# STUDY ON ELEVATION OF PARTIALLY REMOVABLE PROSTHESES IN SYSTEMIC CONTEXT IN GERIATRIC PATIENTS

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## ABSTRACT

The quality of life is in to the close relationship with maintenance of oral health, part of general health which is affected or which influence, having in the end, a great impact on mental condition and integration. **The aim** of our study was to establish the main criteria for the choice of partially removable prostheses in geriatric patients in a systemic context. **Material and method :**The study was conducted on a group of 60 geriatric patients diagnosed with various forms of general pathology corroborated with various edentation forms presented on the Clinical Base for Education of the Faculty of Dental Medecine,Iasi.All patients underwent a complex clinical examination , supported by paraclinical assessments. which allowed the establishment of a biological balance sheet.**Results and discussions:** Following the subjective clinical examination (anamnesis and questionnaire), we identified 34% of cases with diabetes, 36% with cardiovascular pathology, 9% with respiratory pathology (COPD and Asthma), 10 % of cases with diabetes associated with HTA, 1 1% cases of digestive pathology (chronic gastritis, hepato-biliary pathology). **Conclusions**:The flexible dentures observe these criteria better than those of conventional acrylate. The implied patients prefer flexible acrylate at a rate of 100%.

**Key words:** partially removable prostheses, systemic context, geriatric patients

## INTRODUCTION

The prosthetic therapy of the geriatric patient brings together a wide variety of therapeutic solutions in full agreement with the general condition as well as the sum of the local and regional and local clinical and biological indexes[1,2,3]. The quality of life is a particularly important task to be supported by rigorously coordinated prophylaxis programmes, in conjunction with targeted conservative therapies so that both aesthetics and functionality are at optimal parameters[4,5,6]. The quality of life is in close relationship with maintenance of oral health, part of general health which is affected or which influence, having in the end, a great impact on mental condition and integration. The social aspects for dental geriatric patients must take into account the cumulative factors that targets both on biology, are linked to the aging generation of a specific pathology, advancing chronic diseases earlier and the psychosocial factors correlated with devolution of psychic functions but also with the resonance of all these new disorders in the psychological plan of the elderly and his entourage[7,8,9].

The general pathology of the elderly includes diseases common to the previous ages and diseases specific, classified as geropathies.The general pathology encountered at third age most frequently affects the patient from the cardiovascular, gastrointestinal, metabolic and nutritional, endocrine, osteo articular, ocular, auditory, psychical point of view[10-18].

Often, the patient finds out that he or she suffers from a general medical condition, often in the context of a worry-free life, and the health is unfortunately passed on a

second place, and the patient only presents himself to a doctor in cases of aggravation of the disease.A study published in 1988 reported that despite the fact that the edentation is declining, however, the need for prosthetic treatments will continue to increase due to the aging of the population[19,20,21].

There have been published in 2002 projections on the rise of the American population over a period of three decades (1990-2020) and the corresponding increase of the ages of 55-74 years. The report indicates that the number of adults aged 55-74 years will increase by 86% between 2000 and 2020, and the number of adults aged 75 and> will increase by 61%. The authors of these projections have also assumed that the prosthesis demand will increase.

A similar projection was made for European countries, but it came to totally opposite conclusions, however, despite the increase in the elderly population in the general population, the projection of total prosthesis will decrease over the same period[22, 23,24]

These differences are likely to be attributed to variations in edental rates and dental care patterns between different countries[25-30].

Currently, in place of total prostheses, patients with natural remaining teeth look for alternative interventions such as partial mobile prostheses.

**PURPOSE OF THE STUDY**

The aim of our study was to establish the main criteria for the choice of partially movable prostheses in geriatric patients in a systemic context. Equally, this study aimed at motivating the elderly patients regarding the need to establish a country's treatment and adoption a sanogenous behavior and deepening gerontological pathology and identifying disorders occur in the oral and risks in dental practice.

**MATERIAL AND METHOD**

The study was conducted on a group of 60 geriatric patients diagnosed with various forms of general pathology corroborated with various edentational forms presented on the Clinical Base for Education of the Faculty of Dental Medecine .All patients underwent a complex clinical examination , supported by paraclinical assessments which allowed the establishment of a biological balance sheet.

The methodology for conducting clinical examination consisted of clinical examination recording

subjective information and making a clinical history and physical exam, general and local extraoral and intraoral. The geriatric clinical examination generally follows the same stages as the adult with some stage peculiarities and interdisciplinary consultations.

Includes: patient observation, anamnesis, objective exam, risk assessment, provisional treatment plan, possible interdisciplinary referrals.The anamnesis follhistoryows well-known stages - the reason of presentation, personal history,

general and dental , heredocolateral family history, general and dental

history disease , social anamnesia , but adapted to the elderly patient.

The history of dental affections for which he presented was thoroughly detailed, with insight into clear questions to be understood by patients.

For each symptom, the characteristics were observed from the onset and until the time of presentation with evolution, complications, therapies , intolerance to therapies.

We were interested in the diagnosis established by other physicians (based on the health card, discharge notes, medical letters), the etiology of tooth loss - important for the prognosis of future prostheses (frequently due to periodontal disease). Interested in the moment of teeth loss and information about previous prostheses.

Within the history of the general health we were interested in the following diseases: haematological diseases, endocrine diseases, neurological diseases, mental illness, ocular diseases, locomotor system disorders, dermatological diseases, cardiovascular diseases

hospitalizations, surgeries, recommended medication or self-medication with the exact

name of the medicine given: aspirin, corticosteroids, antibiotics, antihypertensives, calcium blockers, dose of administered drugs, the reason why the medicines are taken. Can affect oral pathology or interfere with anesthesia.

The overall objective exam completed the anamnestic data, and focused on certain diseases. It required checking on vital signs: temperature, pulse, respiration, blood pressure, which are mandatory as routine examinations.

The extraoral and intraoral objective examination revealed changes characteristic of aging and associated pathology.The extraoral objective examination consisted of the succession of the following stages. The present norm and the profile standard were inspected by looking at the physiological involutive changes in the face as well as the pathological ones. Continued with superficial palpation to record changes in tactile, thermal and painful sensation of the skin.

Continuing with the profound palpation of the components of the stomatognate system, plan with a plane examining the muscles in order of temporal muscle, maseter, internal and external pterigoidian, anterior digestive belly, buccinator, orbicular of the lips, narinari, sternocleidomastoidian, milohioidian, genioglos, geniohioidian, muscles of the tongue.

The following planes were represented by contours and bones relief, namely the upper and lower orbital arcade, the zigomatic arcade and the malarial bone, the ascending and the downward mandibular branch, the nasal pyramid, the anterior wall of the maxillary sinus, the Valley points, the lympho ganglionary system examining the suboccipital ganglia, retroauricular, preauricular, genians, submandibular, submentonian, jugulocarotidian, supraclavicle.

The salivary glands were palpated and the temporomandibular joint exam was performed.Intraoral clinical examinations: the lips and the mouth, the labiojugal mucosa were examined paying attention to the retrocomisal area, upper and lower buccal vestibule, maxillary and mandibular dentoalveolar arches, odonto-periodontal units, mouth and tongue

The sum of the clinical and biological indices is an indisputable marker of a successful clinical outcome in the case of various types of odontal restorations that cover both the area of the obturations in the vicinity of the gum and the prosthetic territory, materialized in fixed restorations made of different biomaterials whose structure and surface qualities contributes decisively to a good biological integration while at the same time the muco-bone support characterized by negative clinical-biological indices reflects a poor integration or absence of integration within the removable prosthesis.

## RESULTS AND DISCUSSIONS

In the batch of patients studied, the gender distribution was 46% of male patients (M) and 53% of female patients (F), 71% of patients were urban (U) and 29% of rural). (Fig.1, Fig.2)

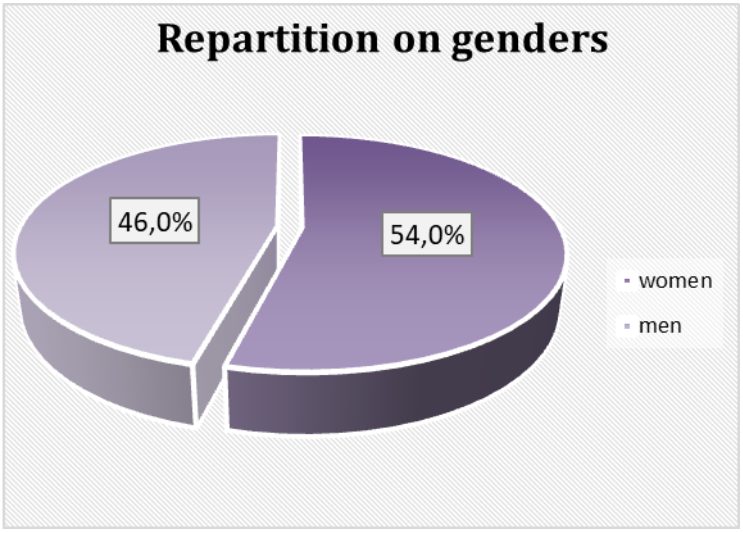


Fig.1 Distribution of patients by sex

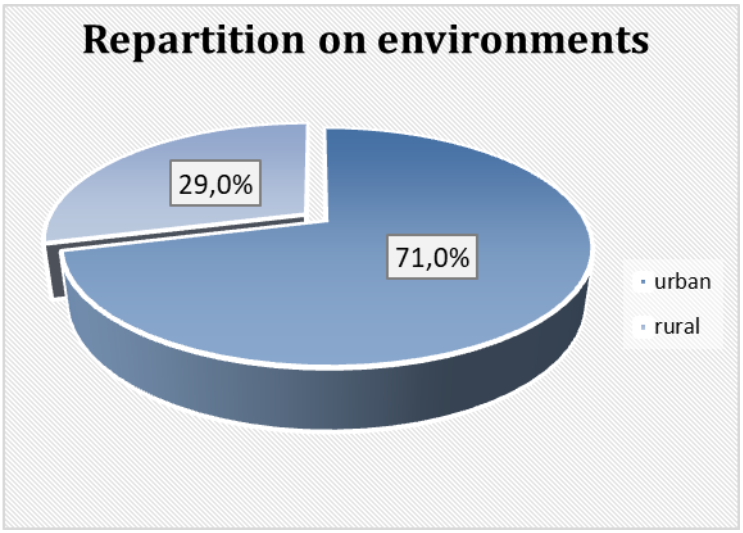


Fig.2 Patient distribution by place of origin

The graphical representation of the distribution of patients according to the environment of origin and sex is exemplified in Figure 1 and Figure 2. Following the subjective clinical examination (anamnesis and questionnaire), we identified 34% of cases with diabetes, 36% with cardiovascular pathology, 9% with respiratory pathology (COPD and Asthma), 10 % of cases with diabetes associated with HTA, 1 1% cases of digestive pathology (chronic gastritis, hepato-biliary pathology). The graphic representation of the general pathology distribution is exemplified in Figure 3.In the prevalent pathology of the geriatric patient and the cardiovascular pathology, it is noted in the HTA frequency diagnostics palette. This clinical entity in the geriatric patient comprises decreasing the elasticity of the large vessels by reducing their compliance induced by vascular aging and atherosclerosis, reducing the sensitivity of the carotid baroreceptors and aortic drugs that do not react promptly to changes in blood pressure, hence the occurrence of orthostatic hypotension, hypervolemia favored by normal salt intake while

decreasing the sodium excretion seen in the elderly and, last but not least, increasing the catecholamine, norepinephrine plasma concentration. Geriatric HTA evolves frequently asymptomatically.

In the elderly, systolic TA increases progressively over the diastolic one that remains within normal limits due to increased cardiac output, TA values having increased variability in the course of the same day.Oral manifestation of the hypertension are located particularly in the oral lining. Thus, lip mucosa is pink, slightly cyanotic due to the reduced concentration of hemoglobin above the normal range, in the papill hyperemia and congestion is noticed. The jugular mucosa is colored in bright pink.

In this context prosthetic therapy should target non-invasive and minimum-invasive methods.

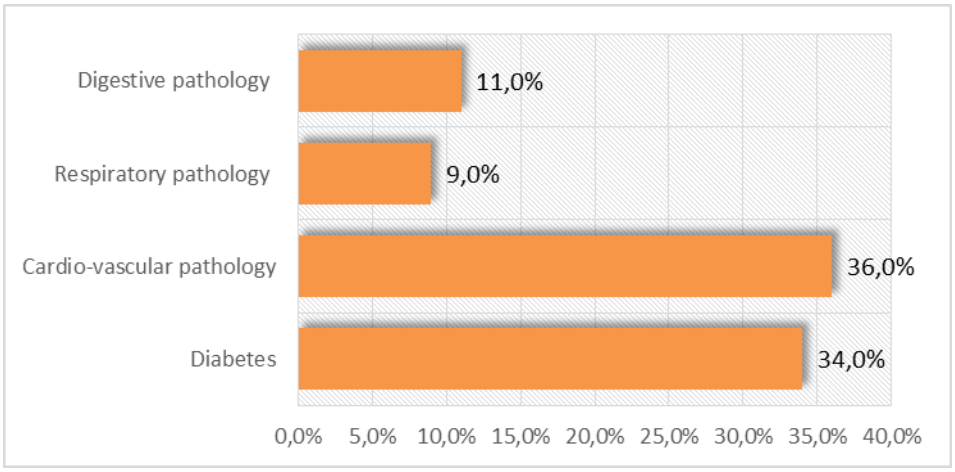


Figure 3 Distribution of general pathology in the analyzed group

Regarding the paraclinical evaluation, indispensable to elaborate a precision diagnosis, we found a prevalence of use of panoramic radiographs at a rate of 62%, panoramic radiographs and CT ATM were found in a percentage of 17%, orthopantomographies and digital radiographs were identified at a rate of - 12%, and digital paraclinical assessment methods were present in an 8% percentage being CT and CBCT (Fig.4) .

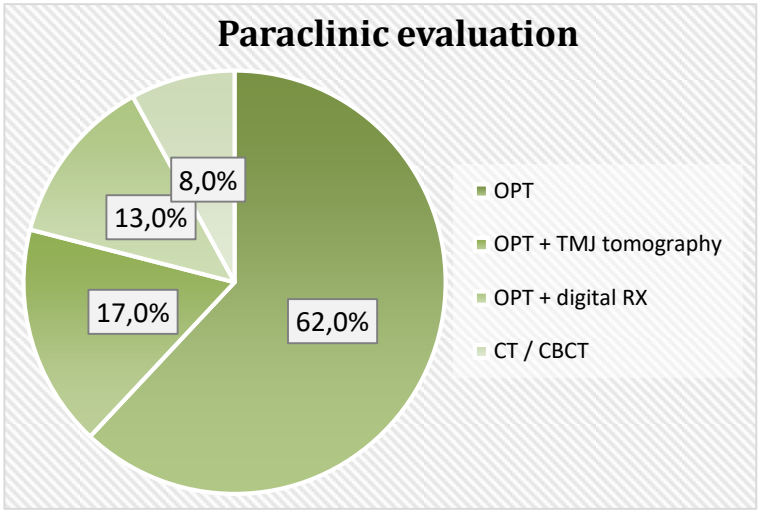

Fig.4 Aspects of paraclinical assessment methods

In oral pathology we have noticed associations of existing lesions in the teeth (caries), periodontium, mucosa, more frequent in diabetic patients than in other cases.

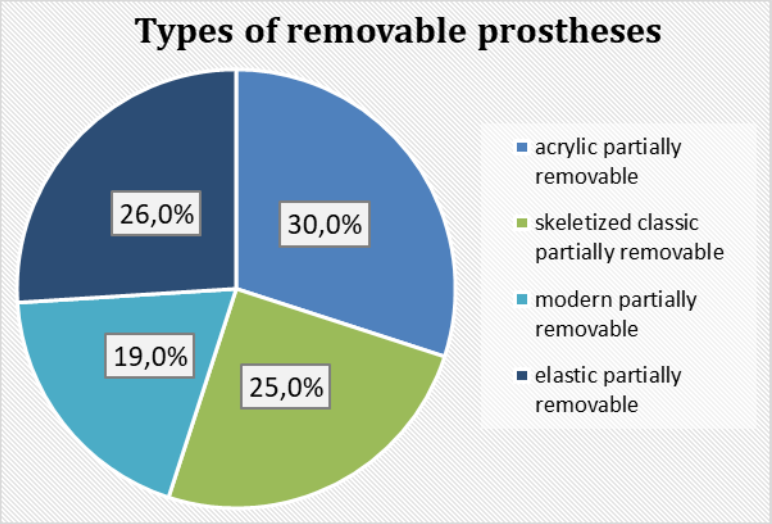


Fig.5 Types of removable prostheses

Regarding the types of mobilized prosthesis applied to geriatric patients one found a prevalence of the partially movable prosthetic acrylic for 30%, followed by partial movable elastic prosthetic 26%, partially movable prosthetic classical scheletate 25% and modern movable prosthetic were found in a percentage of 19%(Fig.5).

There is consensus in the literature that the establishment of a regular monitoring programme along with an effective home care regime improves the long-term success of RPDs.

Representative for the issues addressed are 2 clinical cases:

The first clinical case analyzed, representative for the totaledentulous cases total and subtotal rehabilitated and analyzed within the study lot is diagnosed with total maxilar edentaton and subtotal mandible edentulous with morpho-functional and facial aesthetic level implication by undersize lower floor accentuating the perioral digs and disrupting mandibulo-cranial relations as a general condition, the female pacient exhibits rheumatic and HTA compensated general condition.The therapeutic solution was represented by a total maxillary prosthetic and a prosthesis mixed mandibular prothesis:2 crowns metalcomposites and a partial mobilize acrylic prosthetic,which by election and mounting toothed parties, superpozed, making the type of covered smile. Acest clinical case is representative for transitional prosthesis and also for those with a social character in which, by and prevail functionality, aesthetic criteria must to be present(Fig.6).

Fig.6 Initial and final aspect of social clinical case using removable acrylic prostheses

The next clinical case is represented by a patient of 70 years old to whom the fix metal-composite prosthesis at the maxillary level that corresponded in terms of morphological and functional recovery of the mandibular prosthesis, that was anchored in the register prosthesis hybrids, bringing together a fix metal-ceramic prosthesis on the front and a partially removable prosthesis with skeletal elements maintenance support and stabilization represented by attachements. As a general condition, the patient was diagnosed with compensated diabetes and rheumatic disease without affecting the moving ability(Fig.7).

Fig.7 Aspects of clinical case with modern sckeletal removable prosthess

## CONCLUSIONS

1. The orofacial structures rehabilitation involves aesthetics restauration and stomatognate system functionality system, elimination of parafunctions and care for outstandin g teeth. The flexible dentures observe these criteria better than those of con ventional acrylate. The implied patients prefer flexible acrylate at a rate of 100%.

2. Satisfaction with the removable partial prosthesis has multifactorial dimensions, including technical variables that vary depending on the patient. Success is perceived differently by the patient and the practitioner: the first person considers personal satisfaction; the latter judges the biological and technical aspects. 3. Comfort, masticatory skill, aesthetics and retention seem to be the most important factors for the acceptance of the prosthesis. Personality, the attitude towards the dentures, previous experience and motivation depend on the patient and can influence overall satisfaction.

## REFERENCES

1. Awartani F.: Evaluation of the relationship between type 2 diabetes and periodontal disease. Odontostomatol. Trop. 2009 Dec; 32 (128):33-9.
2. Forna Norina, Protetică Dentară, Vol I si II, Editura Enciclopedica, 2011
3. Forna Norina: Evaluarea starii de sanatate afectate prin edentatie, Editura Demiurg, Iasi, 2007 ISBN 978-973-152-017-9
4. Gavrilov, L.A. and Gavrilova, N.S. (2001) The reliability theory of aging and longevity. J. Theor. Biol.213(4), 527–545.
5. Mark H. Beers & colab. : The Merck Manual of Health & Aging: The comprehensive guide to the changes and challenges of aging-for older adults and those who care for and about them , Ballantine Books, 2005
6. Mark H. Beers. ,Robert Berkow,Robert Berkow , Mark H. Beers :Merck Manual of Geriatrics , Merck; 3 edition , 2000
7. Macovei Georgiana, Ursache Maria : Manifestări orale în patologia generală a vârstnicului, 2010, Editura PIM, Iaşi, ISBN 978-606-13-01102
8. Popescu E, Agop Forna D, Earar, K, Forna NC, Bone substitutes used in guided bone regeneration technique review, Materiale plastice, Volume 54, no.2, 2017, pg. 390-392

9. Checherita, L., Beldiman, M.A., Stamatin ,O., et al. Aspects on structure of materials used for different types of occlusal splints. 64(8), 2013,pg.864-867
10. Matei ,M.N., Chiscop, I, Earar K., et al., Evaluation of corrosion resistance of NiTi Nb orthodontic wires in tomato juice, Revista de Chimie, 66(12),2015, pg.2009-2012
11. Zegan,G., Carausu, E.M., Golovcenco, L., et al., Nanoparticles deposition on mini-implants for osseointegration and antibacterial properties improvement, Revista de Chimie, 68(12), 2017, pg. 2929-2931
12. .Mareci, D., Earar, K., Zetu, I., Comparative electrochemical behaviour, of uncoated and coated Ni Ti, for dental orthodontic wires, Revista de Chimie, 52(2), 2015, pg, 150-153
13. Coman ,M., Chiscop ,I., Matei, M.N., Dynamics of biochemical changes in viral BVirus Hepatitis, Revista de Chimie, 66(12), 2015, pg. 2144-2146
14. Ardeleanu ,V., Nechita, A., Francu , L.L., etal., Nuclear morphometry and proliferatve activity evaluation in the gastrointestinal stromal tumors, Romanian Journal of Morphology and embryology, 55(2), 2014, pg.319-33
15. Zegan, G., Anistoroaiei D., Golovcenco L., et al., Physicochemical properties of advanced nanostructured materials, for dental microimplant coatings, Revista de Chimie, 68(9), , 2017, 2052-2054
16. Ancuta, C., Ancuta, E., Chirieac, R., TNF Inhibitors and Periodontal Inflammation in Psoriatic Arthritis, By: et al., Revista De Chimie , 68 ( 8) , 2017, Pg.: 1914-1918
17. Turliuc ,D., Turliuc, S, Cucu, A., Areview of analogies between some neuroanatomical terms and roman huseold objects, Annals of anatomy-anatomisscher anzeiger, 204, 2016, pg.127-133
18. Dobre,M., Georgescu,C., Stefanescu, V., et. al., Homeostatic changes during anticonvulsant medication in children, Farmacia, 63(3), 2015, pg. 402-406
19. Loghin, I., Earar, K., Nechita, A., et.al.,Chemistry of active endocardidis preserving wih vegetation on the prosthetic valve, Revista de Chimie, 66(3), 2015, pg. 387-389
20. Salaru, D., Mertens, Peter R., Bartsch, P., Loss of heparin-binding protein prevents necrotizing glomerulonephritis: first clues hint at plasminogen actvator inhibitor-1, International urology and nephrology, 45(5), 2013, pg. 1483-1487
21. Ancuta, E., Ancuta, C., Zugun E. F., Predictive value of cellular immune response in cervical cancer, Romanian Journal of Morphology and Embryology Volume: 50 Issue: 4 Pages: 651-655 Published: 2009
22. Lliescu, A.C., Salaru , D., Achitei, I., et al., Postoperative atrial fibrillation prediction followimg isolated surgicalaortic valve replacement, Anatolian Journal of cardiology,19(6), ,2018, pg.394-400
23. Costache ,I.I., Ungureanu M.C., Iliescu, D., et al., Electrocardiographic changes in the most frequent endocrine disorders associated with cardiovascular diseases, review of the literature, Medical -surgical journal , 119(1), 2015, pg. 18-22
24. Petris, A., Cimpoesu, D.,Costache, I., et al., Do not rsucitatedecision(i), Ethical issues during cardiopulmonary resuscitation , Revista Romana de Bioetica, 9(2), , 2011, pg. 99-108
25. Ancuta, C., Pomirleanu, C., Maxim, R., Ancuta.E, Iordache, C., Dascalu, C., Chirieac, R.,Clinical Relevance of Rituximab Immunogenicity in Rheumatoid Arthritis A pilot study, Revista de chimie, 67(12), 2016, pg. 2573-2576
26. Belibou, C., Ancuta, C., Ancuta, E., et al., Carotid intima-media thickness and plaque as surrogate biomarkers of atherosclerosis among consecutive women with systemic lupus erythematosus, Romanian Journal of Morphology And Embryology , 53 (1 ), 2012, Pg: 29-34
27. Checherita, L., Forna, N.C., Stamatin, O., et al., Correlations between biochemical parameters integrated in stomatonathic system dysfunctional syndrome, Revista de Chimie, 64(10), 2013, pg. 1172-1181,
28. Pomirleanu C., Ancuta, C., Miu, S., et al., A predictive model for remission and low disease activity in patients with established rheumatoid arthritis receiving TNF blockers, Clinical Rheumatology 32 ( 5), 2013, 2013, Pg., 665-670
29. Zegan, G., Dascalu, C.G., Mavru, R.B., Cephalometric, features of Class III malocclusion, Medical-surgical journal,119(4), ,2015, 1153-1160;
30. Ancuta, E.; Ancuta, Codrina; Zugun-Eloae, F.; et al., Predictive value of cellular immune response in cervical cancer, Romanian Journal of Morphology and Embryology , 50 (4) ,2009, Pages: 651-655