

The combination of connective tissue massage, Kabat's technique, kinesitherapy and home exercise is helpful in face rehabilitation of Systemic Sclerosis patients

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BACKGROUND

In Systemic Sclerosis (SSc), tissue sclerosis, of both hands and face, is very frequent and can lead to important loss in mobility and functionality with a decrease in quality of life (HRQoL).

Involvement of face and oral tissues causes aesthetic changes, impairment of the self-image, due to amimic face, loss of cutaneous furrows, peri-oral wrinkling, nose sharpening, teleangectasias, microcheilia, and disability, mainly due to microstomia, in eating, speaking and oral hygiene measures [1].

Despite this, only few rehabilitative approaches on faces of SSc patients were tried. Nonsurgical management of microstomia, based on exercises of mouth-stretching and oral augmentation improved mouth opening in SSc patients [2-3]. We found that the combination of Kabat's technique, connective massage and a specific kinesitherapy program was useful for the treatment of facial involvement in a little group of SSc patients. [4].

AIM

to evaluate the efficacy of a rehabilitation program specifically tailored for SSc patients face, based on a combination of Kabat's technique, connective massage, kinesitherapy and home program of mimic exercises, compared to home mimic exercises alone

METHODS

40 SSc patients (6 males and 34 females; age and disease duration: 57.28 ± 11.33 and 9.4 ± 4.3 years) were enrolled: 20 patients (Interventional Group) were treated for 9 weeks (twice a week, 1 hour per session) with connective tissue massage (10 minutes), Kabat's technique (15 minutes), kinesitherapy (15 minutes of active, 20 minutes of relaxing exercises) and home-based mimic exercises (3 times a day) and 20 patients (Control Group) performed home exercises only. In both groups, home exercises were performed after the end of the treatment (T1) for further 9 weeks till the end of follow-up (T2), for a total duration of 18 weeks.

REHABILITATION TECHNIQUES

Connective massage is a manual technique used to treat altered connective tissues, that increases local blood flow and releases involved tissue by connective tissue stretching. We treated face, neck and clavicular regions [fig 1a-b] [5].

Kabat's method is a neurorehabilitation technique using spiral and diagonal movement patterns and stretch, resistance and other proprioceptive facilitation techniques to reinforce neuromuscular recruitment [6] by which orbicularis oris [Fig. 1c], zygomaticus [Fig. 1d], levator labii [Fig. 1e], nasalis [Fig. 1f] buccinator [Fig. 2a], frontalis [Fig. 2b-c] and corrugator [Fig. 2d] muscles were stimulated.

Kinesitherapy consisted in passive, active or assisted exercises for temporal-mandibular joint (to improve mouth opening and jaw lateralizing) [2-4]. [Fig. 2e-f] and relaxing exercises.

Home daily exercises consisted in: 1) a mouth-stretching exercise to enlarge the oral angles (5 minutes, 3 times/day); 2) an oral augmentation exercise executed by placing tongue depressors between the premolars of one arch towards the molars of the contralateral one to open the mouth; (1 or more series 8 minutes each, once a day) [Fig. 3a-c]; 3) mimic exercises (once a day), based on a series of grimaces to exercise (oro)facial muscles [2-4].

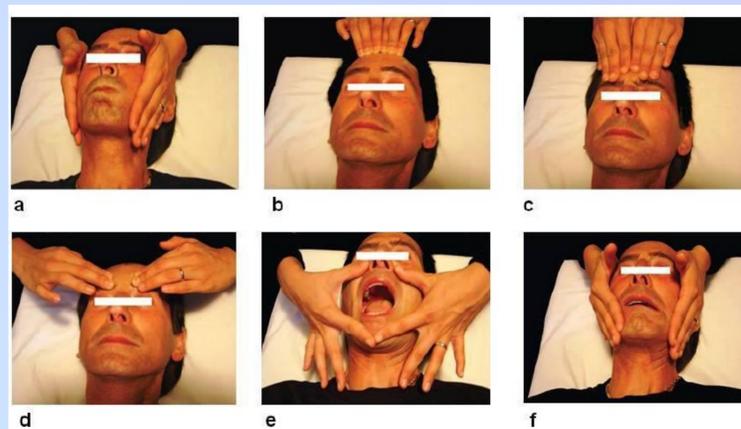


Fig. 1 connective tissue massage of the neck (a) and clavicular region (b). Kabat's technique for the orbicularis oris (c) zygomaticus (d) levator labii (e) and nasalis (f) muscles.

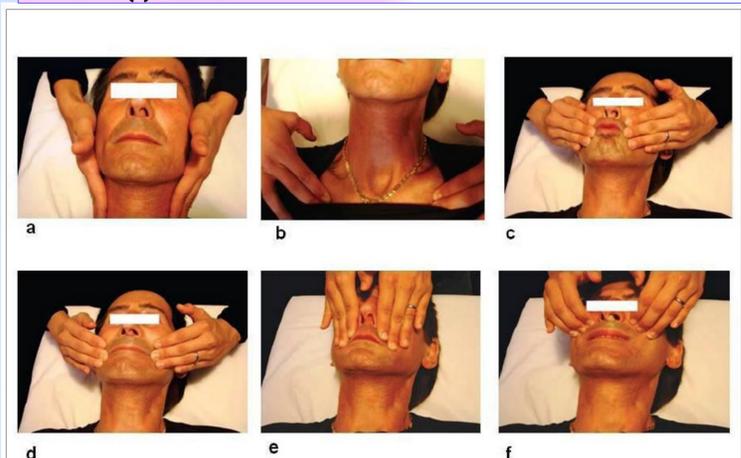


Fig. 2 Kabat's method for the involvement of buccinators (a) frontalis (b,c) and corrugators (d) muscles. Kinesitherapy for the improvement of mouth opening (e) and jaw lateralizing (f).



Fig. 3 home daily exercises: mouth stretching (a) and mimic exercises (b,c)

ASSESSMENT

•All patients were assessed at baseline (T0), at the end of the treatment (T1) and after 9 weeks of follow-up (T2)

•for HRQoL: Physical (PSI) and Mental Synthetic Index (MSI) of SF-36, HAQ disability index;

• for facial involvement: skin score (applied in 2 areas of the face, right and left cheek; total range 0-6), mouth opening (inter-incisive distance in cm; and Mouth Handicap in Systemic Sclerosis (MHISS) scale, assessing the handicap related to mouth disability in SSc, organized in 12 items (each scored 0-4, with a total score from 0 to 48). [7].

CONCLUSIONS

The combination of connective tissue massage, Kabat's technique, home exercise and kinesitherapy is more effective than a home exercise program alone in the rehabilitative treatment of SSc facial involvement.

RESULTS

Baseline characteristics were similar in patients of Interventional and Control Group (tables 1 & 2).

At T1, both groups improved in mouth opening ($p < 0.05$), but the improvement was maintained at T2 only in Interventional Group (tables 1 & 2).

In Interventional Group facial skin score ameliorated at T1, and maintained at T2 ($p < 0.05$ versus T0), while no change was observed in controls (tables 1 & 2).

MHISS scale improved significantly in Interventional group at T1 ($p < 0.001$), while no change was found in controls.

In both groups, SF-36 and HAQ were not affected by the treatment (tables 1 & 2)

Table 1. Items assessed at baseline (T0), at the end of treatment (T1) and after 9 weeks of follow-up (T2) in Interventional Group

	T0	T1	T2	T0 - T1	T0 - T2
	Mean \pm SD	Mean \pm SD	Mean \pm SD	p	p
Mouth opening (cm)	3,8 \pm 1,06	4,28 \pm 0,99	4,58 \pm 1,16	<0.05	<0.001
Skin score	3,90 \pm 1,55	1,6 \pm 0,99	1,75 \pm 1,02	<0.001	<0.001
MHISS	17,2 \pm 5,15	16,2 \pm 5,64	18,5 \pm 5,23	<0.001	NS
MSI (SF-36)	37,19 \pm 8,03	41,01 \pm 7,09	39,22 \pm 6,38	NS	NS
PSI (SF-36)	38,15 \pm 7,89	39,58 \pm 7,84	41,99 \pm 6,97	NS	NS
HAQ-DI	0,5 \pm 0,72	0,24 \pm 0,29	0,16 \pm 0,09	NS	NS

Legend: MSI =Mental Synthetic Index; PSI =Physical Synthetic Index; HAQ-DI= Health assessment questionnaire disease index; : Mouth Handicap in Systemic Sclerosis scale.

Table 2. Items assessed at baseline (T0), at the end of treatment (T1) and after 9 weeks of at follow-up (T2) in Control Group

	T0	T1	T2	T0 - T1	T0 - T2
	Mean \pm SD	Mean \pm SD	Mean \pm SD	p	p
Mouth opening (cm)	4,00 \pm 1,09	4,48 \pm 1,04	4,20 \pm 1,05	<0.001	NS
Skin score	3,55 \pm 1,43	3,15 \pm 1,63	3,35 \pm 1,18	NS	NS
MHISS	18,10 \pm 5,36	18,00 \pm 4,97	17,90 \pm 4,03	NS	NS
MSI (SF-36)	40,79 \pm 10,35	40,98 \pm 7,96	41,94 \pm 11,4	NS	NS
PSI (SF-36)	36,50 \pm 8,39	35,81 \pm 7,87	37,52 \pm 8,35	NS	NS
HAQ-DI	0,31 \pm 0,34	0,33 \pm 0,31	0,26 \pm 0,20	NS	NS

Legend: MSI =Mental Synthetic Index; PSI =Physical Synthetic Index; HAQ-DI= Health assessment questionnaire disease index; : Mouth Handicap in Systemic Sclerosis scale.

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