



Influences of Clinical Features of Systemic Sclerosis (SSc) on the Michigan Hand Questionnaire (MHQ)

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Abstract

Rationale

Domains of SSc hand impairment include digital ulcers, skin thickening, tendon/joint involvement and atrophy. The MHQ is a 37-item hand-specific outcomes questionnaire with 6 subscales: overall hand function, activities of daily living (ADL), pain, work performance, aesthetics, and patient satisfaction with hand function. MHQ is highly validated in rheumatoid arthritis (RA). We have shown reliability and validity in SSc. We examine the influence of SSc hand features on the MHQ.

Methods and Patients

94 ambulatory SSc patients, 47 with limited and 47 with diffuse disease, completed MHQ along with SF36 and SHAQ. 81 (86%) were female. Mean age was 51 y ± 12 and disease duration 7y ± 7. SSc patients were subgrouped by disease features into 1) tendon involvement (palpable tendon friction rubs/impaired fist closure) 2) digital tip ulcerations 3) upper extremity skin score (fingers, hands, forearms; 0-3 per area, range 0-18), and 4) disease classification.

Results

(See table)

Conclusions

Digital ulcers and skin thickening had minimal impact whereas tendon involvement dominated patient ratings of hand function. No significant correlations were found between number of digital ulcers and MHQ, MHQ subscales, SHAQ or SF36 for all patients and diffuse SSc patients. Tendon involvement correlated with several MHQ scales in the total patient sample and both SSc groups. These observations are consistent with clinical studies of digital ulcers wherein neither SHAQ nor other hand functional tools have been shown to be sensitive to change. MHQ is a valid and reliable measure of hand function in SSc although sensitivity to change has not been assessed. Occupational therapy focused on fist closure and tendonitis would be predicted to influence hand function whereas future studies of digital ulcers and skin involvement will require more specific instruments.

Introduction

- Hand function impairment is universal in SSc
- MHQ is a 37-item hand function outcome questionnaire with 6 subscales:
 - Overall Hand Function
 - Activities of Daily Living
 - Pain
 - Work Performance
 - Aesthetics
 - Patient Satisfaction with Hand Function
- MHQ has been validated for arthritis and SSc

Methods

Subjects

- 94 patients with diagnosis of SSc by ACR classification criteria
- Patient characteristics:
 - 47 patients with limited and 47 with diffuse SSc
 - Age: 51 y ± 12
 - Gender: 81 (86%) females
 - Duration of Disease : 7 y ± 7

Disease Characteristics Grouping

- 1) tendon involvement: palpable tendon friction rubs/impaired fist closure
- 2) digital tip ulcerations
- 3) upper extremity skin score: fingers, hands, forearms; 0-3 per area, range 0-18
- 4) disease classification: Limited vs. Diffuse

Instruments

- SHAQ
- SF-36
- MHQ

Example Question MHQ

Instructions: This survey asks for your views about your hands and your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

Answer **EVERY** question by marking the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. The following questions refer to the function of your hand(s)/wrist(s) *during the past week*. (Please circle one answer for each question). Please answer **EVERY** question, even if you do not experience any problems with the hand and/or wrist.

A. The following questions refer to your **right** hand/wrist.

	Very Good	Good	Fair	Poor	Very Poor
1. Overall, how well did your right hand work?	1	2	3	4	5
2. How well did your right fingers move?	1	2	3	4	5
3. How well did your right wrist move?	1	2	3	4	5
4. How was the strength in your right hand?	1	2	3	4	5
5. How was the sensation (feeling) in your right hand?	1	2	3	4	5

Results

Spearman's Correlations for the MHQ, SHAQ, and Domains of Scleroderma Hand Function

	Skin Score			Digital Ulcers			Tendon Involvement		
	Combined	Limited	Diffuse	Combined	Limited	Diffuse	Combined	Limited	Diffuse
MHQ Combined	-.35§	-.15 NS	-.36¶	-.08 NS	-.11 NS	.03 NS	-.52*	-.40±	-.57*
Overall Hand Function	-.34±	-.21 NS	-.31¶	.01 NS	.02 NS	.03 NS	-.51*	-.46±	-.48±
Activities of Daily Living	-.34±	-.01 NS	-.26 NS	-.05 NS	-.02 NS	-.06 NS	-.47*	-.30¶	-.44±
Pain +	.21 NS	.11 NS	.19 NS	.19 NS	.23 NS	.15 NS	.36§	.30 NS	.42±
Aesthetics	-.25¶	-.16 NS	-.30 NS	-.12 NS	-.14 NS	.07 NS	-.35§	-.34¶	-.38¶
Work Performance	-.27¶	-.15 NS	-.39¶	-.02 NS	-.08 NS	.06 NS	-.34±	-.29 NS	-.41±
Satisfaction Hand Function	-.34±	-.08 NS	-.36¶	-.04 NS	.00 NS	-.02 NS	-.50*	-.35¶	-.57*
SHAQ	.25¶	.10 NS	.04 NS	.03 NS	-.05 NS	.07 NS	.46*	.56§	.11 NS

Lower scores on MHQ reflect higher impairment except for MHQ Pain where higher scores reflect higher pain levels * P < 0.0001; § P ? 0.001; ± P < 0.01; ¶ P < 0.05; NS = Not Significant

Conclusions

Patient Ratings of Hand Function:

- Minimal impact of number of digital ulcers on patient ratings of hand functioning
- Minimal impact of skin thickening on patient ratings of hand functioning
- Tendon involvement dominates patient ratings of hand function

Digital Ulcers:

- In the diffuse group, no correlation was significant between number of digital ulcers and the overall MHQ score, any of the MHQ subscales, SHAQ, or SF-36

Tendon Involvement:

- Tendon involvement did correlate with several MHQ scales in the total patient sample and both SSc groups.
- These observations are consistent with clinical studies of digital ulcers wherein neither SHAQ nor other hand functional tools have been shown to be sensitive to change

References

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