

Introduction

For the past 3 years mesotherapy has attracted great interest in North America. About 300 doctors have studied with Dr. Le Coz in France to learn this therapeutic procedure. This technique, invented by Dr. Pistor in France in 1952, has been used in this country for almost 50 years. Brazil is one of the first countries that recognized the advantages of this technique and has been using it for the past 15 years. Dr. Le Coz first learned the technique from Dr. Pistor himself in 1976. Together, they traveled to Brazil, Argentina, and around the world to teach the new technique. In those years Dr. Rittes was a pioneer of mesotherapy in her native country of Brazil.

GUIDELINES AND LIMITATIONS ON THE USE OF PHOSPHATIDYLCHOLINE (LIPOSTABIL) IN MESOTHERAPY

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Numerous articles on mesotherapy treatment with phosphatidylcholine (PC) have been published. We hope to clarify and specify the medical applications of PC on cellulite and localized fat.

Cellulite

Cellulite is an incorrect term but is commonly used. Cellulite refers to fat deposits located above the fascia superficialis, and these are less accessible to techniques like liposuction. The use of soy lecithin is not indicated for the treatment of cellulite. This unaesthetic condition can be improved through mesotherapy. The most appropriate technique is repetitive intradermal injections using a single needle, a technique called *nappage*.



Treatments should be done weekly. The average number of treatments is about 8, and the quantity of the mixture required depends on the degree of cellulite. In all cases the formation of subcutaneous nodules, which are the result of bad technique, must be avoided.

Localized Fat Deposits

Soy lecithin can be used for the treatment of localized fat deposits. This substance has been used in Brazil for the past 10 years. For the past 2 years soy lecithin has been quite widely used in North America.

A recent article in *Skin and Aging* in the US reveals an extraordinary interest in North America, but at the same time criticizes the lack of evidence for the effectiveness of the technique and the large number of side effects of these injections. Above all, we want to warn our colleagues about

the misuse of this method in North America. An article in *Medical Spa* published in October 2004 proposed using injections up to 100 cc at the abdominal level. We do not approve of this. Our fellow colleagues who have applied this protocol have already encountered several problems.

In Europe, PC is mainly used in Austria since it can legally be sold, but it is not used as indicated. In Spain, PC does not always contain deoxycholate (a dissolving agent found in Lipostabil in Europe and in PC in the US). In no case does PC treat obesity and it should not be used in patients with a BMI above 30.

Dr. Rittes (Brazil) performs research on animal models, and her recent studies seem to show that necrosis of the fat deposits is localized and that it is followed by an inflammatory reaction and then by fibrosis, which would explain why a reduction in volume does not lead to skin relaxation.

Several American colleagues at UCLA (Dr. Paul Rose, Dr. Ablon, and Dr. Rotunda) have provided some evidence about the effectiveness of PC, explaining that it did not appear that the effectiveness relates to the soy lecithin but rather from the deoxycholate, its adjuvant.

We reiterate here that this product should not be used superficially (for cellulite).

The depth of the injections varies between 6 and 13 mm, depending on the areas being treated. The amount injected at each point and the frequency depend on what is indicated.



The first treatment should not exceed a maximum dose of 500 mg of PC or Lipostabil, which, according to Dr. Rittes, may be given pure (undiluted).

The term mesotherapy is appropriate for this technique since for almost 20 years, under the urging of Dr. Pistor, we have gone beyond using intradermal injections, sometimes using subcutaneous injections, especially in sports trauma and rheumatology.

These injections do not appear to cause allergies, but rather intolerance reactions that, in our experience, diminish as the number of treatments increases. Preventing these reactions with cortisone, taken orally or by injection, is not desirable, especially since a controlled local reaction is known to be beneficial to the clinical results.

The local edema formed post-injection is similar to the intolerance reaction that is seen with thiomucase and, to a lesser degree, hyaluronidase. However, with these two substances the reactions worsen with the number of treatments given.

Because of the importance of treating fat deposits, additional information is provided. According to Dr. Dang (France), a practitioner of electrolipolysis, blood levels of fatty acids and triglycerides slightly increase within several weeks after treatment; and urinary levels of glycerol, a product of fat degradation increase (glycerol, an alcohol, reflects the lipolysis provoked). Several Parisian research studies are on-going, which will confirm the levels of blood glycerol and should confirm the effectiveness of the results seen clinically.

One should remain aware of local reactions from the injections, which can be significant: edema, itching, skin hyperesthesia, and dermatomes. Some doctors have reported cases of hematuria. On the other hand, pain caused by the injections is rare and does not require treatment with anesthetic.

Several different areas can be treated: the stomach, arms, thighs, knees, and back.

Some colleagues recommend injections for lower eyelid fat deposits; however, after injection, very significant edema appears rapidly, causing a quasi-occlusion of the eye that can last for 2 or 3 days.



Three to 6 treatments, depending on the areas treated, should be given 15 days apart. Results are variable and depend on the specific areas; fat deposits underneath the bra-strap area tend to react particularly well after these injections.



We are not going to be as optimistic as some of our colleagues who promise almost 100% success. Results seem to be more encouraging in mesotherapy of localized fat deposits, rather than results obtained with the classic protocol. These classic protocols used to contain, depending on the country, caffeine, aminophylline, thyroxin, L-carnitine, yohimbine, and other substances.

We certainly do not recommend certain mixtures used in North America that contain the following substances in the same injection: aminophylline, caffeine, isoproterenol, yohimbine, and tiratricol (also diluted in a dose of 0.34 oz), the latter which can have a negative cardiac effect. Soy lecithin cannot be legally sold in France and therefore cannot be used there. In the United States, however, it can be legally sold but it is used "off-label," against the approved indications, and as such is under the physician's responsibility.

Conclusions:

- Phosphatidylcholine (PC) has been around for many years, but has now found a second application.
- Its usage requires a great deal of strictness.
- It cannot be used to cure cellulite but is effective for treating localized fat deposits.
- Studies are being done to show the way it works and its presumed effectiveness.
- The term mesotherapy can also be used for these applications.
- The effectiveness of these treatments seems to be associated mainly with deoxycholate and not with soy lecithin.

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