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REVIEW ARTICLE

Decades of beauty: Achieving aesthetic goals throughout the lifespan

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Abstract

Background: Several elements, including age, influence judgments of beauty and attractiveness. Aging is affected by intrinsic factors (e.g., genetics, race/ethnicity, anatomical variations) and extrinsic factors (e.g., lifestyle, environment).

Aims: To provide a general overview of minimally invasive injectable procedures for facial beautification and rejuvenation to meet the aesthetic goals of patients across their lifespan, organized by decade.

Methods: This case study review describes aesthetic considerations of females in their third to sixth decade of life (i.e., 20–60 years of age or beyond). Each case study reports the treatments, specifically botulinum toxin type A and soft tissue fillers, used to address aesthetic concerns.

Results: Signs of aging, as well as aesthetic goals and motivations, vary by age groups, cultures, and races/ethnicities. However, there are overarching themes that are associated with each decade of life, such as changes in overall facial shape and specific facial regions, which can be used as a starting point for aesthetic treatment planning. Appropriate patient selection, thorough aesthetic evaluation, product knowledge, and injection technique, as well as good physician-patient communication, are essential for optimal treatment outcomes.

Conclusions: Nonsurgical facial injectable treatments can successfully enhance and rejuvenate facial features across different age ranges. A comprehensive understanding of facial aging and the aesthetic considerations of patients by the decade contributes to optimal treatment planning and maintenance.

KEYWORDS
aesthetics, aging, botulinum toxins, rejuvenation, women

1 | INTRODUCTION

Facial attractiveness affects how people feel about themselves and others, influences their selection of and ability to attract a mate, and offers advantages in work and social settings.[1,2] There are some universal facial features that are found to be attractive, including youthfulness, adhering to some inevitable norms or averageness (how closely a face resembles the majority of faces), facial symmetry, and secondary sexual characteristics (mature facial features that occur during puberty, which reflect masculinity or femininity).[1,2] There are also more individualized considerations, including physical health,[3] cultural/ethnic preferences,[4] and perceived/chronologic age.[5]

1.1 | Progression of facial aging

Aging is generally not a uniform process and varies by individual. Aging is affected by intrinsic factors, such as genetics, race/ethnicity, and anatomic variations, as well as extrinsic factors, such as lifestyle influences (e.g., smoking, alcohol consumption) and environmental exposure to pollution and ultraviolet (UV) light.[6,7] As Confucius said, "The nature of man is always the same; it is their habits that separate them." Skin surface changes, repositioning, and volume loss are contributors to deterioration of aesthetically pleasing facial proportions over time.[6] Several anatomic and imaging studies have demonstrated that portions of the face age differentially, including fat compartments (e.g., fat pad atrophy or repositioning), ligaments and laxity, dentition, and bony elements, thus altering facial proportions.[8–11] Although the progression of facial aging may be similar, the patterns and rates of progression may vary among different races, ethnicities, and skin types.[7,12,13] For example, signs of advanced facial aging have been reported earlier for White/Caucasian women compared with Hispanics, Asians, and Black women.[12] Facial lines and volume-related changes can further be influenced by geographical and environmental factors.[7] Rather than age dependent, some aesthetic considerations may be condition dependent. For example, excess submental fat (SMF) due to genetics or weight gain can lead to the appearance of a double chin, which may negatively impact the perception of an individual.[14] In conjunction with both universal and individualized perceptions of beauty, as well as the contributions of intrinsic and extrinsic factors, understanding the progression of age-dependent aesthetic needs is an important aspect of facial beautification and rejuvenation.

1.2 | Aesthetic procedures in younger individuals

The largest percentage of aesthetic procedures performed are among patients 36–50 years of age,[15] demonstrating that age plays an important role in aesthetic concerns and procedure selection. For younger individuals, aesthetic concerns include wanting to enhance their existing features.[16,17] Nonsurgical aesthetic treatments are popular among millennials/Generation Y (born between 1981 and 1996) and Generation Z (born between 1997 and mid-2000s), in part due to technologic advancements, such as portable high-definition cameras and social media platforms.[17–19] In an international survey conducted with >14 500 consumers, >30% of consumers reported using the internet or a social media application to search about specific aesthetic problem areas or treatments.[17]

1.3 | Aesthetic procedures in older individuals

Older individuals, on the other hand, have reported being more concerned about looking healthy or the appearance of their skin, including wrinkles and drooping.[16,17] A comprehensive treatment approach can address specific patient concerns while enhancing other features to help improve overall appearance.[20] Understanding an individual's motivations for seeking aesthetic procedures, as well as the drivers that influence these motivations, can help set realistic treatment expectations and optimize individualized treatment plans.[21]

1.4 | Nonsurgical aesthetic procedures

The demand for nonsurgical aesthetic procedures continues to rise.[17,22] The American Society of Plastic Surgeons (ASPS) reports that the top two minimally invasive procedures performed in 2020 were botulinum toxin type A injections and soft tissue filler injections.[15,22] This review provides a general overview of nonsurgical facial injectable treatments for facial beautification and rejuvenation to meet the aesthetic goals of patients across their lifespan, organized by decade.

Although signs of aging vary depending on the individual, there are basic themes that can be associated with each decade of life, such as changes in overall facial shape and facial regions.[23] Using case study examples illustrated here, this review focuses on the aesthetic considerations of females ranging in age from their 20s to those in their 60s or beyond, recognizing that each age group, culture, and race/ethnicity will have differing aesthetic goals and priorities. Each case study reports the treatments used to address aesthetic concerns; some of these treatment indications may be currently off-label in a specific region. Appropriate patient selection and technique, product knowledge, and a thorough understanding of safety concerns are essential for optimal treatment outcomes. Details concerning these topics have been published elsewhere.[24–34]

2 | METHODS

This case study review describes key considerations and recommendations regarding aesthetic concerns, evaluation, and treatment for females in each age group, ranging from 20 to ≥60 years of age. Case studies included the patient's profile and details of treatments administered, as well as photographs from before and after treatment.

Cases were selected to represent the key aesthetic and treatment considerations for women in each decade of life, and there were no stringent selection criteria. All patients presented in the case studies have provided consent for their photographs to be published.

3 | MEETING FACIAL AESTHETIC NEEDS IN THE THIRD DECADE OF LIFE (20- TO 30-YEAR-OLDS)

3.1 | Overview: aesthetic considerations

The impact of aging is usually subtle in women between the ages of 20 and 30 years,[12,35,36] although factors such as body weight, smoking, alcohol use, and sun exposure/tanning salon visits can influence perceived age.[7,36–38] Common issues in this age group include[20,23,39,40]:

- Concerns about specific features, such as hyperkinetic lines[36] that result from strong muscle contractions pulling on overlying skin (glabellar, perioral vertical lip lines, etc.)
- Hollowing/Deflation in the midface (common in younger athletes)
- Congenital characteristics (e.g., familial tear troughs, mandibular hypoplasia)

In younger patients, racial/ethnic origin may play a part in directing aesthetic choices for enhancement or fine-tuning.[41] For example, many individuals of Asian descent prefer a more oval-shaped face in contrast to the broader lower jaw that is common among Asians as a result of masseter muscle prominence (MMP), which may be associated with grinding teeth/bruxism.[42] In these cases, botulinum toxin injections can be successfully used for thinning the masseter muscle and providing a more oval shape to the face.[42]

3.2 | Key elements of the aesthetic evaluation and treatment plan

Facial shape considerations generally evolve as a person ages.[23,43] Evaluating the cheek-to-chin ratio (i.e., inverted triangle of youth) can determine if the ideal facial shape, commonly associated with a youthful appearance,[43] is still apparent or if facial recontouring procedures are warranted. As the effects of aging are subtle in patients in their 20s and 30s,[35,36] the authors recommend that the overall goals of aesthetic treatments should focus on:

- Sun/UV protection
- Correcting congenital defects
- Fine-tuning minor imperfections
- Optimizing beauty

The guiding principles should be to enhance features in a natural way and maximize the facial aesthetic by shaping and contouring to ideal facial proportions, depending on race/ethnicity and patient preference.[4]

In this age group, one of the most important factors to consider during an aesthetic evaluation is the potential disconnect between what patients perceive subjectively, based largely on generational trends, and what clinicians evaluate objectively. Clinicians must consider the influence of family and friends, social media, as well as the entertainment and fashion industries in facilitating the patient's goals.[17–19,21] This approach may require diplomacy, along with before and after pictures, and education on the part of clinicians to balance the patient's desires with more objective aesthetic ideals.[44]

Clinicians should also be alert to the possible presence of some form of body dysmorphic and borderline personality disorders, which have been reported in ≈10%–15% of patients seeking aesthetic procedures.[45]

3.3 | Nonsurgical treatments in 20- to 30-year-olds

It is important to consider patient selection (who and when not to treat), as well as age-appropriate treatments. In all younger patients, the importance of photoprotection, skin care, and other preventive treatment regimens should be emphasized.[19,46] However, at times, a surgical approach may be necessary, especially in patients presenting with an underlying structural deficiency that is not age related. For example, a 22-year-old White woman with familial eye bags may need lower eyelid blepharoplasty rather than treatment with tissue fillers.

Several minimally invasive aesthetic procedures can be used in this age group to address the goals of fine-tuning and treating minor age-related imperfections, including:

- Injectables, like botulinum toxin agent and tissue fillers—can address or minimize unwanted dynamic lines and volume-related concerns[19]
- Microdermabrasion—can smoothen and brighten the skin[19]
- Bimatoprost ophthalmic solution—can stimulate eyelash and eyebrow growth[47]

3.4 | Case study examples

3.4.1 | Case Study 1

Patient profile

A 30-year-old Asian woman wanted several procedures before her wedding so that she would look more refreshed (Figure 1). The patient was interested in having the appearance of wider eyes and an enhanced periorbital area; she also was concerned about heavy upper eyelids, prominent nasolabial folds (NLFs), and her crooked nose. Upon examination, midfacial flattening and volume deficiency in oral commissures and labiomental groove were evident, and she had a noticeable depression in her nose.

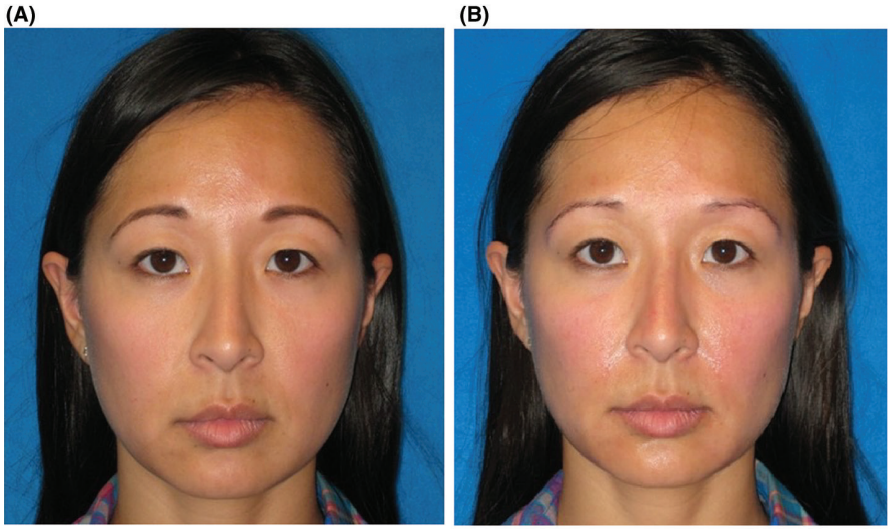

FIGURE 1 Facial rejuvenation using HYC-24 L and onabotulinumtoxinA in a 30-year-old Asian woman who expressed the desire to look "refreshed" for her upcoming wedding. The patient immediately before (A) and 2 weeks after (B) treatment. Patient images provided by Derek Jones, MD.

Treatment

The patient was injected with 20 units of onabotulinumtoxinA in the glabellar area and 3 units in the lateral tails of the eyebrow. To prevent the brow from dropping, the frontalis was avoided to achieve an eyebrow lift and widen the eye area. HYC-24 L, a 24-mg/mL hyaluronic acid (HA) filler with lidocaine (Juvéderm Ultra XC®; Allergan Aesthetics, an AbbVie Company), was injected in the lateral eyebrows (1.0 mL) and cheek (1.1 mL/side) to volumize the midface and enhance the ogee curve of the malar region. HYC-24 L was also injected in the nasal dorsum (0.20 mL) oral commissures (0.40 mL/side), and NLFs (0.40 mL/side).

In the authors' experience, caution should be taken when injecting fillers, especially in the nasal region because it is considered a high-risk zone for vascular occlusion and blindness.[25]

Follow-up

The patient was scheduled for re-treatment with onabotulinumtoxinA ≈3 months later and further assessment for possible additional filler treatment at 6 months.

4 | MEETING FACIAL AESTHETIC NEEDS IN THE FOURTH DECADE OF LIFE (30- TO 40-YEAR-OLDS)

4.1 | Overview: aesthetic considerations

Although the aging process is ongoing throughout adult life, more overt and specific signs of aging begin to appear around the fourth decade.[23] This decade is marked by dynamic wrinkling (e.g., crow's feet lines [CFLs], forehead lines [FHLs], NLFs), shifting/descent of malar fat pads, descent of eyebrow and cheek, loss of jawline definition, as well as pigmentation changes in the skin.[6,23,35]

4.2 | Key elements of the aesthetic evaluation

The glabellar area tends to be of concern to many patients due to dynamic wrinkles, which start to imprint lines in the skin,[6] but it is also important to assess harmony of the entire face. In their 30s, patients can present with a broad range of age-related issues that individualized treatment plans can help address:

- Volume loss from age-related deflation of the deep fat pads[48] may begin during these years, so it is important to evaluate the midface and chin region in order to assess the need for volume restoration
- Midfacial, temporal, and/or infraorbital volume loss are likely in athletic individuals, particularly those who engage in endurance sports[20]

The aesthetic evaluation should focus on a comprehensive treatment plan versus spot treatments.[20] Although individuals typically present with a specific complaint, the aesthetic evaluation may indicate that other complementary treatments or synergistic procedures could provide a superior and more satisfactory aesthetic outcome.[20] Clinicians should also consider the possible effects of pregnancy and childbearing during this decade.[49] The time spent in patient education and understanding the patient's motivating factors can be crucial in developing a cost-effective, investment-oriented treatment/maintenance plan.[44]

4.3 | Nonsurgical treatments in 30- to 40-year-olds

The following nonsurgical treatments can be administered before or after tissue filler and neurotoxin treatments to rejuvenate the face[50]:

- Lasers
- Intense pulsed light (IPL)

- Energy-based therapies (e.g., microfused ultrasound, microneedle fractional radiofrequency)

4.4 | Clinical case study examples

4.4.1 | Case Study 2

Patient profile

A 36-year-old Brazilian woman with a history of extensive sun exposure presented with a range of concerns, including acne, glabellar wrinkles, lateral lip lines, tired appearance, and hyperpigmentation (Figure 2). The patient expressed a desire to improve her appearance in a way that looked natural and fit within her limited budget.

Treatment

Her treatment plan included sunscreen and a skin care regimen for acne. The patient received 28 units of onabotulinumtoxinA in the glabella region and 2 units in each depressor anguli oris, along with 1.0 mL of a nonanimal stabilized hyaluronic acid (NASHA) filler (20 mg/mL HA; Restylane®; Q-Med AB/Galderma) to correct her perioral wrinkles.

Follow-up

At her follow-up, the patient's acne had cleared without any hyperpigmentation, and her facial lines were softened by onabotulinumtoxinA and filler treatments. She returned after 2 years for further treatment. A maintenance plan was instituted, which consisted of acne treatment, regularly scheduled onabotulinumtoxinA treatments (≈45–47 units per visit) to minimize glabellar and periocular contractions, and filler treatments (twice per year for the first 2 years and then as necessary) to restore facial volume in her cheek and address volume loss in her infraorbital hollows, NLFs, and labiomental grooves.

5 | MEETING FACIAL AESTHETIC NEEDS IN THE FIFTH DECADE OF LIFE (40- TO 50-YEAR-OLDS)

5.1 | Overview: aesthetic considerations

Individuals generally begin recognizing advanced signs of facial aging in different areas of the face in their 40s.[12,13,23] Large multinational studies comparing self-assessed facial aging in individuals of various racial/ethnic backgrounds, skin photoypes, and geographic locations revealed different facial aging patterns and rates of progression.[7,12,13] Individuals with Fitzpatrick skin phototypes I/II report more signs of advanced facial aging (e.g., loss of lip fullness, deep NLFs, puffiness under the eyes, dynamic and/or static glabellar lines, and FHL) in their 40s than individuals with Fitzpatrick skin phototypes IV/V (e.g., NLFs, oral commissures).[12] Similarly, Caucasian patients begin to recognize signs of facial aging earlier than their age-matched counterparts belonging to other racial/ethnic groups.[7,12,13] On average, signs of advanced facial aging are generally reported by women between the ages of 40 and 50 years for Caucasians, 50 and 60 years for Hispanics and Asians, and 60 and 70 years for Black women.[12]

During the perimenopausal phase, age-related changes may present along with fluctuating hormonal levels (e.g., estrogen),[51] which can accelerate some deleterious effects:

- Effects on skin, such as acne, sagging skin due to loss of collagen, dermal thinning[51,52]
- Changes to bone (e.g., reduction in the jaw and chin, decrease in mineral density) and fat (e.g., fat composition and distribution)[51,53]
- Exaggerated aging due to atrophic acne scarring and tissue destruction[54,55]

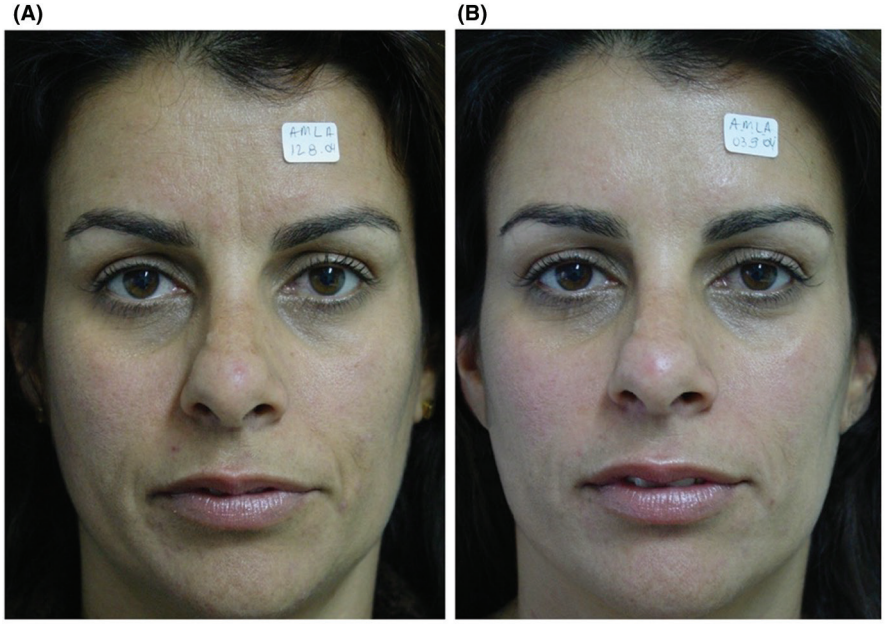

FIGURE 2 Facial rejuvenation and maintenance treatment using sunscreen, acne treatment, onabotulinumtoxinA, and a tissue filler in a 36-year-old Brazilian woman who desired to improve the most bothersome elements of her appearance. The patient before (A) and after (B) initial treatment. Patient images provided by Ada Trindade de Almeida, MD.

5.2 | Key elements of the aesthetic evaluation

This decade of 40–50 years offers extensive opportunity to identify, treat, and correct age-related issues that become more prominent as an individual continues to age. This decade is amenable to multimodal treatments and comprehensive treatment plans (e.g., fillers, toxins, threads, energy devices). Preventive approaches, with injectables and lasers, are more likely to have optimal benefit if initiated before menopause. The mainstays of minimally invasive aesthetic treatments, toxins and HA tissue fillers, have been shown to be well tolerated and effective across varying skin types and ethnicities.[56,57]

Because the effects of aging become more visible during the 40s, a panfacial, multimodality treatment plan becomes important.[28,58] Although it is usual to consider the face in thirds (upper, middle, and lower), the key to achieving an optimal result is to evaluate the face as a whole and to consider the impact of correcting one area on the overall aesthetic outcome.[20] Physicians should assess and treat:

- Age-related volume deficits to restore facial shape
- Aging skin in the periorbital region, characterized by fine wrinkles, rough/uneven texture, pigmentation changes, and thin crepey skin

5.3 | Nonsurgical treatments in 40- to 50-year-olds

Age-related changes can be addressed by a number of nonsurgical treatment options, including[59,60]:

- Neurotoxins
- Tissue fillers
- Chemical peels
- Skin resurfacing using lasers
- Furthermore, depending on the variety and severity of acne scarring, different treatment modalities can be used:
- Fractional laser resurfacing to address superficial irregularities[55]
- Tissue fillers to replace lost facial or individual scar volume[55]
- Surgical procedures for boxcar or large ice pick scars[55,61]
- Calcium hydroxylapatite and injectable fillers for atrophic acne scarring[55]

Injection technique, which is always very important, takes on an even greater importance because the skin is less forgiving and more procedures are often needed in this age group.

Physicians should also help set realistic expectations with patients in their 40s and 50s. It may not be reasonable for individuals in their 40s to expect to look like they did in their 20s or 30s.[62] The most practical and achievable goals are to look well proportioned, somewhat younger than their chronologic age, healthy, and refreshed; attempting to provide too great of a shift between chronologic and perceived age is likely to result in the perception of imbalance. In a postmarketing clinical trial wherein the patient's current perception of his/her age (self-perception of age [SPA]) was assessed before and after treatment with botulinum toxin type A, patients who perceived themselves as looking younger than their current age reported looking approximately 3–5 years younger after treatment with botulinum toxin type A for upper facial lines (e.g., glabellar lines).[63] In a long-term retrospective study involving mostly treatment of upper facial lines (eg, glabellar lines, CFLs, and FHLs), the majority of patients reported looking approximately 7 years younger after 10–15 years of continuous botulinum toxin type A treatment.[64]

5.4 | Clinical case study examples

5.4.1 | Case Study 3

Patient profile

A 47-year-old Latina woman with eye bags, sagging cheeks, and a poorly defined jawline was unhappy with her appearance. She identified her glabellar lines, jawline, and lip lines as three priority areas of aesthetic concern. Upon facial animation, while expressing anger, surprise, and happiness, dynamic lines were present in the glabella, forehead, and lateral orbital areas, respectively.

Treatment

The patient underwent chemical myomodulation based on the MD DYNA Codes™ methodology.[65] Upper facial lines were treated with a total of 64 units of onabotulinumtoxinA (glabella, 20 units; forehead, 20 units; lateral orbit, 24 units; Table S1).

The patient next underwent a global treatment approach based on the published MD Codes™ methodology.[28] Multiple facial areas were addressed, including the anterior temple for contouring the upper face, orbits and tear troughs for refining the periorbital area, cheeks for volumizing the midface, chin and jawline for contouring the lower face, as well as NLFs and lips for refining the perioral area (Figure 3). She received a total of 20.0 mL of HA fillers, including 14.0 mL of a 20-mg/mL HA filler with lidocaine (VYC-20 L; Juvéderm Voluma®; Allergan Aesthetics), 4.0 mL of a 17.5-mg/mL HA filler with lidocaine (VYC-17.5 L; Juvéderm Volift®; Allergan Aesthetics), and 2.0 mL of a 15-mg/mL HA filler with lidocaine (VYC-15 L; Juvéderm Volbella®; Allergan Aesthetics).

Follow-up

Immediately after treatment, the patient achieved the desired outcomes; improvements were observed in the upper, mid, and lower face. Eyebags were improved by treatment of several areas, including the temple, cheeks, orbits, and tear troughs. The jowls and submental skin excess were improved by treatment of several areas, including the cheeks, chin, and jawline. Although filler treatment was performed in a single session, a five-step treatment plan is suggested (Table S2) and may be applied for clinical practice. Clinicians and patients may discuss different sequences of injections depending on the patient's priorities.

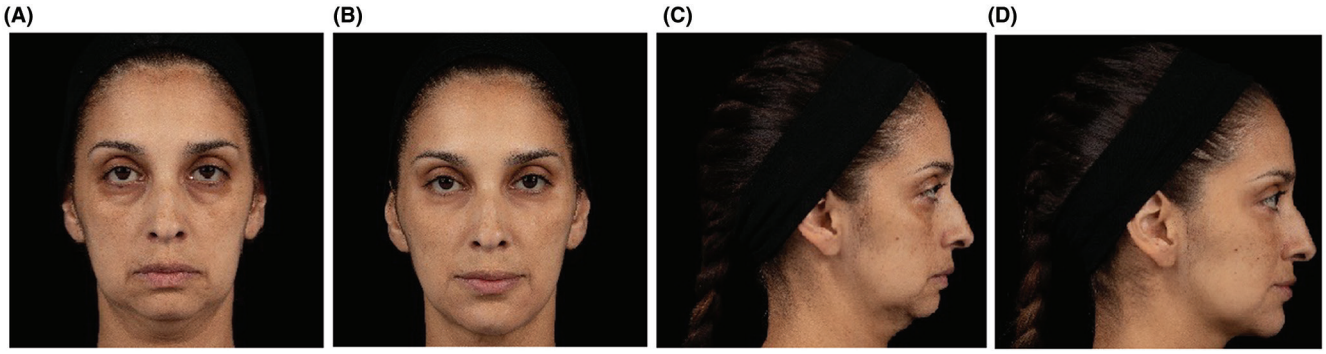

FIGURE 3 Global treatment with onabotulinumtoxinA and hyaluronic acid fillers in a 47-year-old Latina woman. The patient was treated based on the MD DYNA Codes™ for dynamic facial lines and the MD Codes™ methodologies. The treated areas included upper facial lines (glabella, forehead, and lateral orbital areas), the anterior temple, orbits, tear troughs, cheeks, chin, jawline, nasolabial folds, and lips. The patient before (A, C) and immediately after (B, D) treatment. Patient images provided by Mauricio de Maio, MD.

FIGURE 4 Facial rejuvenation using VYC-20L, onabotulinumtoxinA, and plasma skin resurfacing in a 49-year-old Australian woman with moderate photodamage, a sagging jawline, reduced chin volume, and perioral lines. The patient before (A, C) and after (B, D) treatment. Patient images provided by Greg Goodman, MD.

5.4.2 | Case Study 4

Patient profile

A 49-year-old, rural-dwelling, Australian White woman presented with concerns of looking tired and sad and had moderate photodamage on her face and cleavage, perioral lines, a sagging jawline, and reduced chin volume (Figure 4). The patient requested fewer visits because of budget and location constraints and wished to avoid surgery.

Treatment

In the first treatment session, which focused on the upper face, the patient received VYC-20L in the malar areas (1.0mL/side) and onabotulinumtoxinA in the glabellar area (15units) and CFLs (5units/side). Three months later during the second treatment session, which focused on the lower face, the patient received VYC-20L (total of 2.0mL) in the prejowl sulcus, jawline, marionette lines, chin, and nasolabial grooves. Plasma skin resurfacing was also performed to rejuvenate the periorbital area.

Follow-up

The patient's skin vastly improved, and a third treatment session was planned, which would focus on treating the patient's neck and chest using fractional laser resurfacing.

6 | MEETING FACIAL AESTHETIC NEEDS IN THE SIXTH DECADE OF LIFE (50- TO 60-YEAR-OLDS)

6.1 | Overview: aesthetic considerations

Fifty- to 60-year-old patients typically exhibit a spectrum of age-related changes, such as[6,35]:

- Advanced photoaging
- Bulbous and dorsal humps in the nose
- Visible keratoses
- Static wrinkles (i.e., wrinkles at rest)

During this decade, even with previous aesthetic treatments and maintenance, etched-in lines resulting from the cumulative years of facial muscle use, smoking, and environmental damage, superimposed on loss of volume and contour, accelerate the appearance of aging.[6,7,36–38] Midfacial volume loss, which is associated with increasing tear trough deformity and NLF severity, is prominent in this age group.[23] However, there may be some pattern of delay in non-Caucasian individuals as with other signs of facial aging discussed above.[13] Fair-skinned women in Australia also generally reported

midfacial volume loss earlier (50–59 years) than counterparts in the United States (60–69 years),[7] suggesting the contributions of cumulative differences in sun and UV exposure. With advancing age, accompanied smoking is also associated with increased CFL and perioral line severity, as well as decreased lip fullness, while alcohol consumption is associated with increased FHL, glabellar line, and oral commissure line severity.[37]

6.2 | Key elements of the aesthetic evaluation

It becomes increasingly important to understand the complexities presented by patients in their 50s and 60s, as well as the limitations of nonsurgical aesthetic interventions. Deteriorating skin quality can limit the effectiveness of nonsurgical aesthetic treatments, and individuals with a high degree of skin laxity and photodamage are often better candidates for surgery (e.g., blepharoplasty vs tissue fillers) and aggressive resurfacing methods.[66–68] However, because of the array of products and procedures available in aesthetic medicine today, most patients may be able to achieve some improvement with nonsurgical approaches.

Realistic expectations are key to patient satisfaction with the aesthetic interventions performed during this decade. Asking patients to share photographs of themselves from their 30s and 40s can help them visualize how their appearance has changed and understand what can or cannot be addressed via nonsurgical aesthetic treatments.[44] This approach helps guide clinicians in developing treatment plans to create a look that is as natural and harmonious as possible.

The development of an appropriate comprehensive treatment plan for patients in this decade of life requires a thorough social history and physical examination. The physical examination should include panfacial assessment of concavities, convexities, and skin condition (i.e., a three-dimensional approach as well as a skin envelope evaluation). When patients have budgetary constraints, one effective method is to concentrate treatments on that third of the face that is the highest priority from the patient's point of view. Even when cost is no object, patient satisfaction may be higher when improvements are made over time rather than in a single, sometimes overwhelming, session.

6.3 | Nonsurgical treatments in 50- to 60-year-olds

For patients in their 50s, the authors recommend a comprehensive treatment plan, which usually involves a combination approach of at least 4Rs (Relaxing, Refilling, Resurfacing, and Redraping). A multimodal approach includes:

- The use of injectables usually provides a more satisfactory, natural, and balanced appearance than the use of any one product or procedure alone[67]
- Many patients in their 50s benefit greatly from neurotoxin treatment of a variety of sites on the upper, mid, and lower face and the neck, particularly when used in combination with fillers[44]
  - In the authors' experience, at this age, patients become increasingly dependent on the frontalis muscles to keep the brow elevated; therefore, neurotoxin doses to the frontalis are often reduced
- Use of fillers with different rheologic properties to define a sagging jawline and add volume to the midface region becomes imperative, as does treatment of perioral lines and loss of volume in the lips[69]
- Collagen biostimulators (e.g., calcium hydroxyapatite) to reduce wrinkles, refine contours, and restore volume[70]
- Deoxycholic acid injections combined with filler treatments to rejuvenate the lower face[71]

6.4 | Clinical case study examples

6.4.1 | Case Study 5

Patient profile

A 50-year-old African American woman requested to have her smile lines corrected and the texture and tone of her facial skin improved (Figure 5). The patient had deep NLFs, mild glabellar lines, mild nasojugal folds, textural changes, and mild hyperpigmentation.

Treatment

She was prescribed a customized topical skin care regimen. The patient underwent treatment of her NLFs and received HYC-24L (2.0mL), which was injected using a linear threading technique to reduce postinflammatory pigmentation.[57] She preferred to disguise her glabellar lines with her hairstyle rather than undergo toxin treatment, even though onabotulinumtoxinA has been shown to be effective and safe in skin of color.[56,57]

Follow-up

Posttreatment, the filler effects were still present more than 1year later without complications.

6.4.2 | Case Study 6

Patient profile

A 57-year-old female with temporal hollows, as well as malar, zygomatic, modiolus, and prejowl regions (Figure 6).

Treatment

The patient received VYC-20L (5.0mL total) across two treatment sessions, separated by 3months. The patient also received botulinum toxin type A in the upper face to treat glabellar lines (20units), FHLs (12units), and CHLs (14units), as well as in the lower face to

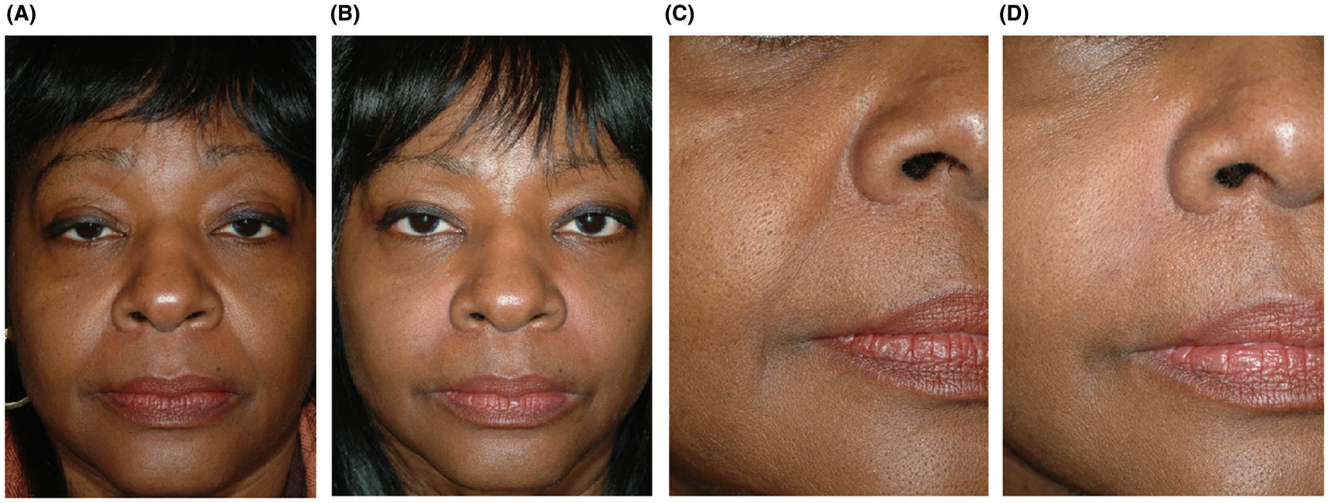

FIGURE 5 Facial rejuvenation using HYC-24 L and a topical skin care regimen in a 50-year-old African American woman who wished to have correction of smile lines and improvement in texture and tone of facial skin. The patient before (A, C) and 2 weeks after (B, D) treatment. Patient images provided by Pearl Grimes, MD.

FIGURE 6 Facial rejuvenation using VYC-20 L and botulinum toxin type A in a 57-year-old woman. The patient before (A) and 1 month after (B) treatment. Patient images provided by Ada Trindade de Almeida, MD.

treat the mentalis (4 units), depressor anguli oris (4 units), and upper platysma (24 units).

7 | MEETING FACIAL AESTHETIC NEEDS IN THE SEVENTH DECADE OF LIFE AND BEYOND (60-YEAR-OLDS AND ABOVE)

7.1 | Overview: aesthetic considerations

In the seventh decade and older, age-related changes are readily apparent, affecting the face, neck, décolletage, hands, and feet.[6,35] As expected, individuals in this age group manifest:

- Panfacial wrinkling and pigmentation changes,[35] which may result from cumulative sun exposure
- Substantial loss of volume and effects of gravity[23]
- Inferior migration of the midfacial fat compartments, likely a consequence of both gravitational forces and volume loss in the buccal fat pad, contributes to infraorbital hollowing and deepening of the nasojugal fold[11]
- Other visible changes, including thinning and elongation of the lips and sagging of facial areas in general,[6,23] owing to the changes in the skin and skin structure as well as bony compartments

The facial shape of an inverted triangle observed in the 20s and 30s (i.e., inverted triangle of youth) transforms to an upright triangle

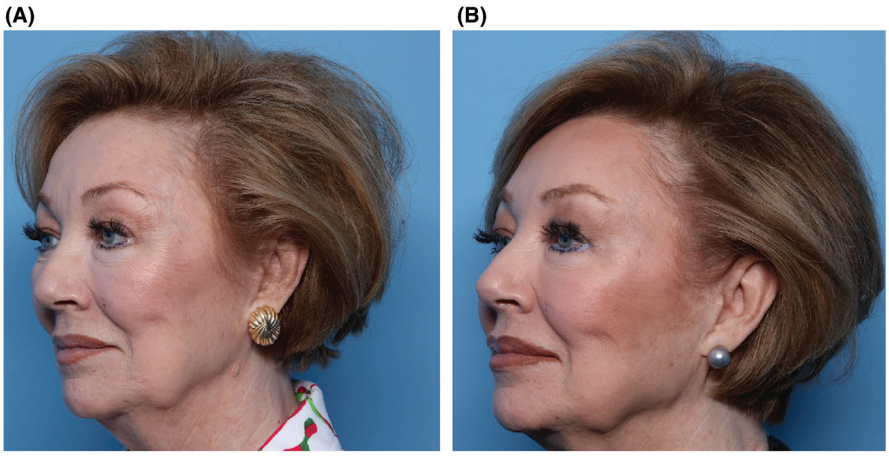

FIGURE 7 Facial rejuvenation using onabotulinumtoxinA and VYC-20L in a 75-year-old White woman. The patient before (A) and approximately 7 months after (B) treatment. Patient images provided by Jean Carruthers, MD.

due to the effects of gravity and volume loss in the upper face.[43] Anatomic and imaging studies demonstrate that underlying soft tissue (e.g., fat) and structural (e.g., bone) changes may not be uniform,[8–10,72] leading to disproportionate facial changes. Studies have also shown reductions in the glabellar, maxillary, and pyriform angles between young (30s) and older individuals (60s and 70s).[9,10,72]

7.2 | Developing a treatment plan for older patients

When developing treatment plans for older versus younger patients, one of the most important concerns to address is midfacial volume loss, which may have a substantial impact on the appearance of other facial areas (e.g., eyes) and therefore on the total treatment plan.[46,48,73] In the experience of the authors, surgery may be the preferred recommendation to try to satisfy a patient's concerns,[66,68] but some patients may not be receptive to a surgical or more invasive approach. Moreover, skin tightening surgery and rhytidectomy procedures alone may address skin laxity but not volume depletion issues; therefore, combining it with other nonsurgical approaches (e.g., injectables, lasers, ultrasound, radiofrequency) remains valuable and often necessary.[68,74] Minimally invasive options can be successfully undertaken if patients are carefully selected, and both clinicians and patients are clear on goals and expectations. Those with a lifetime's accumulation of photodamage, smoking-associated skin, and skin structure changes, as well as poor dental health, are unlikely to achieve successful results from neurotoxin and filler treatments alone. With expert technique and thorough understanding of the changes wrought by anatomy and physiology, properly selected patients can expect to look good for their age, healthy, and less tired overall.

Although many basic principles of aesthetic treatment span the spectrum of ages, older patients can present with more health concerns and medications, leading to treatment hurdles and more potential complications. Physicians may need a different treatment approach for older versus younger patients. Age-related changes in skin and muscle may also alter the effectiveness of certain products. For example, older patients may not respond as well to neurotoxin treatment because of thinner, less elastic skin, weak facial muscles, wrinkles induced by volume loss/tissue sagging rather than muscle contraction, or heavy skin redundancy in the eyebrow and forehead.[75,76] Furthermore, older patients are more prone to bruising.[75,76] In certain cases, neurotoxin treatment may worsen appearance in some areas.[76] For example, older patients whose orbital septum may be reduced or absent may be at higher risk for eyelid ptosis when receiving neuromodulator treatment for glabellar lines.[75] Overall, in the experience of the authors, anatomic changes associated with aging often dictate less-aggressive treatments with neurotoxins in older patients.

7.3 | Clinical case study examples

7.3.1 | Case Study 7

Patient profile

A 75-year-old White female previously received onabotulinumtoxinA to treat the glabella, CFLs, and platysma, as well as VYC-20L to the perioral area.

Treatment

She recently received onabotulinumtoxinA to treat the glabella (35 units), FHLs (10 units), and CFLs (24 units; Figure 7).

Follow-up

Approximately 1 month later, the patient was treated with VYC-20L for her lip margins and marionette lines.

8 | DISCUSSION

In this review, we provide an overview of nonsurgical facial injectable treatments for facial beautification and rejuvenation to meet female aesthetic goals in the various decades of life. Although there are overarching themes associated with a particular decade of life, individuals will show different signs and rates of progression as a result of genetic, racial/ethnic, cultural, geographic, and lifestyle (e.g., exercise, diet, smoking, alcohol intake) influences.[7,12,13,36–38]

Therefore, it is important to distinguish between biological age (i.e., cellular age), chronologic age (i.e., the age based on birth), and perceived age.

In a society surrounded by technologic influences,[17–19] clinicians must incorporate ever-broadening concepts of aging and beauty, along with in-depth product knowledge, into their aesthetic evaluations to help set reasonable goals and provide optimal outcomes resulting in high patient satisfaction. The treatments sought out by patients may not always be the most beneficial approach; therefore, it is essential not only to educate patients about available products and services, but also to establish realistic, age-appropriate expectations. To help evaluate the individual's needs and promote dialogue between patients and physicians, validated aesthetic rating scales can be customized by age and used for making informed and individualized treatment decisions, as well quantitatively evaluating the effects of aesthetic treatments.[77] For example, the Home of Younger Skin (HOYS) software program is a validated photographic grading scale that reflects age-related skin changes in seven geographic regions (forehead and temple, periorbital, midface, lower face, neck, décolletage, and hands) through the decades.[77] Physicians should also work with individuals in creating both treatment and maintenance plans (e.g., skin care regimens). For example, sun protection is important across all age groups to prevent the cumulative effects of photodamage. An individual's current health and motivation may help assess whether the individual will adhere to the treatment and maintenance plans.[21]

To conclude, minimally invasive procedures, such as facial injectable products (e.g., neurotoxin treatments, tissue fillers), can be used to successfully enhance and rejuvenate facial features across different age ranges. Understanding the progression of facial aging and aesthetic considerations of patients by the decade allows for optimal treatment planning and maintenance.

AUTHOR CONTRIBUTIONS

Joel L. Cohen had the idea for this article. All authors provided their insight for the concept of this article. Derek Jones, Ada Trindade De Almeida, Maurício de Maio, Greg J. Goodman, Pearl E. Grimes, and Joel L. Cohen provided the case studies used in the article. All authors have critically revised the manuscript and read and approved the final version.

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CONFLICT OF INTEREST STATEMENT

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ETHICS STATEMENT

Not Applicable.

CONSENT

All patients have provided consent for their photos to be published.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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