
Antihomotoxic Mesotherapy in Sports Injuries of Soft Tissues.

ORDIZ Ignacio (Licenciado en Medicina y Cirugía).

EGOCHEAGA Jorge (Doctor en Medicina Especialista en Medicina del Deporte).

DEL VALLE Miguel (Doctor en Medicina. Especialista en Medicina del Deporte. Director de la Escuela de Medicina del Deporte de la Universidad de Oviedo).

**School of Sports Medicine
University of Oviedo (Spain)**

Correspondence to:
Ignacio Ordiz
C/ Melquíades Alvarez, 3, 6ºD
33002 Oviedo (Spain)
e-mail: correo@ordizmesoterapia.com

Index.

Summary	3
I. Introduction.	4
Ia. Basis of Mesotherapy	4
Ib. Mesotherapy and Sports Medicine	4
II. Objectives	5
III. Sample and Method	5
IIIa. Sample	5
IIIb. Method	6
IIIc. Materials Employed	8
IIId. Drugs Employed	9
IV. Results	12
V. Discussion	13
VI. Conclusions	15
VII. Bibliography	16
VIII. Tables, Graphics and Photos	18

Summary

The treatment of injuries in sportsmen requires the employment of products that cause minimal secondary effects and which, at the same time, achieve a total recuperation of the person as soon as possible. This study was carried out in order to evaluate whether the use of antihormotoxic drugs such as Traumeel®, Zeel® and Spascupreel® applied by means of mesotherapeutic techniques have beneficial effects on the treatment of the most common injuries of sportsmen and also to establish therapeutic protocols according to the type of injury.

The study was made in a total of 138 sportsmen from various fields and levels of competition who presented different types of acute and chronic injuries.

The results show that 71.5% of the total number of injuries were cured, 16.4% showed a noticeable improvement, 8.2% showed mild improvement, and only 3% of the cases did not improve.

These results are, at least, comparable to those obtained with other medications and that the techniques of application employed --- mesotherapy and meso-infiltration-- should be those of first choice.

On the other hand, the most useful frequency of application should be two sessions a week and the number of sessions to reach a remission of the symptomatology was 1 to 4 in the majority of cases.

Key words: *Mesotherapy, Meso-infiltration, Sports injures, Traumeel, Zeel, Spascupreel.*

I. Introduction

Ia. Basis of Mesotherapy.

Mesotherapy or intradermal injection of medication is characterised by increasing the beneficial effects of the drugs administered, conditioning a decrease in the frequency of the administration of such and parallelly, of their iatrogenic potential^{1,2}.

Different studies and the clinical experience itself, demonstrate that the therapeutic effect of mesotherapy depends on two fundamental factors:

1. The depth of the injection. The kinetics of the medication administered by intradermic route appears to follow a mammillar model itself, in which different peripheral compartments could exist, one of which is situated in the proximity of the site of administration of the drugs, which is represented by the matrix of conjunctive tissue and which could act as a distributor and reservoir. This neighbouring peripheral compartment is defined by a concept of depth of injection, such as described out by Corpas³ based on studies of Corbel⁴, Kaplan and Rincourt⁵, amongst others.
2. Fragmentation of the dose. This fact acquires importance since the pharmacologically action of a single active principle shown when this is fixed on a receptor, whether in a reversible or irreversible form. We can suspect that the greater the fragmentation of the dose, the greater the number of receptors stimulated and, therefore, the greater the therapeutic effects, according to the concept of "meso-interface" described by Kaplan⁶.

Ib. Mesotherapy and Sports Medicine.

The employment of the technique of mesotherapy in the treatment of sports injuries was rapidly adopted by practitioners since: 1. the curing of the lesion must be made rapidly in order to reinstate the activity as soon as possible; 2. it must be ad integrum, without sequelae, which limit or cancel out the achievements acquired after many years of effort and hard training; and 3. without producing iatrogeny.

Mesotherapy, thanks to its pharmacokinetic peculiarities (which although are not strictly known, it is suspected as a result of the clinical results of more than 40 years of experience) make the collateral effects inherent to the use of certain medications – which are seen to be reduced for being a technique which strengthens the beneficial effects of the drugs by “minimising” their non-desirable effects. However, a bad mesotherapeutic practice can be responsible for the appearance of iatrogeny in these treatments.

According to Mrejen, the best indications for mesotherapy are: isolated tendinopathies, slight or moderate sprains, pulled muscles and moderate contusions, moderate capsulo-tendino-muscular retractions, mechanical lesions of the peripheral nerves and tendons, plurifocal articular lesions of peripheral joints, degenerative diseases of the rachis, algias and post operative problems.

II. Objectives.

1. To determine the beneficial effects of mesotherapy employing anti homotoxic medication in sports injuries of the soft tissues
2. To evaluate the effects of the techniques employed in relation to the type of lesion and the localisation of such.
3. To quantify the number of sessions necessary for the improvement or remission of the symptomatology and also the rhythm of application.
4. To objectify the possible iatrogeny of the mesotherapy techniques in sports persons.
5. To analyse the acceptance of the technique by the athletes.

III. Sample and Method.

IIIa. Sample.

The present study was carried out in a total of 138 male sports persons who belonged to registered teams of the University of Oviedo (athletes, basketball, handball, football, rugby, skiing ...) all competition athletes and participants in national and international tournaments, and also non-

competitive amateur athletes and students who practice physical exercise (mean age 24.2, range 20 – 33 years).

For the diagnosis of sports injuries an exploration and normal clinical history were made in a Sports Medicine Clinic and it was complemented in some cases with a diagnosis made using imaging techniques.

The lesions were divided according to the time of evolution into two categories: chronic and acute. An acute lesion was considered of less than four weeks evolution and a chronic one of more than four weeks evolution. The number of lesions evaluated and treated was 158 of which 124 (78.4%) were chronic and 34 (21.5%) acute (Table 1).

In chronic lesions, this method was never chosen as first choice; it was only employed when the procedures more well established in their treatment showed their inefficacy (physical medicine, Nsaids etc).

In spite of this, during the follow-up of the lesion with mesotherapy, the physiotherapeutic treatment was maintained in a similar way. If the severity of the case did not require such, the sports person did not stop practising normal sport activity during the treatment.

All the lesions treated corresponded to the soft tissues and these were classified into six groups: tendinitis (90), sprains (14), capsular lesions (12), periostitis and compartmental syndromes (8), bursitis (8) and muscular lesions (26) (Table 2).

The localisation of the lesions was as follows: lower limb(94), (6 in the thigh muscle, 32 in the knee, 9 in the leg and 47 in the region of the ankle and foot), 49 in the upper limb (24 in the shoulder, 20 were located in the elbow while 5 corresponded to the area of the wrist and hand) and 15 in the rachis (4 in the cervical region, 1 in the thoracic and the 10 remaining ones in the lumbar-sacral region) (Table 3).

IIIb. Method.

Treatment consisted of the intradermal administration (mesotherapy) of the medication chosen for the present study. We employed the association of an ampoule of Traumeel® with an ampoule of Zeel® in cases of tendinitis, bursitis, periostitis, and compartmental syndromes, sprains and capsular

lesions. In the muscular lesions, we added an ampoule of Spascupreel® to the two medications. Once the informed consent of the patients was obtained, the treatment was carried out by means of:

- i. Strict Mesotherapy Technique, making intradermal injections (generally, at least 4mm deep) in the skin which covered the affected and surrounding area, in a variable number according to the type of lesion and its extension (which was not determined in this study), but always in multiples, more than 10, employing the apparatus called DHN3® which is calibrated in programs of microdose and using needles of 4 mm in length.
- ii. Mesoinfiltration, according to the concept created by Chos⁷ in order to designate the subdermal injections applied on painful points found on exploration, which are considered by different authors as “privileged points” in order to obtain results of reflexogen type. On the points the perfusion of the most important volumes was made, of the order of 0.1-0.5 ml putting into practice a technique of injection with a “bent needle”: with a needle angle of 30G1/2 inch (13 mm) bent to an angle of some 45° directing the edge toward the smaller angle we made an intradermal injection which will determine the formation of a micropapula, and from this, without removing the needle and making a turn, we proceed to its total introduction and immediate extraction at the same time as we make the perfusion of the contents of the syringe. This method of injection has always to be made manually.

The employment of one technique or another depended on the existence or not of the privilege points and not on the depth where the lesion to be treated was found.

Two randomised groups of patients were established. Treatment was applied once or twice a week respectively. Thus, out of the total of chronic lesions followed up (124 cases), 71 were treated with a frequency of two sessions per week, while 53 lesions were treated with an application of one session per week. Out of the acute lesions (34 cases), 20 of these were treated two times a week and the remaining 14 once a week (Table 4). In this way, we attempt to evaluate the performance of the frequency of treatment in both

types of sport lesion. The number of sessions necessary to achieve a picture of cure or of noticeable improvement was also quantified (Table 4).

Four response states are considered:

- a. Cure: complete disappearance of the symptomatology without relapse.
- b. Noticeable improvement (N.I.): possibility of making competitive physical activity without complete remission of symptoms.
- c. Slight improvement (S.I.): physical activity of training but not competition.
- d. Without improvement (W.I.): no type of favourable change in the symptomatology was demonstrated.

IIIc. Materials employed.

- i. Needles: A Meso-Relle® needle (distributed by Biotekne SRL of Milan) 4 mm in length and 0.3 mm in calibre (30G) was employed in order to make the intradermal injections with assisted technique, and the Microlance 3®, 0.3 mm in diameter and 13 mm in length (30 G1/2 inch), Becton Dickinson was employed for manual injections.
- ii. Syringes. For the manual mesoinfiltration we use syringes of three parts, of central cone Luer-lok type manufactured in polypropylene and presented in individual sterile packets of Beckton Dickinson brand. In order to carry out mesotherapy with assisted technique we use syringes which contain the mesotherapy kit.
- iii. Pistor – DHN3 ® (Figure 1). This is an apparatus of assistance for the injection manufactured by Medical Innovation (Chanac, France). It consists of a device in the form of a pistol which allows the placement of a syringe of 10cc to a system which can be programmed to dispense a determined volume according to the predefined program and standardise the dose of the product administered and depth of the injection
- iv. Mesotherapy kit for the DHN3® (Figure 2), manufactured by Axone.

- v. Disinfection and cleansing of the skin. We systematically employed disposable gloves, cleaning with Armil® and covering the sites with an acrylic film (Nobecutan ®) in order to avoid cutaneous iatrogeny by saprophytic contamination when employing any type of injection technique^{8,9}. Treatment was never given in the field of sports area where the conditions of cleanliness are not adequate/suitable under any circumstances.

III d. Drugs Employed.

In order to carry out this study the following drugs were used:

Traumeel®.

This is a basic remedy for all humoral phases of the inflammation. One of its most important actions is the modulation of the inflammatory process, not the suppression of such; it is not an anti-inflammatory medication in the strict sense of the word. This permits the inflammatory phase, whose function is to clean the organism of homotoxins, to take place rapidly and efficiently, and cause the least possible discomfort to the patient. It is aimed directed at the stimulation of all the mechanisms of the great defense system.

Analysing its composition we can evaluate its wide spectrum of actions:

- ❖ Arnica and Aconitum improve the vasotony. The principal problem of the inflammation is originated from the loss of vascular endothelium with formation of edema. These two drugs are going to improve the circulation.
- ❖ Hepar sulfur acts at the level of the enzymatic systems facilitating the process of oxidation and cellular repair processes, key players for preventing the inflammatory process from reaching the point of affecting the cellular enzymatic systems
- ❖ Hamamelis has a specific action for avoiding the venous estasis and the thrombolytic effect.
- ❖ Milefolium helps the hemostatic effect and regulation of prothrombin levels.

- ❖ Its mercurial components have an antiviral and regulatory action of the inflammation, that reduce the edematous state and prevent the formation of abscesses.
- ❖ Arnica, Calendula and Echinacea have important functions related to the formation of pus: in the inflammation we need excretory processes and the pus is a special mechanism of formation of homotoxonas. These mechanisms are also used for avoiding the shock which can appear in the inflammatory processes besides favouring the formation of scars.
- ❖ Symphytum has its analgesic effects on the bone and periosteum. It is an excellent remedy for pains which are situated on the bony protruberances (e.g., epicondylitis and epitrocleitis).
- ❖ Aconitum, Chamonilla, Hypericum and Arnica have an analgesic action. However, we cannot expect that this analgesic action is of equal magnitude to that of an alopatic analgesic; its action at this level is mild, but by the modulation of the inflammatory process the pain will not be so severe.

This medication is marketed commercially under the name of Traumeel® S in ingestible drops, injectable ampollas, oral capsules and topical use ointments. Its usefulness by injectable route has been tested by different authors^{10,11}.

Zeel®

In spite of the fact that Zeel ® comes recommended by the laboratory Heel to be employed in arthritic processes, its use in acute traumatic processes has been recommended by various authors^{12,13}, and its combination with Traumeel ® is absolutely compatible. The active principles of Zeel ® are obtained from various substances. Together with vegetable components (Rhus toxicodendron, Arnica montana, Solanum dulcamara, Symphitum, Sanguinaria canadensis), it also contains homeopathic dilutions of elements of mineral origin (Sulfur, Acidum silicicum), organic extracts developed according to the norms described by the German Monograph Preparation Commission for the Homoeopathic Field of Therapy (Cartilago suis, Funiculus umbilicalis suis, Embryo suis, Placenta suis). It also contains coenzymatic factors which plays a part in the different biochemical reactions aimed at the normalisation of the metabolism of the conjunctive tissue of the articular and peri-articular structures, and also to

provide elements of possible incorporation to the energetic metabolisms (NAD, coenzyme A, lipoic acid, sodic oxalacetate and sycilic acid).

- ❖ In the mother tincture of *Rhus toxicodendron* (plant of the anacardiaceas family) we find, among other components a flavonoide called Fisetine which is endowed with anti-inflammatory actions. In homeopathy a *Rhus toxicodendron* is considered as one of the most important anti-rheumatic medications. In this there is no affectation of the serous membrane and sensation of painful articular rigidity is observed which improves with movement but reappears if fatigue sets in. These symptoms worsen with damp and cold.
- ❖ *Dulcamar* (*Solanum dulcamara*) is the medication employed against the effects of damp weather (dry cold, *Aconitum*). In the experimentation it is observed that it causes diverse rheumatic pains, stiffness and ankylosis; this all worsens with the damp weather and improves with movement.
- ❖ *Sanguinaria* (*Sanguinaria canadensis*) in measurable toxic doses, causes acute pain, with hypersensitivity and muscular stiffness, as if the muscles and the joints were stretched. Although it is classical to locate the symptoms in the upper limbs, in clinical practice it is employed in the pathology of any location.
- ❖ *Sycilic* is an important remedy of the conjunctive tissue, indicated in chronic inflammations and in ligamentous, bone and articular pathologies.
- ❖ The organic extracts provide important components of the connective tissue, favour the re-establishment of the local circulation and have an added stimulating action.
- ❖ The trace elements such as NAD, co-enzyme-A, lipoic acid participate in an important way in the metabolic chains, acting above all in the cycle of tricarboxilic acids and normalising the altered local metabolism.

The result of this is a valuable medication in the treatment not only of chronic joint diseases but also in the case with which we are involved in this study, and an excellent complement of Traumeel ® with which it shares some of its active principles.

The commercial presentation under the name of Zeel® T is in capsules, injectable ampoules and ointments.

Spascupreel®

This is the mio-relaxant of the homotoxicology, recommended for muscle spasms, myalgias, miogelosis. It is usually employed together with Traumeel® and or Zeel ®. Its antispasmodic action is due to the presence of Cuprum sulphuricum in its formulation. The copper exercises a potent metabolic effect and forms part of diverse proteins such as ceruloplasmin, oxidases and superoxide dismutase, which could explain its role as a regulatory oligoelement of the inflammation.

The pathogenic experimentation and the clinical observation have proved that at the level of the locomotor apparatus Cuprum acts on the striated muscles causing spasmodic painful manifestations with a abrupt beginning and end, mainly of the extensor muscles, (although this fact is not unique, and worsens with touch, pressure, cold and night time rest). The presence of night cramps of the calf muscles is typical of Cuprum.

IV. Results.

Complete cure can be seen in 113 of the cases, this being 71.5 percent of the total; noticeable improvement in 26 cases (16.4%), slight improvement in 13 cases (8.2%) and no improvement in 6 cases (3.7%) (Figure 3).

With respect to the evolutive chronology of the lesions in which complete cure was reported (n=113), 89 were chronic (78.7%) and 24 were acute (21.2%); out of those with noticeable improvement, 18 (69.2% were chronic and 8 were acute (30.7%); of those with only slight improvement 10 were chronic (76.9%) and 3 (23%) were acute; chronic lesions were 100 percent of the 6 who did not present any improvement (Figure 4).

Of the 113 lesions in which complete cure was achieved, 63 were treated by means of two sessions per week (69.2%) and 50 by means of one session per week (74%); of the 26 who noticeably improved, 15 from the 2 week system (16.4%) and 11 from the one week system (16.4%). Of those with slight improvement, 9 with 2 sessions per week (9.8%) and 4 with one session

(5.9%), while those from the group who did not improve, 3 with a weekly double session (3.2%) and the remaining three with one session a week (4.4%) (Figure 5).

In relation to the number of sessions the results were: cure after the first session: 14 cases (8.8%); cure after the second session: 20 cases (12.6%); cure after the third session: 24 cases (15.1%); cure after the fourth session: 34 cases (21.5%); those who needed more than four sessions: 21 cases (13.2%) (Figure 6).

The lesion with the best response to treatment (relationship of the number of injections/cure) was the epicondylitis, while the lesion which responded to treatment worse was the syndrome of iliotibial band.

V. Discussion.

In the light of the results observed we believe that the compounds employed are valid in the treatment of inflammatory pathologies of the soft tissues in sportsmen, even in cases of four weeks evolution (chronics). The treatment did not present any secondary effects attributable to the medication in any of the cases; very occasionally discrete hematomas present on occasions due to the method, which developed without complications. Decrease of the pain was seen from the first session, this later acquiring a very diffuse and imprecise character.

The best responses were given in entesopathic localisations such as epicondylitis, epitrocleitis, lesions of the rotator cuff tendons. The worst responses were localised in the case of bursitis, above all at the level of iliotibial band or bursitis of the tensor of the fascia lata on the external femoral condyle possibly because of the drugs employed in this study are not those of first choice in this type of pathologies.

In the case of tendinous lesions (Achilles tendon and rotulian tendon) were the most commonly treated. The results were similiar with both techniques, but the peritendinous injections turned out to be less painful with the treatment session itself and a posteriori, for which reason we consider it as the technique of choice to employ on these occasions.

Eighty one percent of the cures only required four sessions or less. The major number of sessions in our series which were necessary to reach a cure was 12, fascia planar being the lesion treated.

On the majority of occasions in which the result was considered to be "without improvement", this produced as a consequence of the dropping out of treatment on the part of the sports person, in some of the cases, after the administration of only 4 sessions.

In one case treatment was not satisfactory due to the existence of pathology associated with the part treated as the principal one by us (sequelae of surgery are included within this problem).

In many of the cases (fundamentally chronic ones), the sports persons continued their activity during the period of treatment, but avoided making intense effort with the anatomical structure affected. The fact that this did not require absolute rest during the administration of treatment conditions a very good response to such from the psychological point of view; the athlete is conscious of the lesion but with the possibility of continuing to maintain a level of training during the period of treatment, which improves their follow-up. In acute cases, the sportsmen associated the stage of treatment with absolute rest of the injured area, due to the functional impotence that the lesion itself produced. However, in acute cases, the improvement was seen more rapidly than in the chronic cases, for which reason the time of inactivity was not, in the majority of cases, very prolonged. It is important to emphasise that all acute cases treated presented some type of improvement, the therapeutic failures being included in chronic cases.

In relation to the number of sessions per week or the frequency of such, we found that the percentage cure is slightly higher with one session per week, although these differences are not statistically significant. Thus, the greater the frequency, the greater the number of sessions in less time and therefore, the better the results in a shorter time. It must be borne in mind that these products require a minimum time of execution of the pharmacological action, for which reason the application of sessions excessively close will not only have beneficial effects but could even have undesirable ones. We therefore consider the frequency of two sessions per week as the best therapeutic option to follow.

No cases of iatrogeny nor the collateral effects due to the medication employed were seen.

The results of this study are better than those reported by others employing other types of medication¹⁴, above all when bearing in mind that many of these were obtained in patients in whom other therapeutic measures have failed with the added advantage that no case of iatrogeny was observed.

VI. Conclusions.

1. The use of antihomotoxic drugs in the treatment of the injuries of sportsmen allows us to obtain results comparable to those obtained with other medications.
2. The techniques of application employed in this study - mesotherapy and meso-filtration – could be those of choice when iatrogeny does not present and will be accompanied by good results.
3. The frequency of conducting two sessions per week would be the best to employ.
4. The number of sessions necessary in order to reach a remission of the symptomology was 1 to 4 in the majority of cases.
5. The use of systems of assistance to the mesotherapy (in this case, the gun DHN3®) considerably improves the tolerance of the patient to an injective technique.

VII. Bibliography

- ¹ ROBINSON H et als. DNA vaccines: protective immunizations by parenteral, mucosal, and gene-gun inoculations. Proc Natl Acad Sci USA, vol 90, 11478-11482, december 1993. Immunology.
- ² PISTOR M. Exposé sommaire des propriétés nouvelles de la procaïne local en pathologie humaine. La Presse Medicale, 4 juin 1958.
- ³ CORPAS C. Adaptación de modelos farmacocinéticos a la vía mesoterápica o intradérmica. Boletín de la Sociedad Española de Mesoterapia IIª época, 1995; 1:29-32.
- ⁴ CORBEL D. Étude des cinétiques locales, regionales et générales de la voie I.D. par utilisation de traceurs radioactifs. BSFM 1986; 66:8-10.
- ⁵ KAPLAN A, RINCOURT D. Calcitonine marquée plus procaïne: diffusion par voies intramusculaire et mésothérapique. BSFM 1985; 62:10-12.
- ⁶ KAPLAN A. Des techniques et des doses. BSFM 1991; 79:8-9.
- ⁷ CHOS D. Analyse des diferentes conceptions du mode d'action de la Mésothérapie. BSFM 1983; 58:22-25.
- ⁸ FERRAND V, HUTEAU Y. Les nécroses cutanées: à propos de quatre nouveaux cas. Analyse et discusión. BSFM 1992; 81: 4-5.
- ⁹ CHAPELLE, COLETTE. Complications cutanées tardives de la Mésothérapie: infections a Mycobacteries atypiques. BSFM 1989; 72:3-8.
- ¹⁰ CONFORTI A, BERTANI S, LUSSIGNOLI S, BELLAVITE P. Efectos de medicamentos homeopáticos antihomotóxicos en procesos inflamatorios agudos y crónicos. Med Biol. 1998; 3: 203-206.
- ¹¹ ZENNER S, METELMANN H. Posibilidades de utilización de Traumeel® solución inyectable. Resultados de un estudio de aplicación multicéntrico en 3241 pacientes. Med Biol. 1996; 1:132-140.
- ¹² BONNEKOH A, CONNERT WD. Tratamiento de las tendinopatías de inserción tras lesiones y traumatismos deportivos. Comparación de un anestésico local con un remedio bioterapéutico. Med Biol., 1989; 3:187-191.
- ¹³ BAULY M. Empleo de medicamentos biológicos en medicina deportiva. Med Biol. 1989; 2: 165-167.
- ¹⁴ See:
 - a. Atti del IIIº Congresso Internazionale di Mesoterapia. Roma: Salus, 1982.
 - b. Compte rendu du IVº Congrès International de Mésothérapie. Paris: SFM, 1985.
 - c. Compte rendu du Vº Congrès International de Mésothérapie. Paris: SFM, 1988.
 - d. Compte rendu du VIº Congrès International de Mésothérapie. Bruxelles: SSBM, 1992.

-
- e. Actes du Congrès. VII^o Congrès International de Mésothérapie. Bordeaux: SFM, 1995.
 - f. Libro de Ponencias del VIII^o Congreso Internacional de Mesoterapia. Sao Paulo: SBM, 1998.
 - g. Compte rendu du IX^o Congrès International de Mésothérapie. Paris: SFM, 2000.