Aesthetic Medicine: Trends, Patients' Needs

Paloma Tejero

People say sometimes that Beauty is superficial.
That may be so. But at least it is not so superficial as Thought is.
To me, Beauty is the wonder of wonders.
It is only shallow people who do not judge by appearances.
The true mystery of the world is the visible, not the invisible.
(Oscar Wilde, The Picture of Dorian Gray)

Aesthetic Medicine: Reviewing Concepts

The search of the beauty and the body adornment to distinguish itself from others has been a constant in the history of humanity. The human being has always pursuit archetypes of beauty, which integrate him/her in a collective but at the same time make him/her feel different, unique. People have decorated their body with paintings, tattoos, ornaments and pendants, with a profound cultural, social or religious significance.

For the biologist, the appearance is an indicator of the quality of the genes and for that reason it plays an important role in our selection criteria. The attractiveness or beauty is something objective and mathematically measurable, which is part of the evolutionary process when considering beauty as indicative of a stronger immune system. Being beautiful in the natural world would mean being a carrier of good health. For Victor Johnston, evolutionist psychologist, there is a strong biological determinism marked by the hormones and that is part of our nature in order to perpetuate the species.

So there are no personal or cultural options. Thus, men like the faces that show fertility, that is, those whose level of testosterone is low, and women are attracted by men with a good physical aspect or good immune system which means bearer of good genes. Rosa Raich [1], on the other hand, alludes to higher cognitive processes that usually inhibit biological aspects and influence the characteristics and factor of personality and intellectuality. Today nobody discuss that the phenotype, the group of external features and characters, depends on the genes which determine it and of the pressure that the environment could have over the genetic constitution of the individual [2].

Already in 3500 BC, in the Ebers papyrus, cosmetic formulas and some tissue transplants are described. The Egyptians, a civilization advanced for their time, also reflected their medical knowledge in the papyrus of Edwin Smith (2200 BC), which describes surgical interventions and the treatment of traumatic injuries and facial alterations. The Egyptians established in an empiric way the proportions of the human figure, using segments as a unit of measurement [3].

Nowadays, medical techniques have been utilized to achieve the concept of beauty and well-being, with therapeutic and iatrogenic implications, which make it necessary for them to be indicated and controlled by medical professionals.

P. Tejero (✉)
University of Alcalá, Madrid, Spain
e-mail: palomatejero@mediestetic.com

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At present, we know and seek the "health–beauty binomial". The waist measurement is important not only because it shows us a slender figure, but because its increase is an indicator of cardiovascular risk. The appearance in people over 70 is an indicator of vital prognosis [4]. And of course, no one doubts the "therapeutic power of the image".

Being well improves self-esteem, making our patients more "happy", improving as well their immunity. One-fifth of people with a chronic physical health problem (such as cancer, diabetes, heart disease and stroke) have depression—a rate two to three times higher than those who are in good physical health. A combination of depression and a chronic physical health problem can significantly aggravate negative outcomes for people with both conditions.

Aesthetic Medicine: Patients and Needs

Only a few decades ago aesthetic medicine was a privilege of a few; today it has become a social need and it is the patients who demand medical attention to help them be healthy and feel good. Aesthetic medicine is and has to be a preventive medicine. No medically aesthetic act can be performed without a thorough clinical history of the patient, an adequate selection of procedures, informing the patient rigorously and making him/her participate in the decision-making process. Informed consent is a key part of the doctor-patient relationship.

The prototype of healthy female patients between 40 and 60 years old that requires curbing the signs of ageing or changing some of their anatomy has changed radically.

Today in the consultations of aesthetic medicine, we face patients of all ages and conditions. In many consultations, there are three generations who come looking for that condition of "mortality", coined by Mayer, in which everyone wants to look young, healthy and beautiful [5].

The male patient has built up completely, not only requesting to maintain or recover his hair, or a muscular and attractive body, but also as a consumer of cosmetics and treatments that avoid the tired appearance of the face, or the appearance of wrinkles.

And our patients are not always healthy. We live the boom of the demand of medical-aesthetic treatments in patients over 70 years. This requires the doctor to have a broad basic training, since these patients are generally polymedicated, have comorbidities and have dermal and anatomical conditions that oblige them to modify the treatments and adapt them, sometimes even with medical-legal implications; it is sufficient to remember the contraindications for botulinum toxin use in aesthetic medicine for ages 65 and older. We must be prepared for the great challenge of the demography of ageing, which requires social sustainability, in which it is essential to promote personal autonomy in health care, as the WHO warns when it speaks of active and healthy ageing [6].

Professor Santiago Grisolia, 1990 Prince of Asturias award for technical and scientific research (at 94 years old), affirms that "Old age is not the end of the good things in life" [7]. I can boast of having in my consultation today patients over 90 years, who for more than 30 years we have been taking care of.

And what about patients with chronic diseases like diabetes and especially the great problem of autoimmune diseases, in which the conditioner is not only the altered response to many treatments, especially those that are based on the introduction of a foreign body (fillers, threads), but also in the modifications that involve the use of medicines like interferons and all biological medicines? We cannot systematically refuse to treat these patients. You have to look for the treatment and the right time. We have the experience of approaching a patient with HIV. We need solutions for these patients.

The other great challenge is the oncological patient. The number of new cases increases alarmingly, and we know that one in two men and one in three women will have cancer at some point in their lives. The good news is that survival rates increase, and we expect cancer to be for the most part a chronic disease [8, 9]. But in the oncological process, there is a "continuum",

from the diagnosis that marks and conditions the patient for his/her whole life [10]. And the cancer patient demands medical-aesthetic treatment. It not only has to face the disease, but also to change its image, skin alterations, hair loss, surgeries and their sequelae, body dysmorphisms. Aesthetic medicine, integrated in the oncological therapy, plays a fundamental role in the prevention of the disease and the sequelae of the treatments: chemotherapy, radiotherapy and surgery. New medications based on immunological treatments, as well as the molecular target drugs that affect growth factor receptors, produce a lot of cutaneous adverse symptomatology that we have an obligation to prevent and combat. And for that we need training – training and dialogue with all the actors of the disease process: oncologists, radiotherapists, dermatologists, physiotherapists and specialized aestheticians. The approach used for these patients is always multidisciplinary.

The patient who comes for a consultation for aesthetic medicine today seeks a medical professional who not only improves his/her image and attractiveness but also educates him/her in health: creation of healthy habits, food education, maintenance of ideal weight and also prevention of diseases based on these habits (photoprotection, adequate diet, exercise). The Academy of Dermatology stated that peels are a valuable weapon to prevent skin cancer [11]. Increasingly the relationship between obesity and cancer has been examined, and we know that there is a relationship between fat intake and metastases [12].

Aesthetic medicine also accompanies the patient in the great moments of life: adolescence, acne treatments, the first cosmetics, learning to eat and take care of one's self, after pregnancy, hormonal changes, menopause and andropause. Aesthetic medicine has to adapt to all these needs. That is why a new challenge has emerged, the aesthetic gynaecology field, which seeks not only to rejuvenate and beautify the "intimate zones" but also to combat the atrophy and dryness of the vagina in the menopausal woman, or who has had treatments that lead to it, or treatments in men who have had need of therapy with antiandrogens.

For all this, aesthetic medicine is in constant transformation and adaptation. It is primarily Medicine with capital letters, which requires continued training. Also the aesthetic doctor has to have extensive knowledge to be able to help his/her patient of the most appropriate treatment at any time, but that does not mean that it can be the "best among all treatments". More clearly, it becomes necessary to subspecialize within an integrative medicine. New technologies, new approaches with regenerative medicine and the new fields of treatment require an increasingly specific training in order to guarantee the quality of our treatments, which are not always free of risk and which force us to know very precisely how to address potential adverse effects and management options for potential complications of many procedures available for patients [13].

Where Are We Going: The New Challenges

Current trends in surgery and aesthetic medicine are aimed at two objectives – facial rejuvenation and body remodelling – framed in a patient with increasingly longer life expectancies. But in order to achieve these objectives, less aggressive techniques are required, with a shorter recovery time and minimal sequelae. To achieve this, it is essential to develop new technologies based on the use of different sources of energy (laser, light sources, radiofrequency), which are in continuous evolution, and knowledge of different active principles with molecules capable of preventing and repairing. But if there has been a major revolution, it is in utilizing the potentiality of our own body to repair the various processes that occur over the years [14]. Regenerative medicine is undoubtedly the protagonist of the last years and the one that will continue to advance, together with the advances in the knowledge of the genome and the individualized DNA, which will allow us to prevent different processes and to personalize not only medical treatments but also the cosmetics to be used and the medical-aesthetic treatments to be performed.

In the regenerative medicine market, it is estimated that it will bill more than USD 1 billion in 2021. Cell-based products are expected to dominate the world market, segmented to cell therapy, gene therapy, tissue engineering and immunotherapy. Immunotherapy is currently the fastest-growing segment on the world market [15].

These and other methods known to be in use or under development promise to soon bring society to surprising choices and perplexing difficulties, all in a worldwide effort to provide reliably rejuvenating stem cells and to produce immunologically adapted organs that serve to prevent, treat, cure or even one day eradicate diseases with genetic or epigenetic mechanisms.

With the era of human engineering, a major debate about regulations, procedures, prohibitions, restrictions, institutional controls and transparency rules of financing is also underway, which for many are proving ineffective in an environment where they find enormous biomedical and bioethical potential at risk and in which rights, health and heritage come into play with bioethical assumptions and formal protections that urgently need reassessment.

One of the most important challenges in the prevention and treatment of ageing of the skin is to know the characteristics of the same, so as to be able to pose the most effective treatments. If to date we had dermoanalysis equipment that allows us to know the pores' status, acne, vascular and melanin alterations, the degree of hydration, etc., we now want to have more information about the ageing process. We cannot treat what we do not know. We know that each of us, we have a genetic base, an inheritance, on which the environmental factors and our way of life will give rise to a phenotype that will condition us in our way of being, of living, of getting old, of getting sick and of dying. The use of the overall gene expression profile, also known as transcriptomic or genomic, provides a means for identifying the main affected pathways in skin ageing which may be improved with appropriate cosmetic compounds. Some of the aspects of skin ageing that can be treated include lipid synthesis, antioxidant capacity and the ability of hyperpigmentation and to respond to sunlight. The use of "gene expression profile" together with cultures of human skin cells in vitro has served to identify cosmetic compounds and understand their biological effects [16].

All this allows to perform a treatment adapted to the needs of the patient and to carry out a personalized follow-up.

The knowledge of our genes indicates our susceptibility. The new cosmetics based on genomics (genocosmetica) seeks to be a personalized cosmetics. We advance in this line, but the assets we have are still the basis of a treatment that must be continuously modified according to our physiological changes, the climate in which we find ourselves or the place where we work.

The use of stem cells, in aesthetic medicine and plastic surgery, is currently undergoing continuous development, including the best source of production, the therapeutic potential and, above all, its safe use in chronic wounds and cure of fistulae, scar management and breast reconstruction, as well as in bone and tendon repair and regeneration of the peripheral nerve [17].

Within this field, advances in regenerative medicine and hair tissue engineering in recent years have raised new hopes for the introduction of new stem-cell-based approaches to treating hair loss. It is now possible to produce hair in vitro or to manipulate the cells in their native place (live lineage reprogramming) to reconstruct the hair follicle. However, there are still problems with the functionality of cultured human hair cells, adequate selection of non-hair cell sources in cases of donor hair scarcity and the development of crop conditions. On the other hand, in the case of live lineage reprogramming, the selection of corresponding induction factors and their efficient delivery to guide resident cells in order to reconstruct functional hair requires more research for its use. We are at a crucial moment in which we highlight recent advances of the use of growth factors and stem cells obtained from both fat and skin and hair follicle structures, which must be taken into account to develop reproducible cellular treatment, safe and efficient, which is the basis for the treatment of alopecia. As several authors claim, "we are close but not yet" [18].

The objective is not to grow old: Some scientists like Juan Carlos Izpisua say that soon we will have the formula for eternal youth. As published in December 2016, in the journal Cell [19], a group of scientists led by professor Izpisua stated that through cellular reprogramming, they have succeeded in making human skin cells cultured in the laboratory rejuvenate their appearance and functioning.

They have also made mice rejuvenate, cure diseases and live longer, discovering "that the intermittent expression of genes associated with an embryonic state can reverse the signs of aging". Izpisua states that "our study shows that aging does not evolve in one direction, it has plasticity, and by properly modeling the process, aging can be reversed". As a basis for their work, they used the study of cellular reprogramming, a process in which through the expression of four genes, known as the Yamanaka factors (Nobel Prize in Medicine), scientists are able to convert any adult cell into a pluripotent stem cell (iPSC). IPSCs, like embryonic stem cells, are able to divide indefinitely and become any type of cell in our body.

The steps are very important, but we are still very far from being able to reverse the process of ageing in a safe and controlled way in humans. By improving the way we get older, we will reduce the risk of many diseases. "Our goal is not only to get us to live longer, but to live more healthy years, that the years are healthy and that we do not have to suffer the symptoms and diseases of aging", declared by Izpisúa in a recent interview with the newspaper EL MUNDO [20], in which he further states that "We alter aging by changing the epigenome, which suggests that aging is a plastic process, which can be manipulated". Epigenetic changes throughout life are the result of our interaction with the environment: what we eat, drink, exercise. Could this technique reduce the negative epigenetic marks that cause exposure to the sun or the consumption of alcohol and tobacco? Izpisúa is clear: "Because of their chemical nature, these brands are reversible and modifiable. Therefore, yes, epigenetic changes caused by sun, alcohol or tobacco could also be reversed".

Anyway, although in principle they could be reversed, we could not reverse the mutations in the DNA. Therefore, it is best to limit the consumption of these substances.

Conclusions

The current needs of patients in the area of aesthetic medicine are encompassed in a greater knowledge of the male patient who, still representing a small fraction of all cosmetic and medical-aesthetic procedures, are an emerging and rapidly growing demographic market in the field of aesthetic medicine [21, 22].

In deepening the knowledge of the process of ageing, and the possibility of reversing the changes linked to age. Recall that the number of elderly patients arriving for consultations is increasing, which also leads to the management in many cases of patients with polymedic and multiple pathologies.

Another aspect not insignificant is the demand for medical-aesthetic care of patients with cancer and other important chronic diseases, in which the challenge of survival and knowledge of the "therapeutic power" of the image make it necessary for the aesthetic doctor to have thorough knowledge about the processes of the disease and work as a team with other medical, health and aesthetic professionals.

As for trends in treatments, the goal is to achieve a beautiful, attractive, harmonious appearance—always in the frame of the binomial health–beauty.

Patients demand safe, effective, minimally invasive techniques, without sequelae and without adverse effects. We cannot offer magic or imposition of hands. All treatments can have adverse effects and it is necessary to properly inform the patient.

The new therapies based on regenerative medicine promise spectacular results, but today they are on an initial path, but still far from being applied in a generalized, reliable and safe way.

Only if we are based on a scientific study, good practice and a strict code of ethics, we will achieve quality aesthetic medicine, which satisfies the needs of our patients.

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