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Review

Modern concepts in non-surgical esthetics; a review

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Abstract

New non-surgical esthetics is the most dynamic field in contemporary medicine. At the same time, it is greatly influenced by our contemporary society. This paper reviews modern methods used in non-surgical esthetics, especially in Romania. From injectology and non-surgical face lifting to non-surgical body contouring, we analyzed all procedures performed by Romanian physicians, and we show the advantages and disadvantages of the advanced esthetic procedures.

Injectology typically implies hyaluronic acid, botox and mesotherapy (for wrinkles and rejuvenation). Laser and radiofrequency treatment are used for wrinkles as well, with fewer unwanted adverse reactions and results exceeding those of injectables. Non-surgical lifting has gained more ground because it requires little recovery time and the results are very positive. Elective treatment for facial discoloration is the laser approach.

For non-surgical body contouring, cryolipolysis, vacuum, radio frequency, and infrared systems have all revolutionized this part of esthetics, but each has limitations, and only after establishing the correct course of action, might we think of achieving favorable results and thus raising to the expectations of patients.

Keywords

: esthetic procedures, face lifting, body contouring

Highlights

- ✓ Esthetic procedures should only be performed by the esthetic physician, and the central point is the patient's interest and benefit.
- ✓ It is important to take into consideration that each patient has a particular anatomy and unique facial traits, that one cannot become an exact clone of some stars, and that the result may very well be disadvantageous from the esthetic point-of-view.

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Introduction

Modern esthetics is the most dynamic field of contemporary medicine. At the same time, it is greatly influenced by the values of contemporary society. Very often patients enter the beauty clinic requesting to look like various stars: “I want to have lips like Angelina Jolie” or “breasts like Pamela Anderson,” and the list of examples could go on. Real trends in facial or body esthetics are born this way, however, not always with the expected outcome. When discussing outcomes, we must take into consideration that each person has his/her own particular anatomy and unique facial traits, that one cannot become an exact clone of some stars, and that the result may very well be disadvantageous from the esthetic perspective (1). To prevent such unwanted results, the role of the esthetic physician is of the highest importance due to the expertise in the field. Furthermore, financial benefit should not be placed above the interest to and benefit for the patient (2).

Discussions

Significant The present paper reviews the advantages and disadvantages of the new contemporary esthetic procedures, and modern and contemporary methods used in esthetics, especially in Romania.

The field of injectology

The method of injectology is the most frequently used at present. This relatively new term refers to injecting hyaluronic acid (HA), botox, and other mesotherapeutic substances. Hyaluronic acid occupies the first position. There are two types of HA used in esthetic procedures: cross-linked and non-cross-linked (3). Cross-linked HA is widely used due to its hydrating effect, top products for this type of HA being Volite (Allergan), Redensity I (Teosyal), and Vital (Restylane). Also, the three most important global producers of HA are Allergan (Juvederm range of products), Teoxane (Teosyal range of products), and Galderma (Restylane range of products) (4). Currently, these products offer the greatest safety and maximum versatility. For cross-linked HA, the so-called fillers or filling substances have a volumizing role. Each manufacturer has products with a wide variety of molecular concentration of HA. The higher the concentration, the higher the filling power. The first place is for lip augmentation, which uses top products such as Juvederm Volift Ultra 3, Teosyal Kiss, Global Action, and Restylane Lips. Facial volumizing takes the second place among women’s preferences, i.e., volumizing the cheekbones, the temporal areas, and the mandibular regions (5). In the past

three years, Juvederm manufacturers imposed the MD Codes system for the volumizing procedure, a revolutionizing injecting concept that brought benefits in the areas of safety and precision. This system permits the precise positioning of the HA in the election area, i.e., profoundly, the closest to the bone as possible. Here there are two of the most used products for volumetry: Juvederm Voluma and Teosyal Ultra Deep. The manufacturers of Teosyal marketed the RHA, the luxury range of products, where RHA 4 is an excellent facial volumizing product, extremely versatile, and well tolerated. The third place in women's preferences is the filling of the tear duct and the under-palpebral area, commonly known as the removal of the dark circles under the eye. When referring to the removal of the dark circles under the eyes, women have two different understandings: first, the filling of the wrinkles, and second, removal of the dark pigmentation around the eyes (6). The causes are different and thus they require different approaches. For patients that have deepened wrinkles under the eyes, with or without dark pigmentation, the injecting of HA is recommended – Teosyal Redensity 2, followed by Juvederm Volbela. Redensity 2 has the advantage of removing the dark pigmentation along with the volumizing effect (7). For patients that only present the dark pigmentation without grooves, HA is not indicated, and the elective procedure is the injection of different products that have a vitamin C component. Injecting the area under the eyes is difficult and requires a cannula approach and precision. A superficial injection may determine the appearance of bags under the eyes, whereas an injection under the orbital septum can lead to blindness through the spread of hyaluronic acid and the compression on the orbital nerve, and though rarely, injection of the ophthalmic artery. HA is widely used for wrinkles on the neck as well as for moisturizing the hands. Calcium hydroxyapatite from Radiesse is a powerful facial volumizer manufactured by Mertz, but it has limited indications and is mainly used for filling nasal grooves and, secondly, for its effect on facial volumizing (8).

Botox is the invention that revolutionized modern esthetics. It is highly used nowadays despite controversies related to its indications and real possibilities. Botox may be used in many facial areas, in the upper part as well as the middle and lower areas, although in Romania, its usage is restricted to the upper part of the face (9, 10). The results can be amazing if correctly administered; otherwise, facial

asymmetries may result for several months. Botox may be administered in the axillary areas or palms of the hands for hyperhidrosis (excessive sweating).

The last method of injectology is represented by mesotherapy. The virtual mesotherapy performed by machines replaces classical mesotherapy with fine needles, but results indicate that the classical method is far superior to the virtual one. Mesotherapy may be performed using different substances, pure or mixed, depending on the desired results. In this area, there are several important manufacturers, such as Mesoesthetic, Esthetic Dermal, etc., and the most used substances for this approach are HA, vitamin C, AND molecules, DMAE, and oligo-elements (11, 12). Anti-cellulite mesotherapy is a relatively new field, aimed at treating stretch marks and chemical lymphatic drainage, and at moisturizing and renewing the skin. Pre-mixed substances can be used upon indication, for example, the well-known mix Jalupro.

Wrinkle treatment

HA and botox are almost exclusively used in wrinkle treatment nowadays (13, 14), although other methods are available. For patients who refuse injections of any type due to religious beliefs or needle phobias, there are alternative approaches.

Lasers in wrinkle treatment are of two types. For fine wrinkles and large pores, non-ablative lasers are used: Genesis Laser from Cutera and BBL from Sciton are the two most commonly used lasers in Romania. For deep wrinkles, more aggressive methods are used, and in this case, there are Cutera Fractional Pearl Laser, CO2 lasers (Deka lasers), and the fractional laser from Sciton. These latter approaches require a more extended downtime, up to three weeks. The best-selling laser in Romania is Cutera Xeo, a multiplatform that allows multiple applications for a wide range of non-surgical reasons (15).

Radiofrequency represents the second most used method for wrinkle treatment, with many positive factors regarding procedure. Radio frequency is divided into two categories: fractioned and non-fractioned. Fractioned radio frequency has an anti-aging effect, but also a skin tightening effect. Its advantage is that it requires no time for recovery and has no adverse reactions. In the past years, BTL Exilis has been the no.1 device, with spectacular and immediate results that tend to resist up to one year. Practically, it has no direct competitor, especially after the manufacturer marketed an updated and more powerful version. Fractioned radio frequency is less used in wrinkle treatment due to its regenerative role and is mostly used for the treatment of stretch marks and scars. Lately,

manufacturers like Cutera, Deka, Lumenis, Quanta, and Alma have gained ground as they began producing excellent radio-frequency machines. The most elegant example is the Cutera Titan.

Medium chemical peeling allows a blurring of fine wrinkles, especially if combined with face moisturizing, but the drawback is the two-week recovery period.

Topical treatments, of which there are many, present another option. It is difficult to determine which products are best, and none of the marketed products address all women's concerns thus far (16). Because each individual reacts differently, opinions regarding their effectiveness differ. In the past two years, Zen Obagi and Teoxane have been successfully marketed, though Lancome and Dior also have good products.

Non-surgical lifting

Non-surgical lifting has gained a larger market as it requires little recovery time. Currently, there are four lifting methods for facial skin: PDO threads, radio frequency, HA, and mesotherapy. When all methods are combined, the results are spectacular. Lifting threads have gained the most trust, with the no.1 choice being Silhouette, closely followed by Aptos. They have the advantage of being a minimally invasive procedure, requiring no recovery time and having results that last up to two years (17, 18). Regarding radio frequency, BTL Exilis is still no. 1, as previously mentioned. Following the MD Codes system from Juvederm, facial lifting may be performed with HA. Combining all methods, the first step is BTL Exilis to implement general lifting by enhancing collagen from the dermis, followed by 2-6 lifting threads that have a regenerative result, then adding HA to give contour to facial volumes.

Treatment for facial discoloration

The elective treatment for facial discoloration is the laser approach, ranging from 500 – 1100 nm wavelength, through short, pulsed laser light energy. Such pathology is becoming increasingly frequent; on the one hand, due to the lowered UV protection by the ozone layer and, on the other hand, due to the excessive exposure to the sun (19-21). Many sessions are needed in order to treat this problem, and the most significant disadvantage is that at the first excessive exposure, the dark patches reappear and the patients come to rely on laser therapy.

An alternative to laser therapy is medium chemical peeling, but as mentioned before, it requires a two-week recovery period – the main chemical peeling used for these cases are the TCA peelings (22, 23).

The era of Intense Pulsed Light (IPL) is now outdated since laser treatments have appeared; today only those who cannot afford laser treatment still use IPL.

Stretch marks and scars

The treatment of scars and stretch marks is still a controversial issue, mainly due to unpredictable results. For stretch marks, the following treatment methods may be considered: fractioned radio frequency, ablative laser, micro needling, ultrasounds, mechanical peeling, and mesotherapy (24). Different therapeutic plans are often used to blur stretch marks as much as possible. Initially, when stretch marks are pink-colored, they can be treated entirely, but once matured, the chances of disappearing entirely with treatment fade away. As an elective treatment, lasers and fractioned radio frequency are the best approaches. In the past two years, a new medical concept was introduced, combining fractioned radio frequency with micro needling – Endymed marketed a revolutionary device called Endymed Pro Intensif. Within a single session, this device combines micro needling and multi-polar fractioned radio frequency, effecting the best results on stretch marks and atrophic scars (25-28). Ultrasound also works well on stretch marks; BTL Cellutone is the reference device for this approach. Combined treatment protocols include 2-3 sessions of mechanical peeling followed by Endymed Intensif or ablative laser combined with ultrasounds. Contractubex and Stratamed can be associated.

Elective treatments for atrophic scars are lasers and fractioned radio frequency. Ultrasounds cannot be applied on the face. A complete protocol includes 1-2 sessions of mechanical peeling, followed by laser and fractioned radio frequency Endymed Pro Intensif along with silicone-based face moisturizer and skin renewal as Regen AG.

Treatment for dermatologic disorders that affect esthetics

Many dermatologic disorders affect facial esthetics.

Couperose skin and rosacea are the most frequent esthetic problems, but poikiloderma could be added to the list. The laser is the elective treatment for such cases, Cutera Xeo on NdTag probe or LimeLight, or combined.

Xanthelasma does not occur as frequently, and its treatment may be relatively simple, either with CO₂ laser, with plasma, or surgically.

Millia skin can be easily treated by either plasma or mechanical peeling.

Large pores represent a slightly difficult disorder and can be treated by fractionating radio frequency or by laser.

HA formulas such as Juvederm Volite blur the dilated pores.

Improving body contouring surgery methods with the help of esthetics

Non-surgical body contouring has recently gained ground, but the results of procedures using body shapers have not been satisfactory, so patients often return to esthetic surgery. Cryolipolysis, vacuum, radio frequency, and infrared systems have all revolutionized this field of esthetics, but each has its limitations, and only after establishing the correct course of action, will favorable results be achieved, thus rising to the expectations of patients. The main body problem is cellulitis. Along with the usage of medical devices, chemical lipolysis is another course of action (29, 30). There are three medical devices within this category: Zeltiq cryolipolysis devices, BTL contactless radiofrequency (Vanquis), and the most modern device for body shaping, EM Sculpt from BTL. Sometimes esthetics may be applied within other surgical areas, for example, breast reconstruction surgery where modern materials may be used for better breast contouring (31), or for the use of precise esthetic sutures, especially on hernias (32).

Esthetic surgery is a complex procedure which we have not discussed in this paper, due to continuously changing information.

Conclusions

A series of esthetic procedures on the face and body should be performed with safe products and devices. Injectology is the most used esthetic method in Romania. Injectology typically includes discussion of injectable hyaluronic acid, botox, and mesotherapy. HA and botox are exclusively used for wrinkles and mesotherapy for rejuvenation. Laser and radiofrequency treatment are used for wrinkles as well, with fewer unwanted adverse reactions and results exceeding those of injectables. Non-surgical lifting has gained more ground because it requires little recovery time. Typically, PDO threads, radio frequency, HA, and mesotherapy are combined, and the results are very positive. Elective treatment for facial discoloration is the laser approach, ranging between 500 – 1100 nm wavelength, through short, pulsed laser light energy or chemical peelings, like TCA. For stretchmarks, methods include: fractioned radio frequency, ablative laser, micro needling, ultrasounds, mechanical peeling, and mesotherapy, but results are often unpredictable. For non-surgical body contouring, cryolipolysis, vacuum, radio frequency, and infrared systems have all revolutionized this part of esthetics, but each has limitations, and only

after establishing the correct course of action, might we think of achieving favorable results and thus raising to the expectations of patients.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

References

1. Motosko C, Zakhem G, Ho R, Saadeh P, Hazen A. Using Google to Trend Patient Interest in Botulinum Toxin and Hyaluronic Acid Fillers. *J Drugs Dermatol*. 2018; 17(11): 1245-1246.
2. Shah AR, Kennedy PM. The Aging Face. *Med Clin North Am*. 2018; 102(6): 1041-1054.
3. Nast A, Reytan N, Hartmann V, Pathirana D, Bachmann F, Erdmann R, Rzany B. Efficacy and durability of two hyaluronic acid-based fillers in the correction of nasolabial folds: results of a prospective, randomized, double-blind, actively controlled clinical pilot study. *Dermatol Surg*. 2011; 37(6): 768-75.
4. Lee YJ, Kim HT, Lee WJ, Chang SE, Lee MW, Choi JH, Won CH. Anti-aging and hydration efficacy of a crosslinked hyaluronic acid microstructure patch. *Dermatol Ther*. 2019; e12888. DOI: 10.1111/dth.12888.
5. Baumann LS, Weisberg EM, Mayans M, Arcuri E. Open Label Study Evaluating Efficacy, Safety, and Effects on Perception of Age After Injectable 20 mg/mL Hyaluronic Acid Gel for Volumization of Facial Temples. *J Drugs Dermatol*. 2019; 18(1): 67-74.
6. Nayak CS, Giri AS, Zambare US. A Study of Clinicopathological Correlation of Periorbital Hyperpigmentation. *Indian Dermatol Online J*. 2018; 9(4): 245-249.
7. Ardeleanu V, Berbeci SI, Florescu IP, Jecan CR. The Use of Hyaluronic Acid Combined with Teosyal Redensity II for the Treatment of Dark Circles Under the Eyes. *Materiale Plastice*. 2017; 54(1): 37-40.
8. Muti GF. Open-Label, Post-Marketing Study to Evaluate the Performance and Safety of Calcium Hydroxylapatite with Integral Lidocaine to Correct Facial Volume Loss. *J Drugs Dermatol*. 2019; 18(1): 86-91.
9. Kim J. Clinical Effects on Skin Texture and Hydration of the Face Using Microbotox and Microhyaluronic acid. *Plast Reconstr Surg Glob Open*. 2018; 6(11): e1935.
10. Alam M, Tung R. Injection technique in neurotoxins and fillers: Indications, products, and outcomes. *J Am Acad Dermatol*. 2018; 79(3): 423-435.
11. Galimberti MG, Guida S, Pellacani G, Bencini PL. Hyaluronic acid filler for skin rejuvenation: The role of diet on outcomes. A pilot study. *Dermatol Ther*. 2018; 31(4): e12646.
12. Garre A, Narda M, Valderas-Martinez P, Piquero J, Granger C. Antiaging effects of a novel facial serum containing L-Ascorbic acid, proteoglycans, and proteoglycan-stimulating tripeptide: ex vivo skin explant studies and in vivo clinical studies in women. *Clin Cosmet Investig Dermatol*. 2018; 29(11): 253-263.
13. Ardeleanu V, Dobre M, Georgescu EM. Deep Facial Wrinkle Treatment Outcome After First Injection of Reticulated Hyaluronic Acid. *Rev. Chim. (Bucharest)* 2015; 66(12): 2129-31.
14. Bukhari SNA, Roswandi NL, Waqas M, Habib H, Hussain F, Khan S, Sohail M, Ramli NA, Thu HE, Hussain Z. Hyaluronic acid, a promising skin rejuvenating biomedicine: A review of recent updates and pre-clinical and clinical investigations on cosmetic and nutricosmetic effects. *Int J Biol Macromol*. 2018; 120(Pt B): 1682-1695. DOI: 10.1016/j.ijbiomac.2018.09.188.
15. Bertossi D, Giampaoli G, Lucchese A, Manuelli M, Albanese M, Nocini R, Nocini PF. The skin rejuvenation associated treatment-Fraxel laser, Microbotox, and low G prime hyaluronic acid: preliminary results. *Lasers Med Sci*. 2019. DOI: 10.1007/s10103-019-02738-z.
16. Baumann L. How to Use Oral and Topical Cosmeceuticals to Prevent and Treat Skin Aging. *Facial Plast Surg Clin North Am*. 2018; 26(4): 407-413.
17. Karimi K. Technique for Nonsurgical Lifting Procedures Using Polydioxanone Threads. *JAMA Facial Plast Surg*. 2018; 20(6): 511-2.
18. Gülbitti HA, Colebunders B, Pirayesh A, Bertossi D, van der Lei B. Thread-Lift Sutures: Still in the Lift? A Systematic Review of the Literature. *Plast Reconstr Surg*. 2018; 141(3): 341e-347e.
19. Passeron T, Genedy R, Salah L, Fusade T, Kositratna G, Laubach HJ, Marini L, Badawi A. Laser treatment of hyperpigmented lesions: position statement of the European Society of Laser in Dermatology. *J Eur Acad Dermatol Venereol*. 2019. doi: 10.1111/jdv.15497

20. Zhang Y, Zheng X, Chen Z, Lu L. Laser and Laser Compound Therapy for Melasma: A Meta-Analysis. *J Dermatolog Treat.* 2019; 1-7. DOI: 10.1080/09546634.2019.1577544
21. Zubair R, Lyons AB, Vellaichamy G, Peacock A, Hamzavi I. What's New in Pigmentary Disorders. *Dermatol Clin.* 2019; 37(2): 175-181. DOI: 10.1016/j.det.2018.12.008.
22. Jecan RC, Nicolau A, Florescu IP, Ardeleanu V, Berbece S. Use of Trichloroacetic Acid in Treating Facial Hyperpigmentation. *Materiale Plastice* 2017; 54(1): 88-90.
23. Sacchidanand S, Shetty AB, Leelavathy B. Efficacy of 15% trichloroacetic Acid and 50% glycolic Acid peel in the treatment of frictional melanosis: a comparative study. *J Cutan Aesthet Surg.* 2015; 8(1): 37-41.
24. Sharobarov VI, Ivanov YV, Panchenkov DN, Baranov AV, Penaev AA, Stepanova YA, Romanets OP, Penaeva SA, Alimova SM. The role of CO₂-laser in scarring management]. *Khirurgiia (Mosk).* 2018; (5): 67-74.
25. Kim CNT, Thi LP, Van TN, Minh PPT, Nguyet MV, Thi ML, Huu ND, Hau KT, Gandolfi M, Satolli F, Feliciani C, Vojvodic A, Tirant M, Lotti T. Successful Treatment of Facial Atrophic Acne Scars by Fractional Radiofrequency Microneedle in Vietnamese Patients. *Maced J Med Sci.* 2019; 17; 7(2): 192-194.
26. Hansen FS, Wenande E, Haedersdal M, Fuchs CSK. Microneedle fractional radiofrequency-induced micropores evaluated by in vivo reflectance confocal microscopy, optical coherence tomography, and histology. *Skin Res Technol.* 2019; 25(4): 482-488. DOI: 10.1111/srt.12676.
27. Ciolofan S, Ionita E, Mogoanta CA, Popescu, FC, Anghelina F, Chiutu, L, Stanciu, G. Malignant melanoma of nasal cavity. *Rom J Morphol Embryol.* 2011; 52(2); 679-84.
28. Cobzeanu BM, Costan VV, Danciu M, Pasca AS, Sulea D, Ungureanu LB, Moscalu M, Cobzeanu MD, Popescu E. Environmental factors involved in genesis of retromolar - oropharynx junction cancer. *Environ Eng Manag. J* 2017; 16(5): 1101-6.
29. Berbece S, Iliescu D, Ardeleanu V, Nicolau A, Jecan RC. Use of Phosphatidylcholine in The Treatment of Localized Fat Deposits. Results and Expectations. *Revista de Chimie.* 2017; 68(8): 1438-41.
30. Thomas MK, D'Silva JA, Borole AJ. Injection Lipolysis: A Systematic Review of Literature and Our Experience with a Combination of Phosphatidylcholine and Deoxycholate over a Period of 14 Years in 1269 Patients of Indian and South East Asian Origin. *J Cutan Aesthet Surg.* 2018; 11(4): 222-8.
31. Filip CI, Berbece S, Răducu L, Florescu IP, et al. The Prospects of Using Meshes in Immediate Implant-based Breast Reconstruction. *Revista de Materiale Plastice.* 2017; 54(3): 414-17.
32. Ardeleanu V, Chicos S, Georgescu C, Tutunaru D, A Rare Case of Acute Abdomen: Garengot Hernia. *Chirurgia.* 2013; 108(6): 896-9.