VALIDITY AND RELIABILITY OF THE ITALIAN VERSION OF THE HAND MOBILITY IN SCLERODERMA (HAMIS) TEST

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BACKGROUND

• In Systemic Sclerosis (SSc), skin induration and joint and muscle involvement lead to a progressive reduction in range of motion, that is a major determinant of handicap and disability problems.
• In SSc, hand disability is frequent and mainly due to the typical flexion contractures of metacarpophalangeal joints, loss of extension of proximal interphalangeal joints, reduced motion of thumb and wrist and to arthralgias, arthritis, ulcers, calcinosis.
• Thus, specific tools reliably assessing hand-related handicap are mandatory to follow-up disease evolution and efficacy of pharmacological and rehabilitative interventions.
• Duruoz index (1) and Hand Mobility in Scleroderma (HAMIS) scale (2,3), assessing hand handicap and function, are able to also follow-up disease progression and therapy (4.5).

HAMIS scale is a hand function test specifically developed for SSc patients evaluating movements and tasks of the hand that are part of daily occupations. HAMIS scale has not been translated and validated in Italian Language.

AIM

To validate the Italian version of HAMIS, by assessing its test-retest reliability, internal and external consistency, in Italian SSc patients.

METHODS

40 SSc patients (8 dSSc, 32 lSSc; 5 men, 35 women; age and disease duration: 57.3±11.2 and 9.0±3.8, years) were evaluated by HAMIS scale, Duruoz index, fist closure, Health Assessment Questionnaire (HAQ), SF-36 summary physical (SPI), psychological (SPM), and mental index (SMI), and skin score and examined for hand arthralgias, arthritis, flexion contractures, ulcers.

• HAMIS scale consists of 9 items assessing the movements included in an ordinary range of motion test, i.e., finger flexion and extension, abduction of the thumb, dorsal extension and volar flexion of the wrist, and pronation and supination of the forearm, the ability to make a thumb pincer grip and to make finger abduction. Each exercise is graded on a 0-3 scale (0 = normal function and 3 = inability to perform the task), with a score range of 0-27 for each hand (2.3).

HAMIS was translated following a forward-backward translation procedure, with international translations to Italian and counter-translation to English, according to international methodology (6).

• Test-retest reliability was evaluated comparing the results of the 1st and 2nd administration, by intra-class correlation coefficient (ICC), internal consistency (Cronbach’s α) and external consistency was assessed by comparison with Duruoz index, fist closure, and HAQ.

RESULTS

In SSc, HAMIS scale scores for right and left hands were 7.95±6.68 and 7.5±6.6 (p<NS), respectively (table I).

For both hands, HAMIS scores were significantly higher in dSSc than in lSSc (table I).

HAMIS scale showed a good test-retest reliability (ICCs>0.7) for both hands. A good external consistency was confirmed by the correlation of right and left hand HAMIS with Duruoz index (rho: 0.8416; p: 0.0001 and rho: 0.8135; p: 0.0001, respectively), fist closure (rho: 0.8250; p: 0.0001 and rho: 0.8026; p: 0.0001, respectively), HAQ (rho: 0.5409; p: 0.0003 and rho: 0.5314; p: 0.0004, respectively).

Right and left hand HAMIS also correlated with PSI (rho: -0.3627; p: 0.0214 and rho: -0.3744; p: 0.0173, respectively) and SMI (rho: -0.3629; p: 0.0215 and rho: 0.0214 and rho: -0.3744; p: 0.0318, respectively).

Tables 2 and 3 show English and Italian MHISS version validated by us.

CONCLUSIONS

HAMIS test is developed to measure specifically hand disability in SSc patients. Our results support its validity and reliability in Italian SSc patients.

References

6) Lassere MN. Osteoarthritis Cartilage. 2006;14:303-7

Legend: HAMIS: Hand Mobility in Scleroderma scale; PSI: SF36 Physical Summary Index; SMI: SF36 Mental Summary Index.