

The Chemical Effect in Medicine Interaction Determining the Form and Speed of Psychological Involution in the Prosthetic Restauration in the Edentulous

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The progress made in dentistry during the latest decades is due, conceptually, to the new, systemic vision of man, which has also taken place in this field of medicine. In this context, the link between organic and psychic is indestructible. Thus illness is understood as a drama in which the somatic process has a psychic value, and the mental one has a body value. It is known that the morphological and functional integrity of the dental system, health and vigorousness, gives the individual a state of well-being that affects his somatic and psychic health, as any disturbance at this level entails repercussions in psychological and social behavior. Such a disruption is the total edification that seriously alters not only the dental system but the whole organism, putting various biological and psychosocial problems to the practitioner. The total expression represents not only a physical disability but also a psychological one. A special importance in studying psychological changes at total edentulous presents the psychological aspects of senile involution. This is not only a theoretical but also a practical importance due to the increase in the number of elderly people. Through the researches of the present paper we intend to present the reality of the psychological manifestations in the total edentation, which is objectified on different methods of psychodiagnosis in the first part, in order for the second part to be addressed to problems of prosthetic psychotherapy. The study comprises a group of 43 patients, of whom 24 were men and 19 women with total uni or bimaxilar edentation. Total edentation can be and is responsible for somatopsychic alterations, along with other pathogens, general, local, social, which sometimes can take a dramatic form, converting, where the area is also favorable, a pure somatic disease, for those who are not in psychopathy or even psychosis, although these latter cases are extremely rare and especially in youngsters, which would disrupt not only the person's behavior as an individual, but also their status, function and social integrity. The treatment of dental and psychological complex is mandatory for any patient, but especially for the elderly, where recovery is more difficult, with disease-specific disorders adding to those of senescence.

Keywords: medical assistance, total edentation, psychodiagnosis methods, prosthetic psychotherapy

As a compartmental system, the human body is made up of subsystems, one of which is the stomatognathic system in permanent interrelations with the rest of the body, and thus with the psyche. This aspect is emphasized by the fact that many diseases located in the oro-maxillo-facial area do not have a direct, obvious, psychic, as psychiatric treatment often contributes to the improvement of the symptoms of dental diseases[1-3].

The place of the psychic factor in the current dental therapeutics is more and more important, since its purpose is to completely recover the patients by reintegrating them into the social environment to which they belong. But, this environment influences the evolution of the human personality, with echoes on the organic plane[4-6].

Human personality is structured under the action of hereditary factors, internal and external factors. However, following the evolution of ontogenetics and philogenetics, the adaptive capacity of man reached a higher level of organization has decreased. The psychic, seen as a new type of body reaction in its environment, is heavily influenced by the external environment and in particular stress. Under its action, the value of the psyche also diminishes as an element of adjustment and adaptation of the organism in the environment[7-9].

This phenomenon is more evident at the old age when the brain mechanisms that make up the psyche infrastructure deteriorate. Psychic disorders occurring at this age, in which the total edentation is very common, are extremely complex and the balance between psychic and somatic has to be restored[10-12].

Seeking a general way of structuring and organizing the person, the theories of personality raise him on a pedestal, respect and illustrate his original character, his originality. The personality is a universe that permanently incites knowledge and can never be exhausted. A special importance in studying psychological changes at total edentulous presents the psychological aspects of the senile involution, these are not only theoretical but also practical because of the increase in the number of elderly people[13-15].

The various stages of the process of psychological aging are represented by the events taking place in the two directions, determining the shape and speed of the psychological involution.

As a whole, the total edentation is high, with the relative progress registered by the odontological and periodontological therapy, by the improvement of the therapeutic means and because of the increase in the average life length. There is no precise data on the frequency of the

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total edentation in adulthood, but it is stated that the female population is also affected and the rural population as compared to the urban population[16-18].

The etiology of total edentation was and is considered to be the expression of a state of drawback, because of the aging phenomenon. This is denied by geriatric research that shows that the beginning of aging is a period that can not be clearly delimited.

Complications in the oral mucosa result from the decrease in thickness of the mucosa accompanied by a decrease in the number of desmosomes in deep epithelial layers, which makes the microbial flora penetrating more the oral mucosa[19-21].

Due to this atrophy of the epithelium coverage, submucosal connective tissue is easier traumatically leading to fibroblast degeneration, thinning and dehydration with atrophic mucosal and submucosal changes. Hypokeratinization processes sometimes occur, leading to a decreased resistance to infections and pressures. At times there are hyperactantosis processes with an increased number of papillary growths. In some cases the mucosa gets an inflammatory appearance with a red color and with slight secretion or necrosis. In some edents, the appearance of small scaffold papillomas can also be observed. Increased mucosal and submucosal tissue growth leads to increased mucosal resilience. This increase in mucosal clogging can also be explained by a faster resorption of the subjacent bone than the mucous covering. Increased mucosal resiliency causes the prosthesis to become unstable both horizontally and vertically, leading to intense bone stress, which suffers more from the injurious action of the pressure forces, thus increasing the bone atrophy as the thickness of the submucosal layer increases, so a real vicious circle [21-23].

Complications of the salivary glands occur due to the absence of functional stimuli associated with involutive changes due to aging process of glandular noble tissue, in particular secretory acins are gradually replaced by connective tissue [24-26].

This replacement has the clinical effect of salivary gland hypertrophy, apparent hypertrophy, morphological only, because functional the glands' activity is diminished. This reduction in function is due to the decrease of the amount of saliva (xerostomy) with all the sufferings that result from this (decrease of the capacity of insalivation of food, decrease of capacity of starch digestion, decrease of the oral mucosal defense against harmful agents, etc.)

Due to the morphological hypertrophy of the parotid glands, changes in facial contours occurring through a pyriform facies. Regional complications occur in total edema with changes in the face, extremity of the cephalic, temporomandibular joint. Facial changes mean that after a long evolution, the total edentulous has a disagreeable appearance, due to the appearance of peri and paracomisular folds, the clogging of the lip relief, their invasion [27-29].

The patient has a flattened appearance, with the reduction of the anterior bone of the centric relationship highlighted by clinical and teleradiographical measurements. It also interferes with atrophy processes in the anterior nasal spine and nasal cloazon. The nasal pyramid falls back and forth, which together with the lifting of the menton lead to the appearance of the concave profile, obviously when examining the facial profile of the patient and the photostatic profile examinations. Changes in the cephalic extremity are due largely to the senescence processes at which the decrease in the activity of the extensor muscles and the cephalic and masticatory

muscles as a result of the decrease of the tone is associated with the predominance of the action of the flexors. As a result, the body returns to the embryonic position in which the upper third of the body leans forward. Due to this flexion, the spine curves, creating an imbalance between the muscles of the neck and the prevertebral on the one hand and between the up and down mandible on the other. Due to these processes, the mandible is pushed forward and higher in propulsion, accompanied by a tipping that sends articulation conditions in posterior collapse in the glenoid cavities. Changes in mopo-mandibularity joint is accompanied by repercussions on the muscles, the masticatory cycle, otic, pharyngeal changes. All these changes make a particular nosologic entity called dysfunctional dental syndrome[30-32].

The changes cause the mandibular movements with trauma of the neuro-articular receptors trauma and muscle fatigue of all lactic acid accumulation mucus muscles, a factor that is extremely dolorigenic. It leads to muscle spasm with taking antalgic positions, so with the accumulation of a new amount of the same lactic acid, which can not be eliminated due to the decrease in circulation in the spasmed muscles, closes a genuine vicious circle producing new spasms and new pains[33, 34].

The changes in the tongue are due to a relaxation of the unused muscle fibers due to the absence of the functional system lead to an increase in the volume of the tongue. This apparent hypertrophy is also due to a process inhibition of the process of muscle fiber support tissues. In total edentulous, there are also general complications at the digestive, metabolic and psychological level.

Anxiety is a normal emotion that everyone experiences at a certain point in life, being considered as a normal state as long as it is temporary. Anxiety has been classified into primary anxiety, associated with psychiatric and secondary pathology, which has toxic or medicinal cause.

Experimental part

The study consisted of applying psychological test batteries to a group of 43 patients, out of which 24 (55.81%) were males and 19 (44.19%) women with total edentation unilateral or bimaxilateral (fig.1).

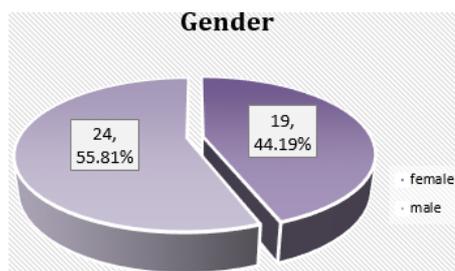


Fig.1. Distribution of the patients according with gender

In terms of age, the majority of single or bimaxillary total edentulous patients belong to the group of 60-80 years (25 cases - 58.13%), 16 patients (37.20%) belonged to the 3rd group (45-60 years) and only 2 patients (4.65%) were young (age group 20-45 years) (fig.2).

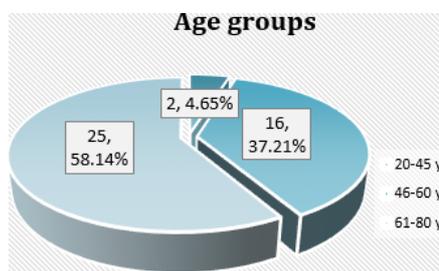


Fig.2. Distribution of the patients according with age

Results and discussions

The psychodiagnostic method: the conversation, both during the development of the clinical observation record, and from the time, of therapeutic treatment itself sought to lead the discussion in such a way as to reveal possible psychological disorders. In the very investigation of our personal and heredo-collateral antecedents, we also focused more on investigating one or the other of the psychic behaviors that were shown to be deficient in anamnesis, while using this method we were able to ascertain the flow and rhythm changes verbal, mimic, gesture, consistency of thinking, a.s.o.

The psychological questionnaire for the investigation of affectivity was drawn up by a psychologist and was completed by each patient prior to prosthesis, two days after insertion into the oral cavity of the prosthetic apparatus, biologically appropriate and then two weeks after the date of initial insertion of the prosthesis into the oral cavity.

Tests were also repeated in some patients where psychological changes persisted after the biological therapy time, two weeks after each stage of psychological treatment applied to see the dynamics of psychological disorders found before the prosthetic treatment itself.

The questionnaire is designed to highlight the following psychological changes: depressive, anxious tendencies, simple emotional changes, impulsivity, neurosis, frustration, feeling of inferiority (underdevelopment tendencies, under-estimation of own possibilities and capacities); fear of death, changes in volitional support. After the prosthetic pre-therapeutic investigation of the questionnaire analysis and interpretation completed by the 43 edentulous patients, the following psychological changes were found: the greatest number of patients had emotional disturbances; some of them consisting of installing a sense of fear with the appearance of the total edentation of uni- or bimaxillary, were related to the modification of the bodily scheme, more precisely to edentation aesthetic disorders. The most concerned about this were the women in the studied group.

The feeling of fear was pronounced in middle-aged women where the mental disorders caused by edentation were associated with those caused by menopause. The fear of the entourage's reaction to the visible dental condition led in two cases to the almost complete isolation from society, the visit at the doctor was considered a chore, and the consultation had to exclude the presence of some people in the same cabinet. The anxiety related to the aesthetic treatment was also observed in three male patients, this time young ones. In men, fear was associated with edentation as functional disorders altered relationships with other people.

Thus, in patients in the age group II, we encountered cases where the phonation disturbances were the central concern, the patients in question being 4 teaching staff and 2 actors.

In four other men, fear was aroused by the loss of seductive power that the people in question caused for losing teeth. In the 3rd age group we encountered the fear associated with anger due to a lack of mastication and dissatisfaction caused by other applied prosthetic devices. The prevalent manifestation in this situation were increased irritability and irascibility. In one case, it went up to a state of extreme agitation with transient disorientation. Conversely, changes in affectivity in the sense of apathy and indifference, thus hypothyroid, were recorded in 4 women and 2 men, all of them of the third age group with one and only exception.

It is remarkable that the emotional disturbances we encountered appeared, as we could see, from the discussions with the patients, the transition from the partial edentation to the total or from the fixed prosthesis at a number of 7 patients in the 3rd age group (66-73 years) were added to other emotional and disorder affective disorders and tenotropic nuances of varying intensity.

Thus, there is a decrease of the orientative prosexual guidelines, in the meaning of hypoprocesis in 11 of the 43 cases investigated. Add to these and the diminution of hypnosis (especially for recent memory) hypnosis processes, the global disorder of knowledge processes appears. Also, in the case of 17 patients, the dominant ideas related to the loss of teeth and the future prosthesis that is transient to thought. In 5 people the obsessive ideas were doubtful in the sense that, although they had presented himself to treatment, they did not trust the results. It seems that the volitional support in all 43 cases presented minimal changes, only one person (of the two with laliophobia) declaring unable to cope with phobogenic situations, although thought and consciousness were perfectly intact, a disorder described as hypobulSION.

As a result of the analysis and synthesis of the changes presented by each patient, their follow-up and organization, it was found that 10 men and 8 women of all those investigated had neurotic manifestations.

On the background of old age, the period of physical and mental stress in which the patient assists in the decrease of its vital forces, the physical transformations suffered, the slowness of the movements, the increased fatigability, the diminishing of the sensations and the previous motor, sexual, etc., we understand why the total edentation as other infirmities limits the field of the underlying possibilities, affects the contact with the entourage and ultimately is a neurotogenic problem.

In 19 patients the analysis of the psychological symptoms presented a revealed state of *depressive syndrome*, characterized by depressive mood, slowing the processes of thinking, memory and psychomotor slowness, the idea of futility, reduced thinking, difficulty in speaking (dissolution), fatigue.

From all these findings regarding the psychological changes in the total edentation to which the other morphological and functional changes of the stomatognathic system are associated, we can sum up that the altering of the health in this clinical or double psychosomatic entity are seen from the perspective of the three-dimensionality of the person is bio-psycho-social.

The occlusion of the occlusal pad, the hypotonia of the mucous membranes, the capsuloligament laxity, the changes of the meniscus and the cartilage of the ATM and the other functional, masticatory, phonological, functional, phylogenetic alterations to the pre-existing psychological disorders or those that begin and occur with the total edentation lead us to the term of the psychotic functional disorder of the German authors: It is wrong for patients with functional disorders in the masticatory system that they are divided into two groups according to determinant causes, ie in a group those with occlusal disorders (as in the case of the total edentation, where one can not speak of occlusion) and in one, those with psychic disorders.

Both psychic factors and the somatic ones are responsible for the emergence of disorders that constitute such a psychosomatic disease. Anxiety disorders are treatable, and the vast majority of patients with anxiety disorders can be helped by establishing early and proper treatment. The therapeutic success varies, some respond favorably to treatment after a few weeks or months, while others may require a longer period.

Treatment and disease progression may be complicated in situations where anxiety disorders are associated with other coexisting conditions (depression, substance abuse, etc.). Therapeutic methods for the treatment of anxiety disorders use pharmacotherapy, psychotherapy or combinations.

The drug treatment has been shown to be clinically effective by:

- benzodiazepines: alprazolam, diazepam, clonazepam
- tricyclic antidepressants: imipramine, amitriptyline, clomipramine
- selective serotonin reuptake inhibitors (fluoxetine, paroxetine, citalopram etc.)
- Monoamine oxidase inhibitors.

Competitive inhibition of the oxidation of some drugs makes their toxicity increase. Drug interaction also occurs due to the induction effect of some drugs, resulting in faster metabolism of the associated substances. Benzodiazepines were used as the first line of treatment for generalized anxiety disorder and for panic disorder or social phobia, they were treated with second-line treatment after antidepressant medication. This therapeutic category has disadvantages such as delayed onset of therapeutic effect and onset side effects such as headaches, wheezing, sickness, sleep disturbances.

They may increase anxiety at the beginning of treatment, gastrointestinal side effects, sexual dysfunction that persists throughout treatment. It follows that the total edentation is accompanied by changes in all psychiatric compartments if one can speak of a subdivision of the human psyche. The psychological major affection has the affective compartment (88%) which succeeds knowledge (82%) and the volitional compartment presents a minimal alteration. Thus, by the high weight of the affective-emotional sphere, we can realize their importance in order to achieve a complete treatment. Comparing with the published data, which shows that one in ten presents at one time affective-emotional disorders (with reference to the entire population), our data reveals that 88% of all cases are accompanied by emotional affinity 88%, 82% knowledge, 54% neurotic syndrome, 7% willingness, 9% depressive syndrome (fig.3).

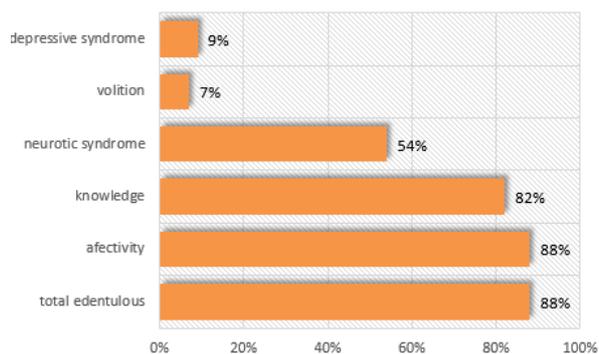


Fig.3 Distribution of affective-emotional disorders

In the disorder affective parathymic changes, phobias, make a score of 51.61%, those of hypothermic type (apathy, indifference) 29% and of the hypertimic type (depression, anxiety) -48.3%. Among the changes, hypothermic ones have 25% and the anxiety type 23.3%. In the case of depressive manifestations we can not say that the absolute determinant is the total edentation, but besides it involutive processes, the physical and psychic stress, the premorbidity of the individual.

The statement is also certified by the comparison between 9% depressive states found by us and 3% depressive states in the general population. Although

cognitive processes (attention, memory, thinking) were shown to be altered in 82% of cases, total edentation seems to have a minor role, the changes being largely due to senescence processes.

We could perhaps mention the participation of the total edentation to the alteration of the processes of thought through the presence of dominant and obsessive ideas that make a contribution of 35% in the alteration of the processes of knowledge.

The affection is maximal in feminine (100%) and quite high (70%) in the male. The volumetric finding found by us is minimal (7%) without the possibility of comparison with similar data from the literature. Nevrotiforms (54%) would show the co-determinant role of the total edentation in the etiopathogenesis of this syndrome, and the 9 percent depressive syndromes could suspect the same totality alter of total edification in the genesis of depressive manifestations. All these psychological changes may evolve and intensify as special studies show in retentive neuroses, fearlessness (anxiety), marked depressions, conversion histories.

Thus, in reticulous neuroses on a background of psychic pretension existing in the antecedents and the present state of the individual, the total edification and the changes that accompany it mentally can lead to dependence on others and uncertainty in itself. Sometimes exaggerated emotion, fear, phobia, persistent anxiety can lead to fear neuroses.

The total edification can and is responsible for somatopsychic alterations, together with other pathogens, general, local, social, which sometimes can take a dramatic alter, converting, where the are is also favorable, a pure somatic disease, for those non- psychopathy or even psychosis, although these latter cases are extremely rare and especially young in age, which would disrupt not only the person's behavior as an individual, but also their status, function and social integrity.

Conclusions

Mental disorders frequently accompany the overall edentation and condition both physician-patient collaboration during the treatment and after, but also the adaptation possibilities with the mobile prosthetic set.

The modern dentistry requires the approach of patient suffering that is seen in the complexity of its determinants: biological, psychic, social.

The individualisation of the treatment having in mind the complete recovery of the patient and his/her re integration in the society is done only by addressing the morfofunctional disorders of the dental system affected by the edentation as well as the psychological aspects of his illness.

The dental and psychological complex treatment is mandatory for any patient, but especially for the elderly, where recovery is more difficult, specific disease adding senescence.

References

1. BRATU D, IEREMIA L., TUCULESCU S. S. - Clinical and technical bases of prosthesis of total edentation. West Publishing House, Oradea, 2003, 853-865.
2. BURLUI V., SILVAS M.S., Clinic and total edentation therapy. Apollonia Publishing House, Iasi, 2003, vol I: 125-131.
3. DESPA E.G, POPESCU A, GIURESCU R, BECHIR A, COMANEANU M, MIHAI L, SMATREA O, MIHAI C, CANDESCU G - The treatment of the total edentation (clinical and laboratory technique) -, Printech, Bucharest, 2012.
4. GHERGIC D.L, COMANEANU R.M- Morphology of dento-maxillary apparatus Ed. Printech, Bucharest, 2009.

5. MINULESCU M. Modern psychological diagnosis. Personality questionnaires, Romanian Tomorrow Foundation, Bucharest, 2004, 286-288.
6. RINDASU I, STANCIU L- Fixed dental restorations, Ed.Meteor, Bucharest, 2006.
7. WOOD R.L., LIOSSI C. Long-term neuropsychological impact of brief occupational exposure to organic solvents, Archives of Clinical Neuropsychology, 20, 655-665, 2005.
8. KALININ VV, Anxiety Disorders, Intech, Croatia, 2011.
9. CIOATA, R., BALAN, A., ANTOHE, M.E., SAVIN, C., IGNAT, G., BASNO, A., Researches Regarding New Biomaterials Involved in Sports Mouthguard, Mat.Plast., 53, no.1, 2016, p. 147-149
10. MINOVSKA, A., POPOVSKA, M., RADOJKOVA-NIKOLOVSKA, V., CVETANOVSKA STOJCHEVA, D., POPESCU, E., AGOP FORNA, D., Study regarding the use of Er: YAG laser for initial treatment of periodontal disease, Rev.Chim.(Bucharest), 66, no. 7, 2015, p. 1052-1056
11. POPESCU, E., AGOP FORNA, D., EARAR, K., FORNA, N.C., Bone substitutes used in guided bone regeneration technique review, Mat.Plast., 54, no 2, 2017, p. 390-392
12. ANCUTA, C., ANCUTA, E., CHIRIEAC, R., ANTOHE, M., IORDACHE, C., Anti-Tumor Necrosis Factor Alpha Therapy and Periodontal Inflammation in Rheumatoid Arthritis A clinical and biochemical approach, Rev. Chim. (Bucharest), 68, no. 2, p. 369-372
13. GURAU, G., DINU, C.A., EARAR, K., et al, Diagnostic Value of chemical and hematological markers in children acute abdominal pain, Rev.Chim.(Bucharest), 67, no.3, 2016, p.507-511
14. STOIAN, A., EARAR, K., BUDACU, C., et. al., No association between antioxidant enzyme gene polymorphism and Albuminuria in Type 2 Diabetes Mellitus Cases, Rev. Chim.(Bucharest), 67, no.11, 2016
15. GRADINARU I., ANTOHE, M.E., IOANID, N., Contemporary therapeutic decisions in the treatment of various types of edentation, Romanian Journal of Oral Rehabilitation, 8(2), 2016, p:44
16. BUHACEANU R., LUNGU N.C., FORNA N.C., et al., A new Class of Mesoionic 4-(1,3-Dithiol-2-ylidene)phenolates, Rev. Chim.(Bucharest), 64, no.8, 2013, p.803-807
17. DOSCAS, A.R., BALAN, M., CIOFU, M.L et al. Oral and Maxillofacial Manifestations of Mineral and Bone Disorders Associated with Chronic Renal Failure. Rev.Chim.(Bucharest), 68, no.6, 2017, p.1325-1328
18. BUHACEANU, R., LUNGU, N.C., FORNA, N.C., et al, The Influence of Bromine Substituent on Optical Properties of Some 1,3-Dithiolium Derivatives, Rev.Chim.(Bucharest), 64, no.9, 2013, p.960-964
19. ANTOHE, M., ANDRONACHE, M., FEIER, R. STAMATIN, O., FORNA, N.C., Statistical studies regarding therapeutic approaches for edentulous social clinical cases in student, spractical stages, Romanian Journal of Oral rehabilitation, 9(2), 2017, 94-99
20. TOMA, V., CIOLOCA, D.P., FORNA AGOP, D., et al., IL 18 as an important gingival inflammatory biochemical marker in children and adolescents with insulin-dependent diabetes mellitus, Rev. Chim.(Bucharest), 67, no.12, 2016, p.2545-2551
21. AGOP FORNA, D., FORNA, N.C., EARAR, K., POPESCU, E., Postoperative clinical evolution of edentulous patients treated by guided bone regeneration using xenograft bone substitute and collagen membrane, Mat.Plast., 54, no 2, 2017, p. 312-315
22. COPCIA, V.E., HRISTODOR, C.M., DUNCA, S., IORDANOVA, R., BACHVAROVA-NEDELICHEVA, FORNA, N.C., SANDU, I., Synthesis and Antibacterial Properties of ZnO/Clinoptilolite and TiO₂/ZnTiO₃/Clinoptilolite Powders. Rev. Chim.(Bucharest), 64, no.9, 2013, p.978-981.
23. ANTOHE, M.E., AGOP FORNA, D., DASCALU, C.G., FORNA, N.C., The importance of observing the aesthetic requirements in partial edentulous rehabilitation - implications in medical-dental training, International Journal of education and information technologies Volume: 10 p. 199-203, 2016
24. ISTRATE, B., MUNTEANU, C., CRIMU, C.I., IACOB, S.S., MARCELIN, B., EARAR, K., Morphological and tribological aspects of some ZrO₂ coatings on Mg-Ca biodegradable alloys, Indian Journal of Engineering and materials sciences, 23(6), 2016: 418-424
25. BARBINTA, C.A., EARAR, K., CRIMU, C.I., In vitro evaluation of the cytotoxicity of some new titanium alloys, Bioceramics, Vol25, Book series: Key Engineering Materials, Vol 587, 2014, 303
26. FORNA N, CIMPOESU N; SCUTARIU MM; et al, Study of the electro-corrosion resistance of titanium alloys used in implantology, Book Group Author(s): IEEE, Conference: 3rd International Conference on E-Health and Bioengineering (EHB) Location: Univ Med & Pharm, Iasi, ROMANIA Date: NOV 24-26, 2011
27. EARAR, K., CERGHIZAN, D., SANDU, A.V., MATEI, M.N., LEATA, R., SANDU, I.G., BEJINARIU, C., COMAN, M., The Role of Functional Polymers in the Optimization of the Acrylic Biomaterials Used in Removable Prosthetic Restoration - II. Assessment of traction test and antifungal activity. Mat.Plast., 52, no.4, 2015, p.487-493
28. TURLIUC, M.D., SAVA, A., DUMITRESCU, G.F., et al, Right visual loss due to choroidal metastasis of a papillary adenocarcinoma of the lung: a case report, Romanian Journal of morphology and embryology, 58(3), 2015, pages 1173-1177
29. BUZDUGA, C.M., COSTEA, C.F., DUMITRESCU, G.F. et al., Cytological, histopathological and immunological aspects of autoimmune thyroiditis: a review, Romanian Journal of morphology and embryology, 58(3), 2017, pag 731-738
30. CALINA, M., DEBITA, M., DRAGOMIR, R., et al. Treatment methods conditioned by the gravity of drug-induced gingival hyperplasias, Rev.Chim.(Bucharest), 68, no.11, 2017, p.2618-2622
31. MAFTEI, D., ASAFTEI, I.V., SANDU, I., et al., Conversion of industrial feedstock mainly with butanes and butenes over HZSM-5 and Zn/HZSM-5(nitrate) catalysts, Rev.Chim.(Bucharest), 66, no.5, 2015, p.673-680
32. PREDA, G., Psychotherapeutic Approaches in Anxiety Disorder - Panic Attack. Philosophical-Psychological Investigations, 2013, 1p 101-106.
33. HOLDEVICI, I., Cognitive-Behavioral Psychotherapy Treaty, Bucharest, Ed.Trei, 2009.
34. LAZARESCU M., BARANESCU R., Descriptive Psychopathology: Signs and Syndromes in Mental Disorders, Iasi, Polirom, 2011.

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