

al.]. Low serum IL-10 concentrations and loss of regulatory association between IL-6 and IL-10 in adults with major depression. *J. Psychiatr. Res.* 2009; 43: 962-969.

22. Tarocco A., Caroccia N., Morciano G. [et al.]. Melatonin as a master regulator of cell death and inflammation: molecular mechanisms and clinical implications for newborn care. *Cell Death Dis.* 2019; 10:317.

23. Omeiza N.A., Abdulrahim H.A., Alagbon-si A.I. [et al.]. Melatonin salvages lead-induced neuro-cognitive shutdown, anxiety, and depressive-like symptoms via oxido-inflammatory and cholinergic mechanisms *Brain Behav.* 2021; 11: e2227.

24. Lamtai M., Zghari O., Azirar S. [et al.]. Melatonin modulates copper-induced anxiety-like, depression-like and memory impairments by acting on hippocampal oxidative stress in rat. *Drug Chem. Toxicol.* 2021; 1-9.

25. Ali T., Rahman S.U., Hao Q., [et al.]. Melatonin prevents neuroinflammation and relieves depression by attenuating autophagy impairment through FOXO3a regulation. *J. Pineal Res.* 2020; 69: e12667.

26. Aranarochana A., Sirichoat A., Pannan-grong W. [et al.]. Melatonin ameliorates valproic acid-induced neurogenesis impairment: the role of oxidative stress in adult rats. *Oxid. Med. Cell Longev.* 2021, Article 9997582.

27. Ding K., Wang H., Xu J [et al.]. Melatonin stimulates antioxidant enzymes and reduces oxidative stress in experimental traumatic brain injury: the Nrf2-ARE signaling pathway as a potential mechanism. *Free Radic. Biol. Med.* 2014; 73 : 1-11.

28. Subramanian P., Mirunalini S., Pandi-Pe-rumal S.R., Trakht I. [et al.]. Melatonin treatment improves the antioxidant status and decreases lipid content in brain and liver of rats. *Eur. J. Pharmacol.* 2007; 571 : 116-119.

29. Liu X., Gong Y., Xiong K. [et al.]. Melatonin mediates protective effects on inflammatory response induced by interleukin-1 beta in human

mesenchymal stem cells *J. Pineal. Res.* 2013; 55 : 14-25.

30. Ramirez-Rodriguez G., Vega-Rivera N.M., Oikawa-Sala J. [et al.]. Melatonin synergizes with citalopram to induce antidepressant-like behavior and to promote hippocampal neurogenesis in adult mice. *J. Pineal. Res.* 2014; 56 : 450-461.

31. Muller N. Immunology of major depression. *Neuroimmunomodulation.* 2014; 21 : 123-130.

32. Xu D.X., Wang H., Ning H. [et al.]. Maternally administered melatonin differentially regulates lipopolysaccharide-induced proinflammatory and anti-inflammatory cytokines in maternal serum, amniotic fluid, fetal liver, and fetal brain. *J. Pineal Res.* 2007; 43 :74-79.

33. Ali T., Hao Q., Ullah N. [et al.]. Melatonin act as an antidepressant via attenuation of neuroinflammation by targeting Sirt1/Nrf2/HO-1 Signaling. *Front. Mol. Neurosci.* 2020; 13 : 96.

34. Rubin R.T., Heist E.K., McGeoy S.S. [et al.]. Neuroendocrine aspects of primary endogenous depression *Arch Gen Psychiat.* 1992; 49: 558—569.

35. Rehman S.U., Ikram M., Ullah N. [et al.]. Neurological enhancement effects of melatonin against brain injury-induced oxidative stress, neuroinflammation, and neurodegeneration via AMPK/CREB signaling. *Cells.* 2019 ;8(7):760.

36. Lamtai M., Ouakki S., Zghari O., [et al.]. Neuroprotective effect of melatonin on nickel-induced affective and cognitive disorders and oxidative damage in rats. *Environ. Anal. Health Toxicol.* 2020;35 (4): e2020025-0. doi: 10.5620 / eaht.2020025

37. Troubat R., Barone P., Leman S. [et al.]. Neuroinflammation and depression: a review. *Eur. J. Neurosci.* 2021; 53 : 151-171.

38. Taniguti E.H., Ferreira Y.S., Stupp I.J.V. [et al.]. Neuroprotective effect of melatonin against lipopolysaccharide-induced depressive-like behavior in mice. *Physiol. Behav.* 2018; 188 :270-275.

39. Bajpai A., Verma A.K., Srivastava M., [et al.]. Oxidative stress and major de-

pression *Clin. Diagn. Res.* 2014; 8 : 4-7.

40. Pepys M.B., Hirschfield G.M. C-reactive protein: a critical update. *J. Clin. Invest.* 2003; 211: 1805-1812.

41. Reiter R.J., Paredes S.D., [et al.]. Reducing oxidative/nitrosative stress: a newly-discovered genre for melatonin *Biochem. Mol. Biol.* 2009; 44 :175-200.

42. Frodl T., Carballedo A, Hughes M.M. [et al.]. Reduced expression of glucocorticoid-inducible genes GILZ and SGK-1: high IL-6 levels are associated with reduced hippocampal volumes in major depressive disorder. *Transl. Psychiatry.* 2012; 2 : e88.

43. Rosenthal N.E., Sack D.A., Gillin J.C. [et al.]. Seasonal affective disorder: a description of the syndrome and preliminary findings with light therapy *Arch Gen Psychiat.* 1984; 41:72-80.

44. Salim S. Oxidative stress and the central nervous system. *J. Pharmacol. Experimental Therapeutics.* 2017; 360: 201-205.

45. Tsvetkova E.S., Romantsova T.I., Poluektov M.G., [et al.]. The importance of melatonin in the regulation of metabolism, eating behavior, sleep, and the prospects for the use of melatonin drugs for obesity treatment *Obesity and metabolism.* 2021;18(2): 112-124. <https://doi.org/10.14341/omet12279>

46. Michel T.M., Pulschen D., Thome J., The role of oxidative stress in depressive disorders. *Curr. Pharm. Des.* 2012; 18: 5890-5899.

47. Poprac P., Jomova K., Simunkova M., [et al.]. Targeting free radicals in oxidative stress-related human diseases. *Trends Pharmacol. Sci.* 2017; 38 :592-607.

48. Pompella A., Visvikis A., Paolicchi A. [et al.]. The changing faces of glutathione, a cellular protagonist *Casini Biochem. Pharmacol.* 2003; 66 :1499-1503.

49. Kim Y.K., Na K.S., Myint A.M. [et al.]. The role of pro-inflammatory cytokines in neuroinflammation, neurogenesis and the neuroendocrine system in major depression. *Prog. Neuropsychopharmacol. Biol. Psychiatry/* 2016; 64: 277-284.

POINT OF VIEW

DOI 10.25789/YMJ.2023.82.27

УДК 616.31-089.844:159.9

I.S. Pinelis, Y.I. Pinelis, I.D. Ushnitsky

CHARACTERISTICS OF PSYCHO-EMOTIONAL STATE OF PATIENTS REQUIRING PLASTIC SURGERY

The results of psychoemotional state assessment of patients who consulted a plastic surgeon concerning aesthetic operations in the maxillofacial region (MF) (ear, nose, blepharoplasty, facelift, etc.) are presented. The work evaluated their personality characteristics, which influence the decision-making for aesthetic operation.

The aim of the research is to identify the characteristics of psychoemotional tension in patients who applied to a plastic surgeon for aesthetic operations.

Materials and methods. 145 patients who consulted a plastic surgeon for aesthetic surgery of the face and neck were surveyed. The research was done at Chita State Medical Academy Clinic of the Ministry of Health of the Russian Federation.

Results. The article presents the data concerning the peculiarities of such patients' appearance perception, estimation and pretensions level. The main directions of their psychological support before the aesthetic surgery with the purpose of increasing the efficiency of the performed cosmetic intervention are considered. Meanwhile, inflammatory and oncological diseases of the face cause the highest situational and personal anxiety, while the general level of anxiety is the lowest among the patients dissatisfied with their appearance. At the same time, a close connection of emotional, characterological and behavioral reactions with a person's appearance caused by congenital and acquired facial defects and deformations was determined.

PINELIS Iosif Semenovich – MD, Professor of the Department of Surgical Dentistry, the Chita State Medical Academy; e-mail: pinelis1@mail.ru; **PINELIS Yuri Iosifovich** – MD, Associate Professor, Head of the Department of Surgical Dentistry of the Chita State Medical Academy; e-mail: pinelism1@mail.ru; **USHNITSKY Innokentiy Dmitrievich** – PhD, MD, professor, head of the Department of Therapeutic, Surgical, Orthopedic Odontology and Odontology of Children's Age, M.K. Ammosov North-Eastern Federal University, Yakutsk, e-mail: in-cadim@mail.ru

Discussion. Dominance, self neglect, and friendliness predominate in personality traits, and the level of situational and personality anxiety is defined as average, which predetermines to refer such patients to the risk group. However, at the same time, psychopathological disorders (dys-morphomaniac syndrome, neurosis-like disorders, and psychopathies) were found to be significantly rare in the examined individuals. In such situations, dysmorphophobia should be excluded, the likelihood of which increases in individuals who claim to have surgery in atypical areas, re-peated surgical interventions, etc.

Conclusion. This research determined that the risk factors for developing a mental disorder for aesthetic surgery patients are: more often female sex, lack of marital relationships, chronic psycho-traumatic situation, long-term and ineffective surgical treatment, psychiatric disorders in the past, low level of meaningfulness in life, etc. It was established that most of the patients applied for elimination of cosmetic defects by clinical and aesthetical causes. In this regard, the participation of a psychologist and psychiatrist is essential in deciding the appropriateness of cosmetic surgery as well as in conducting psychotherapeutic preparation of patients for surgery.

Keywords: aesthetic surgery, situational and personality anxiety, psychoemotional state, maxillo-facial area, psychological support.

Introduction. Dissatisfaction with one's appearance affects significantly the psychological and emotional state of a person, his character and social adaptation, psychological vulnerability, resentment, irritability, etc. Often patients try to eliminate this dissatisfaction and psychological problems with plastic surgery [1, 2, 10]. Meanwhile, it should be noted that their decision of cosmetic surgery is not always a conscious one.

Plastic surgeries usually result in a rapid and lasting improvement of a person's appearance, which contributes to self-esteem changes and social significance increase [11]. However, aesthetic surgeries are not indicated for people with mental illnesses (delusions, dysmorphobia, etc.), which requires a prior psychiatric examination [3, 2]. Sometimes, psychoemotional tension of various degree (PET) is detected in such patients at psychiatric pathology absence [6, 9]. It affects the patient's preparation for surgical intervention, the course of the post-operative period, and the assessment of the quality of surgical results [4, 5]. PET manifests as addictive behavior, characterized by a desire to change one's appearance by surgical procedures, distorted perception, and pathological dissatisfaction with one's face. It develops on the basis of insecurity, low self-esteem, distorted perceptions of one's own appearance and beauty ideals, and requires surgery with no obvious defects [7]. PET is assessed by a psychiatrist, psychologist, and plastic surgeon during an initial consultative interview with the patient. Treatment includes cognitive-behavioral psychotherapy, participation in support groups, and medication correction [8]. In

view of the above, we chose the direction for our research.

The objective of the research is to reveal peculiarities of psycho-emotional tension in people who have undergone aesthetic surgeries to the plastic surgeon.

Materials and methods of the research. The study involved 145 patients who consulted a plastic surgeon about aesthetic operations on the face and neck. The study was conducted at the clinic of Chita State Medical Academy of the Ministry of Health of the Russian Federation. To achieve the goal of the study we determined the dominating motives, personal features, and anxiety level of the reconstructive and plastic surgery patients that will help to expand the knowledge on their psychosocial peculiarities, determine the risk groups for the development of mental disorders and specify the algorithms of PET correction. Patients who had consulted a plastic surgeon were examined and questioned. Cosmetic defects in 79 patients (54,5%; $\chi^2=11,10$; $p=0,02$) were explained by the consequences of trauma, inflammatory and oncologic diseases; the rest patients

had age-related changes of the face or were not satisfied with their own appearance. All examined patients were: women - 82.0% ($\chi^2=6,10$; $p=0,03$), men - 18%, the age varied from 17 to 61 years old and older (under 20 years old - 13 (9%), 21-40 years old - 73 (59%), 41-60 years old - 39 (27%), over 61 years old - 20 (13.8%) (Table 1.).

There were anonymous questionnaires that contained questions about age, gender, education, profession, marital status, reasons for going to a plastic surgeon, etc. R.Cattell's multifactorial questionnaire, Leary's questionnaire, and Spielberger's test were used to determine personal situational anxiety.

The study was conducted with the ethical principles of scientific medical research involving human subjects, as defined by the Declaration of Helsinki of the World Medical Association (1964, ed. 2000), and the requirements of the regulatory documents of the Russian Federation on clinical trials. All patients gave voluntary informational consent to conduct the research.

The obtained data were processed

Table 1

Distribution of patients by sex and age

Sex		Age			
Males	Females	Under 20 years old	21-40 years old	41- 60 years old	From 61 years old and older
26 (17.93%) $p=0.02$	119 (82.06%) $p=0.03$	13 (9%) $p=0.02$	73 (59%) $p=0.001$	39 (27%) $p=0.01$	20 (13.8%) $p=0.02$

Table 2

Distribution of patients according to the degree of psycho-emotional instability depending on the cause of defects and deformations in the maxillofacial region (TM)

Etiological factor	Degree of psycho-emotional instability
Patients with the face trauma consequences	Significant prevalence of emotional instability ($\chi^2=49.09$; $p=0.0001$)
Patients with cancerous defects of the craniofacial cavity	Significant prevalence of emotional intemperance with low ability to predict the consequences of their actions (82.3%; $\chi^2=21.10$; $p=0.002$)
Individuals with age-related changes	Moderate psycho-emotional instability ($\chi^2=15.40$; $p=0.0001$)

using Statistica 6.0 statistical analysis program (Stat Soft, USA). We used Pearson's χ^2 test to estimate the significance of differences (p) to compare relative values. Starting with a p -value equal to or less than 0.05, the differences were assessed as significant.

Results and Discussion. According to the data obtained, aesthetic surgery patients often had PET, but they rarely consulted a psychiatrist or psychologist. Meanwhile, they were diagnosed with psychopathology, more often of neurotic level, consequences of severe stress and reactive states, depression, superficial sleep, dysmorphophobia, personality disorder, etc. Thus, the intellectual and emotional-volitional features, communicative properties and types of interpersonal interaction in the majority of observations were at the level of average values and were within the norm according to R. Cattell's multifactorial questionnaire during the study of personality characteristics. At the same time, the study of personal characteristics revealed a significant prevalence of emotional instability in patients with the trauma consequences ($\chi^2 = 49.09$; $p = 0.0001$), and the signs of emotional intemperance with low ability to predict the consequences of their actions were markedly dominant in those with cancer consequences (82.3%; $\chi^2 = 21.10$; $p = 0.002$) (Table 2). At the same time, people who wanted to look younger showed signs of increased trustworthiness, inner relaxation, ability to get along with people, and lowered self-esteem.

The data from the Leary's questionnaire indicated that unselfishness and friendliness were the leading features in most of the patients (84.9%; $\chi^2 = 22.7$; $p = 0.001$). At the same time, dominance in interpersonal relationships, assertiveness, and aggressiveness (65.7%, $\chi^2 = 17.10$; $p = 0.002$) prevailed in patients with the consequences of facial injuries, and unselfishness and increased submissiveness ($\chi^2 = 1.81$; $p = 0.06$) prevailed in those with the consequences of cancer.

Spielberger's questionnaire assessment revealed that the level of situational anxiety did not exceed average values in the overall group of patients, while the level of personal anxiety was slightly above average ($\chi^2 = 14.41$, $p = 0.036$). Patients with the facial trauma consequences had a lower level of situational anxiety than the level of personal anxiety. The level of situational anxiety exceeded the level

of personal anxiety in patients with the consequences of oncological diseases. The level of personal anxiety significantly exceeded the level of situational anxiety in the group of patients dissatisfied with their appearance.

Almost half of the patients were single (72), 20 were divorced (13.8%), 46 (32%) were married or married, and 7 (4.8%) were widowed. Among those who responded 4.8% had incomplete secondary education, 54.4% had specialized secondary education, 13.8% had secondary education, and 27% had higher education.

Consequently, it can be noted that inflammatory and oncological diseases of the face cause the highest situational and personal anxiety, while patients dissatisfied with their appearance have the lowest general level of anxiety.

On the whole, the study of the patients' personality features convincingly shows a close connection of emotional, characteristic and behavioral reactions with human appearance due to congenital and acquired facial defects and deformities. Dominance, unselfishness and friendliness dominate in their personal features, and the level of situational and personal anxiety is defined as average. Such patients should be classified as a risk group for PET. At the same time, psychopathological disorders (dysmorphomanic syndrome, neurosis-like disorders, psychopathies) were rarely revealed in the examined patients. However, dysmorphophobia should be excluded in them, the probability of which increases in those who pretend to operate in atypical areas, repeated surgical interventions, etc. Risk factors for psychiatric disorders for aesthetic surgery patients are: more often female sex, absence of marital relations, chronic psychotraumatic situation, long-term and ineffective surgical treatment, psychiatric disorders in the past, low level of meaning in life, etc.

Conclusion. The majority of patients appealed for cosmetic defects correction due to evidently justified indications. Meanwhile, the definition of indications for plastic surgery is one of the most important stages in the plastic surgeon's activity. To some extent, it depends on the individual and psychological characteristics knowledge of those who consulted a surgeon. That's why the participation of a psychologist and psychiatrist is essential when deciding on the advisability of cosmetic surgery, as well as for psychotherapeutic preparation of patients for surgery.

Reference

1. Белоусов А.Е. Пластическая реконструкция и эстетическая хирургия [Plastic re-constructive and aesthetic surgery. Saint-Petersburg: «HIP-POCRATES», 1998; 740 (In Russ.).]
2. Voblaya I.N., Koroleva N.V., Moreeva E.G. Marketingovyj analiz rynka plastich-eskoj hirurgii v Rossii [Marketing analysis of the plastic surgery market in Russia]. Problemy so-cial'noj gigieny, zdravoohra-neniya i istorii mediciny [Problems of social hygiene, health care and history of medicine. 2020; 28 (2): 227-233 (In Russ.).]
3. Kochubej V.V. Potrebnost' rossiyanok v plasticheskoy estetikeskoy hirurgii [The need of Russian women in plastic aesthetic surgery]. Moskovskij hirurgicheskij zhurnal [Moscow Surgical Journal. 2019; 3:77-80 (In Russ.).]
4. Laputin E.B. Master-klass plasticheskogo hirurga [Master class of plastic surgeon. Moscow: Litera: «Cosmeticienen forum». 2007; 312 (In Russ.).]
5. Nguen D.K., Yuzhakov M.M. Obzor metodov ocenki psiho-emocional'nogo sos-toyaniya chelo-veka [Review of methods for assessing the psycho-emotional state of a person]. VI Nauchno-prakticheskaya konferenciya «Informacionno-izmeritel'naya tekhnika i tekhnologii», 27-30 maya 2015 g [VI Scientific-practical conference «Information-measuring equipment and technologies, May 27-30, 2015. Tomsk, 2015; 109-112 (In Russ.).]
6. Palatina O.M. Kliniko-psihopatologicheskaya i psihosocial'naya harakte-ristika pa-cientov, perenessih plasticheskije operacii Special'nost' 14.01.06 [Clinical-psychopathological and psychosocial characteristics of patients who have undergone plastic surgery. Specialty 14.01.06]. Psihiatriya AVTOREFERAT dissertacii na soiskanie uchenoj stepeni kandidata medicinskih nauk Sankt-Peterburg 2021. 27 s. [Psychiatry. Thesis of the dissertation for the degree of Candidate of Medical Sciences St. Petersburg 2021; 27 (In Russ.).]
7. Petrova N.N., Spesivtsev Yu.A., Gribova O.M. Lichnostno-psihologicheskie i psihopatologicheskie oso-bennosti pacientov estetikeskoy hirurgii [Personal-psychological and psychopathological features of patients of aesthetic surgery]. Vestnik Sankt-Peterburgskogo universiteta. Seriya 11. Medicina [Bulletin of St. Petersburg University. Episode 11. Medicine. 2013; 1: 94-103 (In Russ.).]
8. Petrova N.N., Kalakutsky N.V., Palatina O.M. Klinicheskaya i psihosocial'na-ya harakteristika pacientov plasticheskoy hirurgii [Clinical and psychosocial characteristics of plastic surgery patients]. Rossijskij medicinskij zhurnal [Russian Medical Journal. 2017; 23 (6): 315-320 (In Russ.).]
9. Psihologicheskie issledovaniya vneshnosti i obraza tela: kollektivnaya monografiya [Psychological studies of appearance and body image: a collective monograph / editor A.G. Faustova; Ryazan State Medical University of the Ministry of Health of Russia. Ryazan. 2022; 223 (In Russ.).]
10. Yanushevich O.O., Gurevich K.G., Panin A.M. [et al.] Rukovodstvo po ocenke kachestva zhizni v stomatologii [Manual for assessing the quality of life in dentistry. Moscow: GEOTAR-Media, 2021; 144 (In Russ.).]
11. Chelyustno-litsevaya hirurgiya: uchebnik [Maxillofacial surgery: a textbook / ed. by A.Y. Drobyshev, O.O. Yanushevich. Moscow: GEOTAR-Media, 2021; 880 (In Russ.).]