



Review Article

Mesotherapy: Overview

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ABSTRACT

Objectives: A overview is conducted for new studies with adequate methods to confirm the benefits of mesotherapy as used in dermatologic treatment.

Conclusion: Mesotherapy is a new, effective and safer technique for treatment of conditions like alopecia, skin rejuvenation, hyperpigmentation. Mesotherapy require less time for treatment hence it is preferred over treatments. The future of mesotherapy whether it can become part of Dermatology, Maxillofacial surgery, Plastic Surgery, Internal Medicine.

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1. Introduction-

Mesotherapy is a non surgical skin rejuvenation treatment. Mesotherapy is that the procedure that involves multiple intradermic or body covering injections of a mix of compounds which has bioactive substances, mucopolysaccharide, prescribed drugs, plant extracts, medical aid agents, vitamins in minute doses, using terribly fine gauge needles to treat native medical and cosmetic conditions.¹

The mechanism of action of mesotherapy is that solutions are injected into germ layer stay within the space longer than they'd if distributed by deeper injection; as they're clearly added bit by the final circulation.² The depth of needle penetration must not over four metric linear unit.

Mesotherapy treatment is employed for many native medical and cosmetic conditions like loss of skin tone, loss of glow, skin aging, superficial wrinkles, hair loss. Study conjointly includes the lipolytic potential of resolution

utilized in the apply of cosmetic mesotherapy to stimulate lipolysis inflicting native fat reduction.³⁻⁵

2. History

The roots of mesotherapy regard to the 2000 B.C. in China. In 1952, Dr. Pistor, the father of mesotherapy, has used the blood vessel procaine for the treatment of a part deaf patient.^{1,6} The injected procaine was placed within the superficial dermal layer. Perfect results were obtained a few hours following the injection. In 1975, the Italian society of mesotherapy (SIM) approved its usage in the European nation. It had been followed in 1982 by Pistor who created the international society of mesotherapy. In 1987, the French Academy of medicine has recognized mesotherapy as a brand new speciality.⁷

3. Mechanism of Action

The skin acts as a natural time-release system once medication is injected by mesotherapy. The mechanism of

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Table 1: Active substances

Name	Example	Description	Uses
Monomethyl trisilanol salicylate	Conjunctyl in F, silicortoskani	Organic chemical element is found here in an exceedingly chemical compound of acid. chemical element is most significant natural semi-conductor within the bodys tissues, it act as a nanospacer and catalyst in form of reactions.	Stimulation of albuminoid synthesis, modification and regeneration of skin, etc. ⁸
Sodium pyruvate	Cocktail anti-aging Toskani	It promotes the synthesis of derma collagen and amino acid and is also a lactic acid keto derivative. It also helps in cell metabolism since is an anti oxidant.	Particularly for sun broken skin, smoker's skin, etc. ⁸
Vitamin C	Ascorbic acid 200mg/ml	Stimulate albuminoid synthesis, promotes wound healing and skin regeneration, protects from light-weight Mesoglow, melisma, bar of sun aging, etc	Mesoglow, melisma, prevention of sun aging, etc
Vitamin B	Panthenic acid, dexpanthenol	Involved within the acylation of proteins and peptides promotes glutathione synthesis is important for the hair roots and skin protects from oxidatives stress and UV- radiation has antiviral and anti inflammatory effects.	Stretch marks.
Taurine	Tauricol Toskari	2-aminoethane sulfone acid is semi-essential organic compound containing sulfur. It's inhibitor, medicinal drug and vasoprotective impact.	Anti aging and energy carrier, etc.
Polidocanol	–	Its sclerosing impact is employed for animal tissue firming, potent skin modification, treatment of recent stretch marks.	Microsclerotherapy with DHE (dihydroergotamine), treatment of spider burst veins, couperose, small hemangiomas, etc.

action of mesotherapy is that the solutions that is injected intracutaneously stay within the space for very long time than they'd if distributed via deeper injection.^{2-5,7} These preparations contain vitamins, trace components, enzymes, opposing oxidiser, organic compound and alternative active substances poignant the standard of skin. Absorbed by skin, these substances stimulate the albuminoid and elsatin production, reconstructing the inner structure of skin, smoothing wrinkles, restoring the skin tone and snap, returning the healthy glowing look. The primary impact of mesotherapy is rejuvenated, lowerclassman face and also the second – mesolifting, increase skin firmness and even reasonably stretch.⁶

4. Mesolift/Mesoglow/Biorejuvenation

Commonly the terms used for the treatment of skin of face and neck rejuvenation area unit Mesoglow or Mesolift. Agents unremarkably used for mesolift –

4.1. Hyaluronic acid

It's one amongst the glycosaminogly can used within the method to boost the tone and physical property of the skin by binding and retentive the water content.

4.2. Multi vitamins, trace elements

Multi vitamins are used for ionic balance of the skin.

4.3. Amino acids, vegetal proteins

Amino acids and vegetal proteins are used for reconstruction.

5. Alopecia

Mesotherapy is advanced resolution for hair loss and phalacrosis. Dutasteride is employed during this treatment. Du-tasteride is the solely Sa-convertase matter that is restricted to each receptor one and receptor two. It's been clinically tested to produce hair by injecting dutasteride directly into the scalp at a depth of one to three millimetre. Initial treatment is given anyplace from once per week to

once each five weeks. Alternative substances that are additionally utilized in the treatment of phalacroscopic embolism include vitamin H, finasteride, etc.⁷

5.1. Localised fat deposits/injection lipolysis (double chin, eyelid fats)

Deoxycholate and Phosphatidyl vitamin B (PC) are the foremost unremarkably used agents for dissolving of fat.⁹ Phosphatidyl is an inhibitor and it's derived from soybean phospholipid. Depth of injection for injection lipolysis and localised fat deposit varies from half dozen millimetre to twelve millimetre at a dose of 250 mg. Phosphatidyl, when penetrating the adipocytes cells, it breaks down the fat cells that through the blood stream are excreted by the urinary organ system. It (b) Promotes lipolysis by stimulating receptors and inhibiting a pair of receptors on the adipocyte membrane. (c) And additionally causes inflammatory cytokine-mediated gangrene and organic process of adipocytes. New scleroprotein is created once the inflammation subsides that causes retraction of the unsnarled tissues.¹⁰

5.2. Numerous substances used are

Lipolytic: DOC, theophylline, L-carnitine, caffeine, organic silicium and xanthine.

5.3. Connective tissue breakdown

Hyaluronidase, collagenase.

5.4. Drainage enhancers

Artichoke.

6. Techniques of Mesotherapy

There are numerous techniques of mesotherapy that take issue betting on the usage of the needle gauge and length, the injected substances or resolution, the depth of penetration of needle and also the parts of the injected layer. There are few common techniques in mesotherapy that embody Intraepidermic (IED), nappage, purpose by purpose (PPP), mesoperfusion and hypodermic.¹¹

6.1. Intraepidermic (IED)

This technique was 1st delineated by Perrin within the year 1989. It is the foremost superficial of the remaining techniques.¹² Once this procedure is performed properly, the basal layer isn't penetrated by needle. A 13 mm, 27-30 gauge needle is positioned and penetrated at nearest angle to the skin surface. Once the bevel of needle is directed far from the skin, it's dragged on the skin with slow light-weight positive pressure applied to the syringe.^{13,14}

6.2. Nappage

1st delineated by saucier and Ravilly, it's an additional superficial technique that takes apply to master. During this technique, a 4mm needle is employed with the syringe command at an angle of 40-45 degree to the skin.³ The depth of penetration is simply 0.5-2mm and simply a drop of the solution is injected at every site at a distance of 0.25cm-0.5cm with light-weight, constant positive pressure on the plunger. Nappage is that the least pleasant technique intimate by the patient.¹²

6.3. Point-by-point (PPP)

Dr. Pistor was the one UN agency who discovered the Point-by-Point technique. The procedure is kind of easy to perform. The syringe containing the solution of regarding 0.02cc to 0.05cc is injected sheer at 4mm, 6mm, or 12mm of the whole depth of the needle. These kind of injections are typically given at a distance of 1-2cm.^{12,15}

6.4. Mesoperfusion

In Mesoperfusion technique, the needle used is termed as Lebel needle during which its bevel is four millimetre long. Its length is decided by the used technique that ranges between 4-15 millimetre fine needles (27-30 gauge).¹¹

7. Injectors

It allows injections to be delivered during a standardized and re-producible manner and it prevents unwanted effects caused by a manual injections technique which can be rather wanting excellent. The most advantage to the patient is that the injections area unit are less painful.⁸ The explanation for this is often their skin tension maintained by the skin stabilizer. Moreover it is essential to avoid scratches on the face specifically. The cocktails utilized in esthetics area unit dearly-won and wastage of fabric ought to be unbroken as low as attainable. The sole useable material needed for every treatment is single sterile disposable skin stabilizer.¹¹

8. Side Effects

Side effects and adverse outcomes following mesotherapy are rare in experienced hands. Appropriate training and ongoing education are vital to retain competence and skill. Common side effects are pain, erythema, oedema, bruising, bleeding and scratch marks.¹⁶ These side effects can be attributed to the nature of the procedure and the techniques adopted. Itching or allergic reactions could also be related to the active substances used during treatment. It is congruent with safe practice that aesthetic practitioners are familiar with the active ingredients in their chosen mesotherapy preparations. Some patients also report feeling 'wind burnt' and a 'tightness' in their skin in the first 24 hours post procedure.¹⁷ This is the needle

Table 2: Mesotherapy needles and uses

Needles	Uses	Techniques
Microlance BD 0.3×13mm	Cellulite, lipolysis, hair loss	Point by point technique, linear tunnel technique, manual epidermal technique, one by one injection technique infiltration. Mesoram 0.3×4mm
Mesoram 0.3× 4mm	Mesolift, hair loss, cellulite mesobotox.	Nappage and epidermal technique.
Mesorelle 0.26× 4mm	Hand & feet.	The point by point and epidermal thechnique
Sterican or Terumo no-20 0.3×20mm	Lipolysis for bigger fat pads and larger syringe volumes for subcutaneous	-

response stimulating an inflammatory process and will abate with 24 hours.⁹ Poor attention to aseptic technique can lead to localised infections and erythematous nodules. Several cases of cutaneous Mycobacterium abscessus infection have been reported following mesotherapy and soft tissue augmentation procedures provided by unlicensed practitioners.¹⁶

9. Conclusion

Mesotherapy is a new, effective and safer technique for treatment of conditions like alopecia, skin rejuvenation, hyperpigmentation. Mesotherapy require less time for treatment hence it is preferred over treatments. The future of mesotherapy whether it can become part of Dermatology, Maxillofacial surgery, Plastic Surgery, Internal Medicine.

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11. Conflict of Interest

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References

- Matarasso A, Pfeifer TM. Plastic Surgery Educational Foundation DATA Committee. Mesotherapy for body contouring. *Plast Reconstr Surg.* 2005;4:1420.
- Rotunda A, Kolodney MS. Mesotherapy and phosphatidylcholine injections: Historical clarification and review. *Dermatol Surg.* 2006;32:465–80.
- Caruso MK, Roberts AT, Bissoon L, Self KS, Guillot TS, Greenway FL. An evaluation of mesotherapy solutions for inducing lipolysis and treating cellulite. *J Plast, Reconstr Aesthet Surg.* 2008;61(11):1321–4.
- Mammucari M, Gatti A, Maggiori S, Bartoletti CA, Sabato AF. Mesotherapy, definition, rationale and clinical role: a consensus report from the Italian Society of Mesotherapy. *Eur Rev Med Pharmacol Sci.* 2011;15(6):682–94.
- Herreros FOC, de Moraes AM, Velho PENF. Mesotherapy: a bibliographical review. *An Bras Dermatol.* 2011;86(1):96–101.
- Herreros FOC, de Moraes AM, Velho PENF. Mesoterapia: uma revisão bibliográfica. *Anais Brasileiros de Dermatologia.* 2011;86(1):96–101.
- and JLC. History of Mesotherapy; 2005. Available from: <http://www.mesotherapyworldwide.com/images/pdf/AJM/Vol3/2005/11-40>.
- Knoll B. Illustrated Atlas of Esthetic Mesotherapy; 2012.
- Chase CC. Common complications and Adverse Reactions. *Bulletin SFM.* 2005;10:8.
- Hsu CC, Hsu CT. Conception using vaginal Administration of Gonadotrophins. *Bulletin SFM.* 2008;10:208–9.
- Tanrikulu L. Mesotherapy: Medical education? Turk Klinikleri. *J Med Sci.* 2007;27:272–5.
- Adelson H. French Mesotherapy for the Treatment of Pain ; 2005. Available from: <https://www.yumpu.com/en/document/read/16658319/french-mesotherapy-for-the-treatment-of-pain>.
- Coz JL. Mesotherapy and Lipolysis: A comprehensive clinical approach. Mesotherapy and Lipolysis: A comprehensive clinical approach. 1st ed. Singapore: National Library Board; 2008.
- Step by step guide to facial rejuvenation mesotherapy. Filorga laboratories, Paris. Paris.
- Leibaschoff G. Mesotherapy and Cellulite. *Am J Mesother.* 2006;4:53.
- Latha P, Vandana KR. MESOTHERAPY- A REVIEW. *Int J Adv Pharm.* 2011;1(1):19–29.
- Coz JL, Rittes PG. Guidelines and limitations on the use of phosphatidylcholine (lipostabil) in mesotherapy; 2009.

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