modified skin count (mRss, points), activity index (ESC-SG, points) were assessed into the study.

Results: In Groups A, B and C the therapy was associated with significant decreases in mRss (p=0.002, 0.007, respectively) and ESC-SG (p=0.00007, 0.000165, 0.01, respectively).

Evaluation of FVC time course revealed significant FVC increase only in Groups A (p=0.002) and B (p=0.034), with median increase about 5%. In Groups A and B 10% FVC increase was found in the third of the patients thus exceeding respective parameter twice in Group C (p=0.15 and 0.008, respectively). The patient percentage with FVC decrease by ≥10% did not differ significantly between groups.

The therapy was better tolerated in RTM-treated group: during RTM therapy adverse reactions emerged in lower proportion of the patients (4/11%) compared with CyP (19/53%, p=0.0000) and MMF-treated group (12/27%, p=0.05).

Conclusion: All agents effectively alleviated skin induration and ESC-SG, but only RTM and CyP significantly improved FVC. The RTM single therapy was better tolerated compared to IS. The study findings substantiate potential use of RTM single therapy both as a first-line agent for ILD treatment in the patients with a progressive course of ILD damage SSc, and in the event of CyP inefficacy of poor tolerability. The MMF use is more preferable in patients with less pronounced ILD.

Disclosure of Interests: None declared.

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POTENTIAL EFFICACY PREDICTORS OF ANTI-B-CELL THERAPY IN THE PATIENTS WITH SYSTEMIC SCLEROSIS ASSOCIATED WITH INTERSTITIAL LUNG DISEASE

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Background: Rituximab (RTM) is considered as a promising therapeutic agent for treatment of With Interstitial Lung Disease (ILD) in the patients with systemic sclerosis (SSc). However, the limited number of RTM-treated patients, considerably...
varying dose regimens, cumulative doses and observation periods, lack of data on potential predictors of RTM therapy response do not allow univocal conclusions on RTM efficacy or definitive recommendations on RTM use in the patients with SSc.

Objectives: To investigate an ferroptosis-related multiple gene expression signature for classification by assessing the global gene expression profile, and calculate the lymphocyte T cells status in the different subsets.

Methods: Gene expression profiles of skeletal muscle from DM samples were acquired from GEO database. GSE133233 (30 patients and 20 HCs) was selected as the training set. The GSE3307 contained 21 DM patients and was selected as the validation set. The 60 ferroptosis genes training data was used to construct the ssGSEA scores of gene sets between the high risk and low risk group. The statistical software package R (version 4.0.3) was used for all analyses.

Results: We selected 54 significant G-Ferroptosis genes for further analysis in training set. There were 2 distinct subtypes (high-ferroptosis-score groups and low-ferroptosis-score groups) identified in G-Ferroptosis genes cohort which were also identified in validation datasets (Fig1A, C, D). Metalloncin E1G (MT1G) was a characteristic gene of low-ferroptosis-score group. The characteristic genes of high-ferroptosis-score group were acyl-CoA synthetase family member 2 (ACSF2) and aconitase 1 (ACO1) (Fig1B). Patients in high-ferroptosis-score group had a lower level of Tregs compared with that of low-ferroptosis-score patients in both training and validation set (P < 0.05, Fig1E).

Conclusion: The biological process of ferroptosis is associated with the lever of Tregs, suggesting the process of ferroptosis may be involved in the disease progression of DM. Identifying ferroptosis-related features for DM might provide a new idea for clinical treatment.

REFERENCES:


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