UNCOVERING THE MYTH OF MESOTHERAPY FACT VERSUS FICTION

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Mesotherapy has become a popular procedure, widely used by American physicians during the past 2 years. I have attended numerous presentations in which Mesotherapy is described as a “magical treatment” with the underlying implication that it is likened to Liposculpture. However, surgeons, like myself, who have performed Mesotherapy for several years recognize it as a lipolytic technique and Liposculpture as a lipoclassic technique—two entirely different actions.

**The Origin of Mesotherapy**

The word “mesotherapy” is derived from the Greek words “meso,” meaning medium or middle, and “therapy,” meaning treatment. In this case, the word “meso” refers to the mesoderm, which is the embryonic middle layer located between the ectoderm and the endoderm. From this middle layer originates all the connective tissue that forms the dermis, and into this layer medicine is injected when Mesotherapy is used.

Mesotherapy, a complement to routine clinical procedures, is performed by injecting minimal amounts of drugs into the skin’s intradermal layer.

The amount of drugs in the injections is determined by the injection site’s proximity to the pathology site.

According to the French physician Dr. Michel Pistor, who invented Mesotherapy in 1952, Mesotherapy is an allopathic, light, parenteral, polyvalent, and regionalized technique.

Allopathic
- The medicines used form part of the official pharmacological range.

Light
- The doses are low compared to those habitually used in traditional medicine.
Parenteral
• Intradermic or subcutaneous injections are performed with active drugs using procaine as a vehicle.

Polyvalent
• It is effective with multiple diseases involving distinct specialties.

Regionalized
• It is performed in the lesion’s vicinity.

Frequently Ask Questions

1. Why are drugs injected into the skin?
Because treatment is applied close to the lesion.

2. Which drugs are administered?
The same drugs that are used intravenously, intramuscularly, subcutaneously, or intradermically. All products must be water-soluble; isotonic; and not cause nodules, abscesses or necroses at the injection site. Injected products should not be allergenic. Since drugs are applied at the pathology site, concentration is higher in comparison to other administration routes. Greater therapeutic effects can then be achieved.

Administration
Drugs are administered into the most superficial skin layers, a few millimeters under the skin surface (2—4 mm). Drug biodistribution in superficial skin layers is slower than in deep layers, where diffusion occurs more rapidly and the drugs have both general and local effects. Absorption occurs through blood and lymphatic vessels, which allows for the administration of minimal amounts of active medications. This is a key element of Mesotherapy. For optimal results, an accurate medical diagnosis by a physician with a surgical training background must first be made. Then, the physician must be able to correctly choose the drug to be administered. For that to happen, the physician must be knowledgeable in the
pharmacodynamic and pharmacokinetic of the injectable drugs being used and know with certainty how to apply that knowledge to each individual case.

**Activity Mechanisms of Mesotherapy**

A few theories have been proposed to explain Mesotherapy's activity mechanisms:

- Dr. Michel Pistor (France), in his Reflex Theory, shows that Mesotherapy interrupts the visceral medullar-cerebral path of the lateral-medullar level using stimuli originated at the dermic level. These stimuli are mechanical (needle), physical (micro drops), chemical (drug composition), and pharmacological (specific drug action).

According to Pistor’s concept, Mesotherapy, using few chemical products and small doses, is capable of producing significant results.

- Dr. Bicheron from France, in his Microcirculatory Theory, talks about microcirculation stimulation. The drugs administered (local and regional) produce a stimulating effect on the local microcirculation that is altered by the lesion.

- Dr. Joseph Kaplan (Israel), who combined multiple concept studies in nuclear medicine with labeled substances given superficially between depths of 1.5 and 2.0 mm (ie, superficial intradermal administration), showed the following results:
  - Injected medications remain active for a longer period of time.
  - Local diffusion varies according to the injected substance’s characteristics.
  - Low-weight molecules diffuse through blood vessels and colloids disease through lymphatic vessels.

**Receptors**

Minimal drug amounts in contact with peripheral receptors directly increase therapeutic effects. Results depend on the activation of the largest amount of receptors for disease control. The administration of anesthetics in the treatment area retards the absorption of the injected drugs, allowing them to diffuse deeper into the connective tissue, thus arriving at the desired treatment site in a higher concentration without dilution.

Injector gun used to distribute Mesotherapy medicines. Functions in manual and automatic modes.
Each year, new materials appear from the simple to the most sophisticated. Some are designed to facilitate the injections, and others propose pointless objectives. Whatever method of injection is used, however, intradermal (ID) therapy consists of two successive stages:

- Preparation of the cutaneous surface prior to injection, and
- Penetration of a small quantity of the active agent.

Intradermal treatment requires various injections, and more care should be taken to ensure correct skin antisepsis. The risk of cutaneous complication from atypical microbacteria, particularly the acid-alcohol-resistant “mycobacterium fortuitum,” demands that the surfaces should be cleaned with iodized alcohol.

**Penetration of a small quantity of the active agent:**

1. Introduce the needle perpendicular to the skin from a depth of 2—4 mm.
2. Inject 0.1—0.3 ml of medications symmetrically with a separation distance of 0.5 cm.
   - Face punctures are between 0.5 cm
   - Body punctures are between 2 cm
3. Perform the injections weekly.
4. The pharmacology and quantity of the medicines included in the injections are determined by the physician.

**Procedure**

- Apply the drugs while the patient is lying down. Map the area to be treated in each session.
- Position the patient to present the best angle for application, which must always be perpendicular to the skin.
- Inject the drugs at multiple points, very close together (2—4 mm), angled at 30—60 degrees, and in parallel lines using a 4 mm needle and regular pressure (Napage Technique).
- Introduce the drugs smoothly with a regular interval between each dose.
• Take care to respect the locations of the vascular and nervous systems to diminish the possibility of Hematoma.

**Materials Required for the Mesotherapy Treatment**
- Disposable syringes (1 cc—10 cc)
- Disposable needles (27 G-in—30 G-in)
- Disposable Lebel’s needles (4 mm)
- Multiple syringes
- Manual or automatic “guns” (syringes)

**Manual Application**
Manual application is the simplest, and it is recommended for the trained operator. Success is based on the combination of the operator’s hand, the selected syringe, and the chosen needle. Choose the smallest possible combination of syringe and needle to contain the required number of injections.

The injection depth can be modified using two different techniques.
1. Pimples — the needle is placed at a tangent to the skin, with the bevel turned up. A small quantity of the medicine is impelled to form a superficial pimple.
2. Superficial Injections — the needle is inserted at an angle of approximately 30 degrees and a single drop of the medicine is deposited at a depth of 3 mm.

**Mechanical Equipment**
Den Huh, Pneumatic Injector.
Electronic Injector DHN3, DHN4, Dermatherapy.
Gun (injector): The light, somewhat noisy multinozzle plastic injector can regulate the needle’s depth from 1—4 mm. The unit can function in manual or automatic mode. Its advantage is its price, and its disadvantages are loss of liquid and noise.

• Diffusion and distribution is slower through the meso tract than through the rest of the parenteral tracts.
• Diffusion does not depend on the anatomical puncture location but on a perfect Meso execution technique.
• The diffusion speed is inversely proportional to the molecular weight of the medicine used.
• Small amounts of medicine are injected at many points.
• One session per week.
• One or two sessions per month can be scheduled for maintenance.
• Intradermic 2—4 mm superficial level of injections.

**Commandments**
This is an important list of 10 commandments that should be followed when making this choice:
• To be water-soluble and never vehicle in an oil-based solution.
• To be isotonic with suitable pH.
• To be perfectly tolerated at the sub-epidermis tissue level.
• To be integrated to the receptor tissue medium.
• To be non-allergenic.
• To be of recognized efficacy.
• To be physiologically synergic.
• To be free of any antagonistic action, and
• To be recommended for each particular case.

**Conclusion and Drugs**
Mesotherapy is a medical technique. It is crucial that an accurate medical diagnosis is made to achieve the best possible results for the patient. Also imperative in the decision process are the use of the correct drugs.
Here is a list of the medicines and/or the drugs that are necessary when working on a patient with cellulite:
• Benzopirone — lymphokinetic action
• Pentoxiphiline — haemorrologic action
- Teophiline—lipolytic action
- Cafein—lipolytic action
- Carnitin—lipolytic action
- Cynara Scolymus—lipolytic action
- Monomethyl Silanol—action over the connective tissue
- Yohimbin—action over the alfa 2 adrenergic receptors
- Buflomedil — vasodilatation
- Procain—anesthetic and more
- Phentolamin—action over the alfa 2 adrenergic receptors

In the Mesotherapy technique, each physician chooses the different drug combinations in accordance with the individual clinical diagnosis he has made of each patient.

The dramatic results of the Mesotherapy technique, which was used for the treatment of cellulite.

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