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Autor: Landau, M. / Rosenthal, M.

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Analgesic effects of acupuncture, TENS, and jontophoresis on tender points of «fibrositis» patients

Dr. med. M. Landau, Dr. med. M. Rosenthal

Fibrositis is an ill defined medical term which has recently been proposed to be replaced by the more accurate fibromyalgia (1). Fibromyalgia patients are classified into primary and secondary forms, according to underlying disease (1, 2, 3). No clear pathology or ethiology have so far been described in the primary from. The disorder is referred to as a syndrome, diagnosed with the aid of defined criteria (4). In spite of the various somatic and mental symptoms characteristic of the syndrome (5, 6), it is the pain around specific regions of the body, especially along the spine which bothers the patient, for which he requires medical help. Unfortunately, the pain mechanism in these conditions is poorly understood. Local muscle ischemia has recently been proposed to explain some of the observed electron-microscopic changes (7). The unsatisfactory response of fibromyalgia patients to standard analgesic and anti-inflammatory drugs evokes frustration on both parts, the patient and physician as well. Tricyclic antidepressants have been claimed to be beneficial in some patients with chronic pain (8). Current literature dealing with controlled treatment programmes are scarce.

We report our experience in an uncontrolled study with three peripherally acting pain relieving modalities, acupuncture, trans electric nerve stimulation and jontophoresis in a group of fibromyalgia patients.

Patients and methods

Patients

80 patients with fibromyalgia syndrome were included in the study, with a mean age of 39,4 years, 72 of them females. Mean duration of symptoms was 8, 7 years. None of the patients was referred to our unit with the correct diagnosis. Reference sources were family physicians (56 patients), orthopedic consultants (19 patients) and local pain clinics (5 patients). Yunus' suggested criteria were adopted for entry criteria (4). 82% had symptoms or signs consistant with spinal or peripheral osteoarthrosis. The classification of our fibromyalgia patients is subject to a separate report. We would like to mention that contrary to some reports (3), primary fibromyalgia, with no underlying rheumatic disorder, constitutes a small fragment of our fibromyalgia population. Following a complete clinical examination, relevant radiographies and standard laboratory work up, the nature of the disease was explained using a drawing with all possible tender points. The average number of tender points per patient was 8, no one having less than 5. Given informed consent, the trial was submitted and approved by the local ethics committee.

Study design

The study was conducted as an open comparative analysis. Three groups were randomly constructed, each one assigned to one of three treatment modalities: acupuncture (18 patients), transelectric nerve stimulation (30 patients) and jontophoresis (32 patients). Each type of treatment has been carried out three times a week, for three weeks. Prior to each treatment the 4 most tender points, marked by the patients on the above mentioned drawing after being examinated by one of us (M.L.), were chosen for the subsequent 3-week treatment course. This procedure was repeated one week after completing the treatment, when pain relief was assessed using a descriptive pain relief scale. The scale includes 5 grades of equidistant pain relief descriptions: no pain, considerable improvement, moderate improvement, unchanged and worse. Simple non-narcotic analgetic drugs were allowed and their daily consumption during the treatment was recorded.

Acupuncture

A physician trained in acupuncture practice with an experience of more than 20 years performed the acupuncture. Sterilized acupuncture needles were placed at alcohol cleaned sites in or near the regions of the 4 most tender points. Each session lasted about half an hour, without communication between therapist and patient concerning the procedure taking place. During acupuncture 3–4 minutes periods of manual twirling of the inserted needles were included. Additional points distant from the tender points, according to the acunpuncturist's treatment knowledge and experience, were also needled.

TENS

Transelectric nerve stimulation (TENS) was administered with a portable battery operated electrical stimulator, Neurogar (Agar Electronics, Ginosar, Israel) with a frequency of 80 Hz, pulse duration of 0,4–0,6 ms nearly square shaped bipolar pulses, constant output current. Pulse modulation of up to 50% increase of duration and 10% increase of current over periods of 0,2 sec could be freely selected. Pulse modulation was used in order to avoid habituation to the same intensity of stimulation. Silicon rubber electrodes were placed on the selected areas of the 4 most tender points. Each session lasted about half an hour.

Jontophoresis

Jontophoresis was applied to the 4 most painful tender points, as outlined above. We used the apparatus and the enzyme-placenta mixture as has been previously reported (22), namely Medialgic, Fa. Mediatronic, Geneva, Thiomucase and Optidase Lab Solac Toulouse and Placenta Lucchini, Geneva. Optimal tolerated current was used without change during half an hour, with electrode sizes adapted to the dimensions of the area treated.

Table I
Patients' Assessment of Pain Relief One Week After Completing Treatment

Treatment type		no pain (%)	considerab. improvement (%)	moderate improvement (%)	un-changed (%)	worse (%)
Acupuncture	(n=18)	5 (27,8)	7 (38,9)	4 (22,2)	1 (5,6)	1 (5,6)
TENS	(n=30)	6 (20,0)	12 (40,0)	9 (30,0)	2 (6,7)	1 (3,3)
Jontophoresis	(n=32)	5 (15,6)	14 (43,8)	12 (37,5)	1 (3,1)	0 (0,0)

Table II
Reduction of Analgesic Drug Use (%) During Treatment

Treatment type	I. week	II. week	III. week
Acupuncture	20	50	70
TENS	25	45	75
Jontophoresis	15	40	80

Results

The distribution of pain relief gardes along the descriptive scales one week after completing treatment with each of the three modalities is presented in *table I.* Pain relief was attained with all 3 methods. The majority of patients reported improvement in the range of «considerable» and «moderate» with the number of non-responders or those who became worse being negligible. The only significant different result was observed in the acupuncture group, which exhibited a more pronounced response, with no pain in 5/18 patients.
Table II demonstrates the percentage of analgesic drug reduction during the 3-week treatment course. As baseline served the individual daily number of analgetic tablets consumed by the patients prior to the study according to their own statement. It seems reasonable to assume that the gradual analgetic reduction, common to all 3 treatment types, reflects increasing degree of pain relief with subsequent treatments. Although an overall sense of well being and improved performances were not formally recorded in the study, the patients voluntary reported this tendency.

Discussion

Tender points, the hallmark of fibromyalgia syndrome, also referred to as trigger points, are considered responsible for the patient's subjective feeling of pain and disability. Wether strictly localized myofascial pathology, or referred pain based on reflex mechanisms are operative in the periphery has not yet been clarified. Local infiltration of anaesthetics, steroids and saline (9, 10), have all proved beneficial. If the source of the basic problem is a nociceptive stimulus, related to postural maladaptation or other chronic stresses functioning on critical sites in the musculoskeletal system, established peripheral acting physical tools should be of value. Indeed, acupuncture, TENS and jontophoresis have all been suggested to relieve pain temporarily in a variety of conditions (11–22). A single disease entity has rarely been studied. Fibromyalgia is very common and very distressing, the management difficult and challenging as well. The methods applied in our study are non-invasive, free of any undesired side effect, cheap and most importantly they bear the potential, especially when self applied as in the case of TENS, of considerable reduction of analgesic abuse. Controlled double blind studies are needed to evaluate each modality separately. They already exist in many pain syndromes. Fibromyalgia syndrome deserves to be investigated as an entity by itself.

Summary

The treatment of fibrositis syndrome or as it should be accurately called fibromyalgica still presents major problems since the underlying process is hardly understood. The treatment is mainly symptomatic, ans as pain represents the most pronounced symptom, many attempts were made to suppress this symptom successfully. Acupuncture, transelectric nerve stimulation (TENS) and jontophoresis with enzyme mixture were examined oin an open comparative study for their analgetic efficacy in 80 patients with this syndrom.
In most patients a significant clinical improvement was observed with all three procedures allowing a substantial traduction in concomittant intake of analgesic drugs. All three methods were comparable as to their analgetic effect allowing the choice of treatment to be according the individual preference of the patient and therapist.

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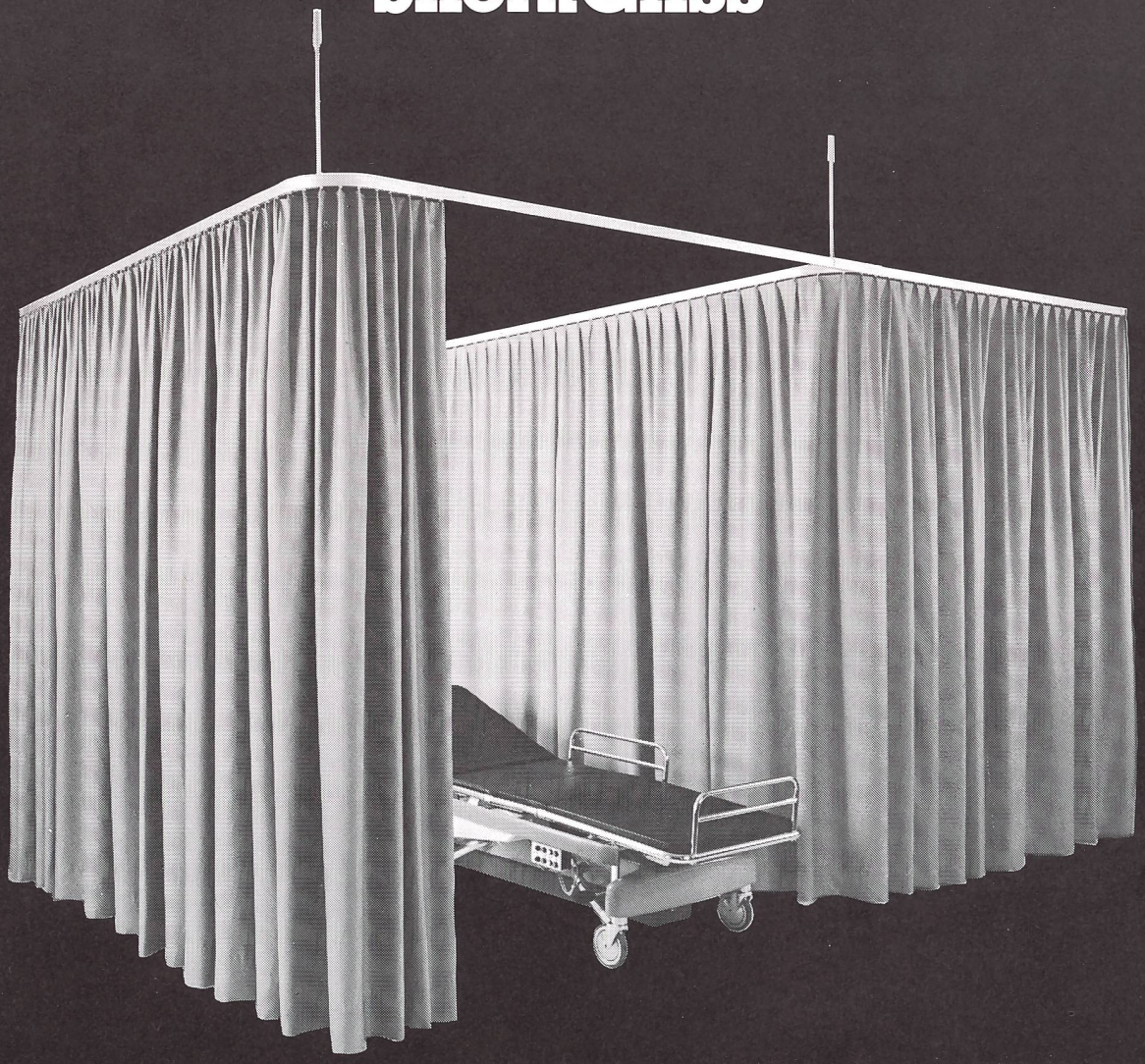

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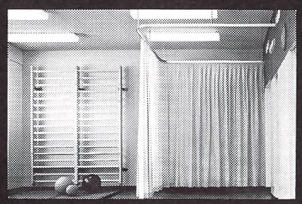

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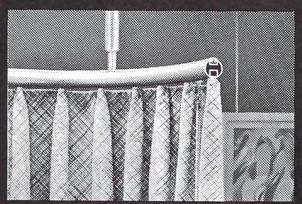

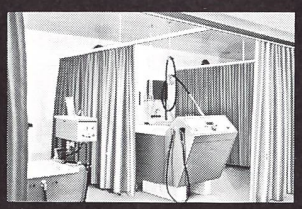

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Adressen der Verfasser:

Dr. med. M. Landau
Head Rheumatic Dis. Unit Hilel-Jaffe Memorial Hospital, Hadera, Israel

Dr. med. M. Rosenthal
FMH Physikalische Medizin und Rehabilitation, speziell Rheumaerkrankungen
Steinengraben 67, 4051 Basel

Korrespondenzadresse:

Dr. med. M. Rosenthal
Steinengraben 67
4051 Basel

Die analgetische Wirkung von Akupunktur, TENS, und Iontophorese bei Patienten mit «Fibrositis» Syndrom

Dr. Landau, Hadera Israel, Dr. M. Rosenthal, Basilea

Zusammenfassung

Die Behandlung des Fibrositis-Syndroms, zutreffender Fibromyalgie genannt, bereitet noch immer grosse Probleme, da der zugrundeliegende Prozess kaum bekannt ist. Die Behandlung ist vorwiegend symptomatisch; da Schmerz meist das Leitsymptom ist, wurden Anstrengungen unternommen, dieses Symptom erfolgreich auszuschalten. Akupunktur, transelektrische Nervenstimulation (TENS) und Jontophorese mit einem Enzymgemisch wurden in einer offenen Vergleichsstudie bei 80 Patienten mit diesem Syndrom auf ihren analgetischen Effekt untersucht.
Bei den meisten Patienten wurde mit allem 3 Methoden eine signifikante klinische Besserung beobachtet bei wesentlichem Abbau von gleichzeitig eingenommenen Analgetica. Alle 3 Methoden sind bezüglich ihres analgetischen Effekts vergleichbar, so dass sich die Behandlung nach der Vorliebe von Patient und Therapeut richten kann.

Effet analgésique de l'acupuncture, du TENS, et de l'iontophorèse sur les points sensible de patient «cellulalgiques».

Dr. M. Landau: Hadera, Israel, Dr. M. Rosenthal: Bâle

Résumé

Le traitement du syndrome cellulalgique ou plus précisément cellulomyalgique présente encore des problèmes majeurs puiseque le processus fondamental n'est que grossièrement compris. Le traitement est principa-

lement symptomatique, la douleur représentant le symptôme majeur; plusieurs essais de suppression de ce symptôme furent tentés avec succès. L'acupuncture, la neurostimulation transcutanée (TENS) et l'iontophorèse d'enzyme sont testés dans le cadre d'une étude comparative pour leur effet analgésique sur 80 patients souffrant de cellulomyalgie.
Pour la plupart des patients, une amélioration clinique significative est observée avec les trois procédures, permettant une réduction concomittante substantielle de la prise de médicaments analgésiques.
Les trois méthodes sont comparables quant à leur effet analgésique, laissant le choix du traitement en fonction des préférences individuelles du patients et du thérapeute.

Gli effetti analgesici dell'agopuntura, «tens», jonoforesi sul paziente affetto da fibrosite

Dr. Landau: Hadera Israele, Dr. M. Rosenthal: Basilea.

Sommario

Il trattamento della sindrome fibrositica, altrimenti conosciuta come fibromialgia, crea sempre dei problemi in quanto la causa non é sempre chiara.
Il trattamento é sovente sintomatico, in quanto il dolore é il fattore scatenante. Diversi metodi terapeutici sono stati effettuati per porre un rimedio alla sintomatologia dolorosa.
Agopuntura, «TENS» (elettrostimolazione transcutanea) e la jonoforesi con enzimi sono stati provati su una scala di 80 pazienti.
Questo per vedere il miglior effetto analgesico.
Nella maggior parte dei pazienti, che hanno subito i tre tipi di trattamento, abbiamo notato un miglioramento.
Va notato il fatto che sono stati ridotti anche i medicamenti analgesici durante il trattamento!
Dunque questi tre tipi di trattamento hanno dato il loro successo analgesico, possono quindi essere adattati individualmente a secondo dei pazienti e a scelta del terapista.