Correlations of Objective Ratings of Respiratory Function with Traditional Measures of Parenchymal Lung Disease in Systemic Sclerosis (SSc) Patients with Interstitial Lung Disease.

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Abstract

Background

Several physiological and subjective measures exist for the measurement of pulmonary involvement in SSc. The utility of these outcome measures has not been fully established. This study compared several objective and subjective outcome measures of lung disease with results from 6MWT data in a select sample of SSc-ILD patients.

Methods and Patients

163 patients with SSc-ILD participated in a multi-center, randomized double-blind clinical trial. Baseline data is presented for the subgroup of 86 patients whom were randomized to the placebo group. Data gathered included: 6MWT, FVC, DLco, Modified Rodnan Skin Score, Borg dyspnea, Mahler, and SHAQ-DI. 39 (45.3%) had limited and 47 (54.7%) diffuse SSc. 64 (74.4%) were female. Mean age was 54.5 y ± 11 and disease duration 5.2 ± 6.6. Mean distance walked was 404.85m (SD 86.3m).

Results

(See table)

Conclusions

All correlations between 6MWT and other measures in this study were significant with the exception of DLco. Correlations between 6MWT and other measures were low to moderate. Highest correlations were found with the SHAQ-DI. Most variables which correlated with Borg also correlated with measures from Mahler. Mahler has only been partially validated for use in SSc-ILD and given the higher complexity of its administration one can argue for the use of the Borg which is easily completed by patients. The SHAQ-DI and its various subscales and VAS correlate as expected highly with each other.

Conclusions continued

This functional outcome measure correlated as high or higher with measures of lung functioning than do the physiologic lung measures. It has been reported elsewhere that dyspena ratings, which are subjective measures, do not correlate well with results of pulmonary function.

Introduction

- Physiological and subjective measures are available for the measurement of pulmonary involvement in SSc.

- Utility of these measures is relatively unknown

- Goal of this subanalyses is the comparison of several objective and subjective outcome measures of lung disease with results from 6MWT in SSc-ILD patients.

Methods

Subjects

- 86 patients with diagnosis of SSc by ACR classification criteria and Interstitial Lung Disease (ILD).

- Patients participated in a multicenter trial and were assigned to placebo.

- Baseline data

- Patient characteristics:
  - 39 (45.3%) with limited and 47 (54.7%) with diffuse SSc
  - Age: 54.5 y ±11
  - Gender: 64 (74.4%) females
  - Duration of Disease : 5.2 y ± 6.6

Clincal Disease Data:
1) 6 MWT
2) FVC, DLco
3) Skin Score

Survey Instruments
- SHAQ
- SF-36
- Mahler
- Borg Dyspnea

Results

Selected Correlations between Physiologic and Subjective Measures of Lung Disease

	6MWT	FVC	DLCO	Borg	BDI	SHAQ-DI	SA	SW	VAS	VASLung
6MWT	1	.26*	.20	-.29**	.42**	-.48**	-.45**	-.33**	-.35**	-.30**
FVC		1	.17	-.036	.28*	-.22*	-.24*	-.16	-.25*	-.28*
DLCO			1	-.25*	.32**	-.36**	-.36**	-.20	-.22*	-.26*
BORG				1	-.29**	.39**	.41**	.38**	.36**	.44**
BDI-Focal					1	-.52**	-.58**	-.51**	-.61**	-.52**
SHAQ-DI						1	.87**	.63**	.67**	.54**
SHAQ-Activity							1	.51**	.64**	.56**
SHAQ-Walking								1	.65**	.57**
VAS Severity									1	.83**
VAS Breath										1

*P ≤ .01 (2-tailed), ** P ≤ .05 level (2-tailed)

Conclusions

6 Minute Walk Test:

- Correlated significantly with all measures in this study with the exception of DLco.

- Correlations were mostly moderate to low.

- Highest correlation was found with SHAQ-DI.

SHAQ-DI:

- Correlated highly with its various subscales and VAS.

- Correlated as high or higher with measures of lung functioning as the physiologic lung measures.

- Others have reported that dyspnea ratings (subjective ratings) do not correlate well with results of pulmonay function.

Borg/Mahler:

- Most variables which correlated with Mahler also correlated with Borg.

- Given these findings, the partial validation of Mahler in SSc-ILD, and its higher complexity one could suggest the use of Borg over Mahler in clinical studies.