



Minimally Invasive Approach to Facial Rejuvenation

The Authors' Preferred Approach

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KEY WORDS

- Minimally invasion • Facial rejuvenation • Injection procedure • Esthetic design

KEY POINTS

- The highest level of esthetic treatment serves not only as a procedure but also as an artistic creation under the limitations of medicine, to discover and create the potential, personalized, and vivid beauty with nature.
- Based on oriental esthetic and anatomic features, the authors have proposed “未来 Future Codes” design in Chinese calligraphy describing the art of facial rejuvenation in Asians to help doctors perform well.
- The “Future Codes” concept encompasses a systematic overall design for the art of facial rejuvenation in Asians.
- This method is associated with beautiful meanings and is easy to learn and perform safely, including the 5 principles of minimally invasive facial rejuvenation: adding, subtracting, tightening, brightening and flexing.

▶ Video content accompanies this article at <http://www.plasticsurgery.theclinics.com>.

INTRODUCTION

In the past decade, there has been an increase in nonsurgical cosmetic procedures worldwide. Many patients choose dermal fillers,¹ botulinum toxin, thread rejuvenation,² and energy-based devices (EBDs),³ such as fiber laser, and radio frequency (RF), to alter their appearance and restore tissue loss.^{4,5}

Dermal fillers and botulinum toxin are the 2 most popular nonsurgical cosmetic procedures performed globally to treat age-associated changes and are often used in combination.⁶ There are many kinds of filler materials for volume replacement and enhancement, such as hyaluronic acid,⁷ collagen, polycaprolactone, poly-L-lactic

acid,⁸ and calcium hydroxylapatite.^{9,10} These fillers can be used for cheek and chin augmentation, nose reshaping, midface volumization, and lip enhancement. Especially for Asians, fillers can improve facial contours with better contrast and a more dimensional effect. On the other hand, to reduce the appearance of wrinkles, many people choose injections of botulinum toxin. Botulinum toxin relaxes certain muscles on the face to make wrinkles less noticeable for a period.¹ The market for nonsurgical, energy-based facial rejuvenation techniques has increased exponentially since lasers were first used for skin rejuvenation in 1983. Improvements in safety and efficacy for energy-based treatment have expanded the patient base considering these therapies viable

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options.¹¹ In the authors' department, patients with mild and moderate degree of prominent fat bulging underwent 980-nm laser-assisted lipolysis via lower eyelid stab incision. The results show that patients with mild to moderate degree of bulging fat pads who resist surgery are good candidates for EBDs, for example, RF and laser-assisted technology (Figs. 1–4).

The use of nonsurgical esthetic facial treatments is also increasing in Asia.¹ To date, most studies of facial rejuvenation therapy have evaluated Western populations, although Asian populations differ in terms of culture, anatomic structure, perceptions of beauty, and signs of aging.^{12,13} For the aforementioned reasons, there are many differences in desired outcomes between Caucasians and Asians. A thorough understanding of the key esthetic concerns and requirements for the Asian face is required to instruct appropriate facial esthetic treatments. Existing published guidelines cannot be directly applied to Asians. Thus, recommendations that are suitable for Asian populations are needed.

Special Considerations

As a biopsychosocial medical model is advocated, physicians' esthetic perception and humanistic care are required in addition to surgical techniques, especially in the field of plastic surgery. Cosmetic rejuvenation should follow the principle of overall design. Many patients have reported being unsatisfied with results, even if the operations were performed very well, because their doctor only solved the focal problem and neglected the relationships between the parts and the whole.^{1,14} For instance, a perfect nose must have a good proportional esthetic relationship with the entire face, as well as a patient who originally intended to correct his or her nasolabial folds. After the injection, the nasolabial fold problem was solved, but the face became fat. Such cases demonstrate that it is particularly important to improve esthetic perception and humanistic care, especially among cosmetic surgeons.¹⁵ Before performing a cosmetic rejuvenation, the overall design and construction of the human esthetic image must be considered, which will lead to better therapeutic outcome, psychological satisfaction, and social recognition of the patients. Furthermore, care should be taken to maintain the patient's psychological state throughout the treatment according to the biopsychosocial medical model.¹⁶

Procedures

In the summary of thousands of teaching and training cases, the authors have proposed "未来

Future Codes" design from Chinese calligraphy describing the art of facial rejuvenation in Asians to help doctors perform well. "未来" (see Fig. 1A) are pictographs of 2 Chinese characters, translated into English as "Future," which represent beautiful meanings and vividly describe the procedure and operating area of the design methods. The "Future Codes" is a method of assessment and operative system based on oriental esthetic and anatomic features, describing a concept of systematic overall design that is easy to learn and can help doctors obtain a satisfying result. The rejuvenation method in this article, which is simple, convenient, safe, effective, and easy to master with good clinical effect, is hidden in the Chinese calligraphy of the two characters, consisting of the following lines and reflecting the aging characteristics of the Asian face (Video 1, Video 2). This method is associated with beautiful meanings and is easy to learn and perform safely, including the 5 principles of minimally invasive facial rejuvenation: adding, subtracting, tightening, brightening, and flexing.

The middle line of the face (see Fig. 1B) passes through the forehead, the glabella complex, the nose, the lips, and the chin. This line is highly important and can affect the success or failure of the whole procedure because it determines the contour, symmetry, balance, coordination, proportion, stereo, light, and shadow on both sides of the face. Therefore, this is a key line in the "Future Codes" design.

The first horizontal line (see Fig. 1C) passes the arch of the temple region, the eyebrow, and the glabella complex. The second horizontal line (see Fig. 1D) passes through the cheeks or the "apple muscle." If an injection is applied inside this line, the cheekbone will appear narrower, helping reduce the width of the cheekbones in Asians. The horizontal lines of the eyebrow and the "apple muscle" are also considered aging criteria. Obvious lacrimal sulcus and nasolabial folds are considered signs of aging. On the other hand, the other 2 oblique lines run along the nasolabial folds (see Fig. 1E). The patient will appear younger if the nasolabial folds are treated with injection fillers. Finally, 2 nasojugal folds and the tear trough are added (see Fig. 1F), which combine the 2 Chinese characters and the "Future Codes." The "Future Codes" design includes the important esthetic points and lines of facial contour and encompasses the core principles of facial rejuvenation and esthetics (see Fig. 1). All these lines make up the word "Future" in Chinese characters. Therefore, Chinese calligraphy of the two characters represents the core of esthetic facial rejuvenation in Asian patients. And our esthetic concept of

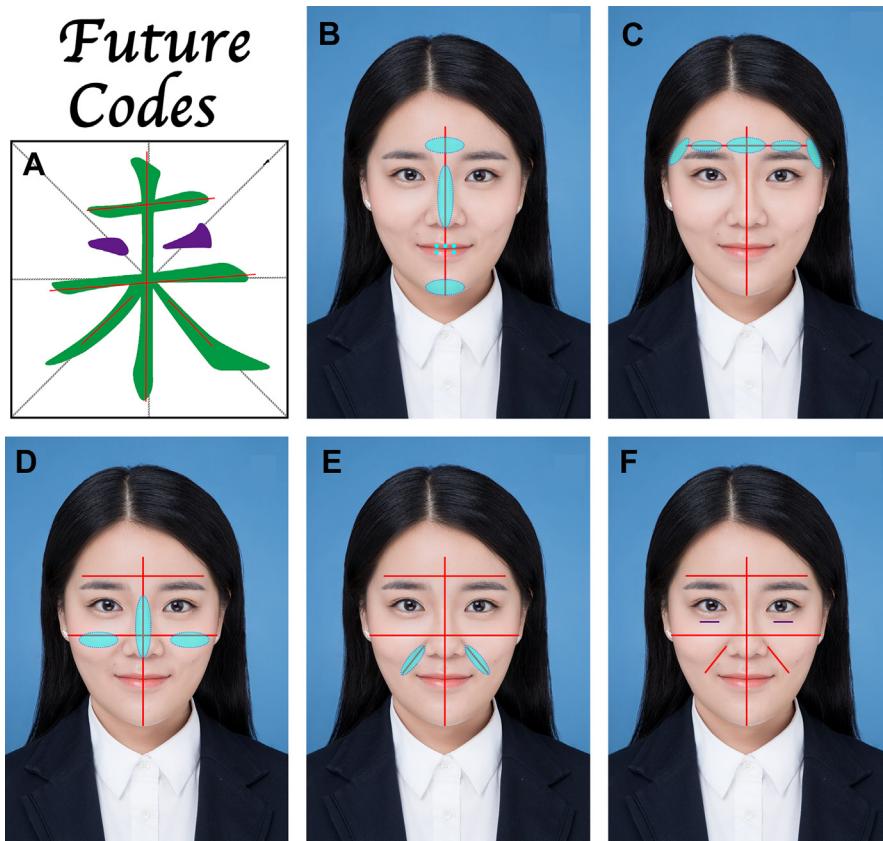


Fig. 1. Dr Cui's "Future Codes" design based on Chinese calligraphy. (A) Two Chinese characters "未来," which means "Future" in English. The concept encompasses the systematic overall design for the art of facial injection in Asians. The middle line of the face (B, 26-year-old woman) passes through the forehead, the glabella complex, the nose, the lips, and the chin. (C) The first horizontal line passes the arch of the temple region, the eyebrow, and the glabella complex. (D) The second horizontal line passes through the cheeks or the "apple muscle." (E) The other 2 oblique lines run along the nasolabial folds. (F) Finally, 2 nasojugular folds, tear trough, are added. Photo by Oliver Johnson on Unsplash

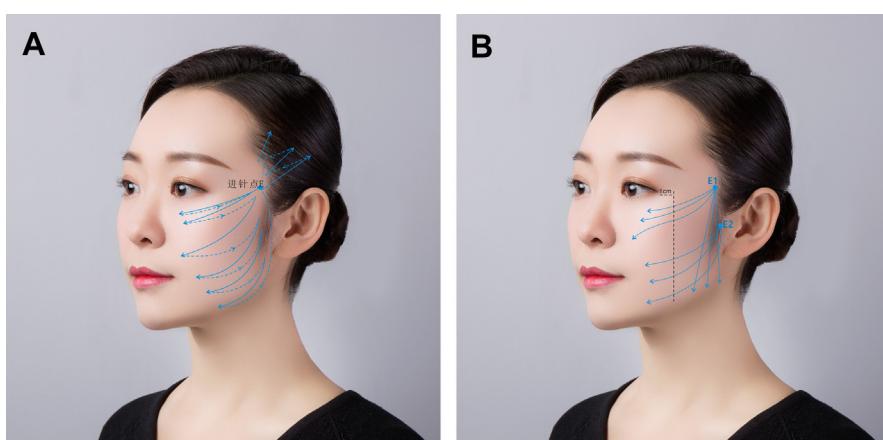


Fig. 2. (A) Thread rejuvenation. Bilayer continuous thread implantation with multiple Z shaped technique. (B) Bilayer, 2 entry points, 3 fan-shaped thread implantation technique. Watch the video for more details: [Video 3](#) and [Video 4](#).



Fig. 3. Case 1. A 48-year-old woman underwent the assessment and injection procedures according to the authors' "Future Codes" design method: preoperative (left) and 1-week postoperative (right) views.



Fig. 4. Case 2. A 37-year-old woman: preoperative (left) and 2-week postoperative (right) views.

facial rejuvenation is overall design of the facial rejuvenation combined with 5 principles of minimally invasive facial rejuvenation: adding, subtracting, tightening, brightening, and flexing. The fillers (see [Video 1](#), [Video 2](#)), fat grafting, and thread rejuvenation are adding and flexing method, including bilayer continuous thread implantation with multiple Z shaped technique ([Fig. 2A](#), [Video 3](#)) and bilayer, 2 entry points, 3 fan-shaped thread implantation technique (see [Fig. 2B](#), [Video 4](#)). Botulinum toxin, optical fiber laser ([Video 5](#)), and RF ([Video 6](#)) are reduction and tightening methods.

The appearance of aging is mainly due to relaxation of the skin and soft tissue, displacement of the tissue structure, the appearance of skin folds, changes in the texture of the skin, and the lack of tissue capacity and elasticity. These features are also reflected in the "Future Codes." The operation is feasibly performed with knowledge of anatomy, and complications can be effectively avoided by following this rejuvenation protocol.

Postoperative Care and Expected Outcome

Through the systematic comprehensive "Future Codes" design, the patient acquired a face with harmonious ratios, a contouring structure, clear light and dark contrast, tightened skin, and flattened eye bags. The procedures resulted in the appearance of more spirited eyes, a stereo and natural nose structure, rounded apple muscles, narrow cheekbones, shallow and round nasolabial folds, and enhanced length, convexity, and radius of the chin. The entire facial appearance was perceived as younger.

The following features are commonly considered to be pleasing: (1) elegant bearing, (2) slim figure, (3) beautiful face, (4) slender neck, (5) proportional breasts, (6) narrow waist, and (7) round hips. In the authors' opinion, cosmetic doctors can be divided into 3 levels as follows: the ones on the first level are those who use various products and equipment and just master basic techniques and basic knowledge of anatomy to solve basic problems. At the second level are the ones who are experienced in facial rejuvenation and can prevent and manage complications. At the third level, the highest level of esthetic treatment, not only serving as a procedure but also mastering the principal techniques and deepening their fundamental knowledge, doctors regard injection therapy as an artistic creation conducted under medical restrictions to create beauty in individuals; the creation of beauty will be achieved through systematic and overall design instead of a single method of treatment.

Management of Complications

Complications include signs of local reactions such as bruising and swelling, infections, allergies, nodules, Tyndall effect, vascular adverse events, and serious systemic adverse reactions. The authors have done statistics in their own department, demonstrating that 9 of 147 patients experienced minor local reactions such as bruising and swelling 3 days after "Future Codes" procedure. The issue resolved itself shortly; none of them presented any signs of infection, allergies, local nodules, vascular adverse events, or serious systemic adverse reactions.

Revision or Subsequent Procedures

Adjuvant therapy: After the injection treatment, the following procedures can also be applied to achieve better effects: (1) a fiber laser can be used to dissolve eye bag fat, (2) RF can be used to tighten the skin of the lateral corner of the mouth and the mandibular margin, and (3) hair can be trimmed.

Case Demonstrations

Case 1

A 48-year-old woman underwent the injection process according to the authors' "Future Codes" design method.

1. Injection at the middle line: (a) The glabella complex is injected with 1 mL hyaluronic acid by puncturing with a sharp needle until the tip touches the periosteum, ensuring no blood is withdrawn, and then pushing slowly. The area is massaged while injecting. (b) The nose is injected with 1 mL hyaluronic acid plus 1% lidocaine for local anesthesia by puncturing the tip of the nose with a 23G blunt needle. (c) The lips are injected with a total of 0.4 mL hyaluronic acid with a 30G sharp needle: 3 points on the upper lip and 2 points on the lower lip are injected with 0.08 mL each. (d) The chin is injected with 1 mL hyaluronic acid with a 27G to 30G sharp needle by puncturing with the sharp needle until the tip reaches the periosteum.
2. Injection of the first horizontal line: (a) The eyebrows are injected with 0.6 mL hyaluronic acid with a 23G blunt needle by subcutaneously puncturing with a blunt needle at the eyebrow tail. Hyaluronic acid is injected into the eyebrow while subcutaneously retracting the needle. (b) The temporal region is injected with 2 mL hyaluronic acid using a sharp needle by touching the needle tip to the periosteum, ensuring no blood is withdrawn, and then pushing slowly.



Fig. 5. Case 3. A 36-year-old woman: preoperative (left) and 8-week postoperative (right) views. Case 4. A 29-year-old man: preoperative (left) and 4-week postoperative (right) views.

Each side of the temporal region is injected with 1 mL hyaluronic acid while massaging.

3. The second horizontal line for the “apple muscle” is injected with 1 mL hyaluronic acid. For the apple muscle, the nasolabial folds, and the tear trough, a 23G blunt needle is used to puncture 1.5 cm away from the outer corner of the mouth, subcutaneously or on the perios-teum, and 0.8 mL hyaluronic acid is injected on each side. The needle tip can reach the apple muscle, the tear trough, and the nasolabial folds.
4. The nasolabial folds are injected with 2 mL hyaluronic acid by puncturing 1.5 cm away from

the outer corner of the mouth, with 1 mL injected on each side.

The tear trough is injected with 0.3 mL hyaluronic acid by puncturing 1.5 cm away from the outer corner of the mouth, with 0.15 mL injected on each side (see **Fig. 3**).

Case 2

A 37-year-old woman underwent the comprehensive use of multiple methods of hyaluronic acid injection, thread rejuvenation, and botulinum toxin treatment according to the authors’ “Future Codes” design method. The preoperative and

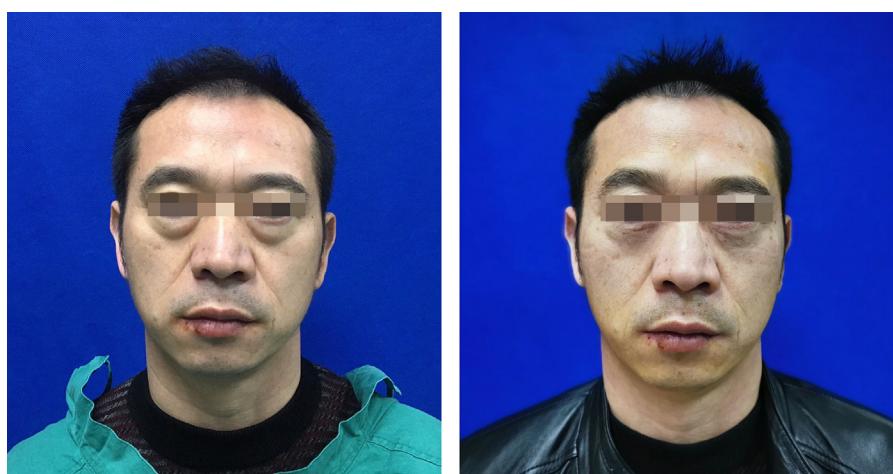


Fig. 6. Case 5. A 42-year-old man: preoperative (left) and immediately postoperative (right) views.

2-week postoperative follow-up views are provided in **Fig. 4**; more details are provided in Videos 2–4.

Case 3

A 36-year-old woman underwent minimally invasive laser-assisted lipolysis and skin tightening on lower face. The results were satisfactory during the 2-month follow-up visit (**Fig. 5**).

Case 4

A 29-year-old woman underwent minimally invasive laser-assisted lipolysis and skin tightening on lower face. The results were satisfactory during the 1-month follow-up visit (**Fig. 5**).

Case 5

A 42-year-old man underwent minimally invasive laser-assisted lipolysis and skin tightening on

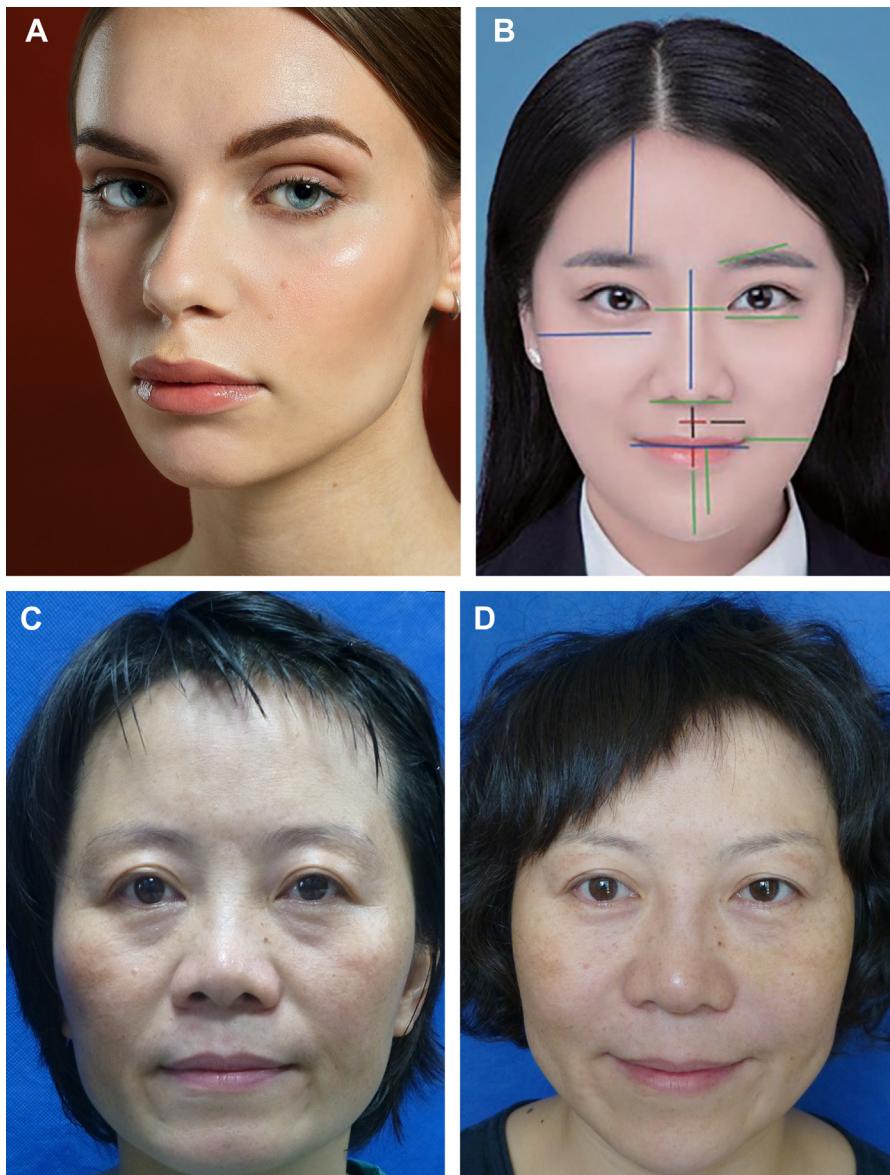


Fig. 7. (A, B) Western and oriental faces. The proportion markers on a beautiful Asian face (B, 26-year-old woman). The green line is the baseline X, then the blue line is 1.618 X, the black line is 0.618 X, the orange line is 0.382 X, and all the same color lines are the same length. 1.618, 0.618, and 0.382 are all gold ratios (The theory of proportion markers from Dr Arthur Swift²¹). (C, D) 48-year-old woman, before (lower left) and 3 months after injection (lower right) according to "Cui Codes" design method (Photo by Oliver Johnson on Unsplash [see **Fig. 7A**.].)

lower eyelids. The results were satisfactory immediately postoperatively (Fig. 6); more details are provided in Video 5.

DISCUSSION

Most Asian patients, regardless of age, prefer to avoid surgery as much as possible and seek natural results. Therefore, patients' expectations should be evaluated, and innovative procedures should be proposed to meet Asian patients' esthetic needs, including the facial shape, structure, and proportion, as well as the effects of aging on their faces. The esthetic standards of Eastern and Western populations remain different. Westerners possess clear facial contours, narrow cheekbones, contouring structures, and obvious light and shadow effects. Oriental faces are plump, with large cheekbones, unclear contours, and delicate skin (Fig. 7). Facial filling is commonly performed to restore vitality and resist aging in Western countries. Orientals focus on filling and contouring. As Asians differ from Westerners in facial appearance and anatomic structure, noninvasive esthetic treatments are appropriate for Asians.¹ However, to date, most studies and recommendations regarding facial rejuvenation have referred to Western populations.¹⁷⁻¹⁹ Regardless of national and cultural differences, some esthetic principles, including symmetry, balance, proportion, coordination, and unity of diversity, are shared in common between Eastern and Western populations (see Fig. 7). In addition to these basic principles, the following features are also commonly considered to be pleasing: (1) elegant bearing, (2) slim figure, (3) beautiful face, (4) slender neck, (5) proportional breasts, (6) narrow waist, and (7) round hips.^{1,14} The highest level of esthetic treatment serves not only as a procedure but also as an artistic creation under the limitations of medicine, to discover and create the potential, personalized, and vivid beauty with nature.

Researchers have discovered that the human perception of physical beauty is closely related to the golden ratio (as rounded to 1.618). The ratio of the distance between certain regions of the face relative to the distance of another defined region is considered ideal at 1.618.²⁰

Most faces regarded as beautiful or attractive have a significant number of markers whose proportions are very close to the golden ratio. As shown in Fig. 7B, the green line is the baseline X, the blue line is 1.618 X, the black line is 0.618 X, and the orange line is 0.382 X; lines of the same color are the same length. 1.618, 0.618, and 0.382 are all gold ratios, and there are golden ratios between various lines.

Therefore, proportional esthetics is an important feature of beauty and occupies an important position in formal esthetics.²¹

The authors^{14,16,22} have published papers since 2007 putting forward the concept of overall esthetic design, which includes a systematic overall design and esthetic evaluation before the treatment procedure, psychological counseling during the peritreatment period, and the comprehensive use of multiple methods. After treatment, making up, clothing, modeling, and etiquette training are necessary complements to create a beautiful appearance that would be deemed to exude charm and vitality.

In the authors' opinion, cosmetic doctors can be divided into 3 levels as follows: the ones on the first level are those who use various products and equipment and just master basic injection techniques and basic knowledge of anatomy to solve basic problems. At the second level are the ones who are experienced in facial rejuvenation and can prevent and manage complications. At the third level, mastering the principal rejuvenation techniques and deepening their fundamental knowledge, doctors regard rejuvenation therapy as an artistic creation conducted under medical restrictions to create beauty in individuals; the creation of beauty will be achieved through systematic and overall design instead of a single method of treatment.^{2,23}

SUMMARY

An increasing number of Asian people are seeking nonsurgical facial esthetic treatments. Ethnic Asians differ from Western populations in both facial appearance and baseline structural facial anatomy. However, there is a lack of clinical instruction to doctors who provide facial esthetic treatment of Asian patients. Therefore, there is an urgent need for instruction to guide physicians in performing cosmetic rejuvenation treatments for Asian patients, and these procedures should be easy to learn and perform safely. The authors' "Future Codes" design is derived from Chinese calligraphy of 2 Chinese characters, which means "Future" in English. The concept encompasses a systematic overall design for the art of facial rejuvenation in Asians. The author H.C. has thousands of cases of treatment experience and has extensive teaching experience of training more than 10,000 practitioners. This method is associated with beautiful meanings and is easy for clinicians to master. This is the first systematic solution available in the clinic that can be used to design facial esthetics and rejuvenation in Asians through Eastern philosophy and culture.

CLINICS CARE POINTS

- The concept of overall esthetic design, which includes a systematic overall design and esthetic evaluation before the treatment procedure, psychological counseling during the peritreatment period, and the comprehensive use of multiple methods.
- “Future Codes” design in Chinese calligraphy describes the art of facial rejuvenation in Asians to help doctors perform well.
- 5 principles of minimally invasive facial rejuvenation: adding, subtracting, tightening, brightening, and flexing.

DISCLOSURE

The authors have no financial interest to declare in relation to the drugs, devices, and products mentioned in this article.

SUPPLEMENTARY DATA

Supplementary data related to this article can be found online at <https://doi.org/10.1016/j.cps.2022.09.002>.

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