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MOGUĆA POVEZANOST PARODONTOPATIJE I PROSTATITISA - PILOT STUDIJA

POSSIBLE ASSOCIATION BETWEEN PERIODONTITIS AND PROSTATITIS – A PILOT STUDY

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Sažetak

Uvod: *Prostatitis je hronično oboljenje često povezano sa parodontopatijom. Nivo prostata specifičnog antigena (PSA) u serumu može biti povišen u nemalignom stanju, kao što je simptomatski i asimptomatski prostatitis. Sličnost u inflamatornoj etiopatogenezi ovih bolesti evidentna je kroz prisustvo gram-negativne bakterijemije, koja zauzvrat može biti moguća veza između ova dva stanja.*
Cilj: *Proceniti moguću povezanost između hronične parodontopatije i prostatisa, praćenjem nivoa PSA kod pacijenata sa umerenom i teškom formom parodontopatije.*
Materijal i metode: *Studija je obihvatila 40 pacijenata hospitalizovanih na Univerzitetskoj urološkoj klinici Medicinskog fakulteta u Skoplju sa dijagnostikovanima prostatitisom i utvrđenim PSA nivoom (≥ 4ng/ml). Na osnovu nivoa pripojnog epitela pacijenti su podeljeni u dve grupe. Prvu grupu činilo je 20 pacijenata sa nivoom pripojnog epitela NPE ≥ 3 mm odnosno umerenom formom parodontopatije, a drugu grupu 20 pacijenata sa NPE ≥ 5 mm, odnosno teškom formom parodontopatije. Izvršena je procena plak indeksa (PI), indeksa inflamacije gingive (IGI), indeksa krvarenja gingive (IKG) i nivoa pripojnog epitela (NPE), procenjen je PSA nivo i analizirana je njegova korelacija sa ispitanim parodontalnim parametrima, sa svakim ponaosob. Razlike u srednjim vrednostima, kao i statistička značajnost, analizirani su Studentovim t-tesom. Povezanost PSA nivoa sa svim ispitivanim kliničkim parametrima analizirana je upotrebom Pearsonove korelacione analize.*
Razultati: *Između ispitivanih grupa pacijenata, utvrđena je statistički značajna razlika (p < 0,05) između vrednosti ispitivanih parodontalnih indeksa (PI, IGI, IKG, NPE) i vrednosti PSA nivoa. Utvrđene su više vrednosti PSA niova kod pacijenta sa teškom formom parodontopatije u odnosu na pacijente sa umerenom formom parodontopatije. Pearsonova korelaciona analiza pokazala je to da nema statistički značajne povezanosti ispitivanih parodontalnih indeksa (PI, IGI, IKG, NPE) sa PSA nivoom između ispitivanih grupa pacijenata.*
Zaključak: *Utvrđeno je da pacijenti sa teškom formom parodontopatije imaju više vrednosti PSA nivoa u odnosu na pacijente sa umerenom parodontopatijom. Klinički periodontalni parametri i povišeni PSA nivo ukazuju na moguću vezu između ispitivanih bolesti.*

Ključne reči: *parodontopatija; prostata specifični antigen; prostatitis*

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Abstract

Introduction: *Prostatitis is one of the most chronic diseases which is often associated with periodontitis. The serum Prostate Specific Antigen (PSA) levels can be elevated in a non-malignant condition such as symptomatic and asymptomatic prostatitis. Similarity in the inflammatory etiopathogenesis of these diseases is evident through the presence of Gram negative bacteremia, which in turn may be the possible link between these two conditions.*
Aim: *To estimate the possible association between chronic periodontitis and prostatitis, evaluating the PSA levels in patients with moderate and severe periodontitis.*
Material and methods: *40 patients with prostatitis and elevated Prostate Specific Antigen (PSA) levels (≥ 4ng/ml) that participated in the study were hospitalized at the University Urology Clinic at the Faculty of Medicine in Skopje. Patients were divided into two groups on the basis of the levels of periodontal clinical attachment. First group of 20 patients with Clinical attachment level (CAL) ≥ 3mm, moderate periodontitis and other group of 20 patients with CAL ≥ 5mm, severe periodontitis. Dental plaque index (DPI), Index of gingival inflammation (IGI), Gingival bleeding index (GBI) and Clinical attachment level (CAL) were recorded and an assessment of PSA values was done and correlation to periodontal parameters, respectively. Differences in means, as statistically significant, were analyzed using Student's t- test. The relationship between PSA scores with all clinical parameters was done using Pearson's correlation coefficient technique.*
Results: *Statistically significant differences were noted, (p<0.05) between periodontal index values (DPI, IGI, GBI, CAL) and PSA levels within the two examined groupsHigher PSA levels were recordedin patients with severe periodontitis than inthose with moderate periodontitis. Pearson coefficient test among these periodontal indices (DPI, IGI, GBI and CAL) and PSA levels in two examined groups showed no statistically significant correlation.*
Conclusion: *Patients with severe periodontitis were found to have higher PSA levels than those with moderate periodontitis. The clinical parameters of periodontitis and elevated PSA levels indicated a probable link between the two diseases.*

Key words: *periodontitis; prostate specific antigen; prostatitis*

Uvod

Parodontalno oboljenje predstavlja kompleksnu polimikrobnu inflamaciju potpornog aparata zuba izazvnu određenim mikroorganizmima ili grupama takvih mikroorganizama, što dovodi do kontinuiranog uništavanja parodontolnog ligamenta i alveolarne kosti[1].

Razumevanje patogenestkog mehanizma parodontalne bolesti omogućiće bolje razumevanje oboljenja. Istraživanja ukazuju na potencijalnu vezu parodontopatije i sistemskih oboljenja, kao što su dijabetes, koronarna bolest srca, infarkt, nepovoljna stanja vezana za trudnoću, oboljenja pluća i druga obolenja. Prostatitis je jedno od oboljenja kod koga je utvrđena povezanost sa parodontopatijom. Oba oboljenja, i prostatitis i parodontopatija, spadaju u oboljenja koje se vezuju za starost osobe, i pogađaju na milione ljudi širom sveta. Ovakvi nalazi doveli su do razvoja i proširenja mnogih perspektiva u upravljanju parodontopatijama, kao nove discipline u oblasti pardontalne medicine[2].

Benigna hiperplazija prostate (BHP), kao jedno od najučestalijih oboljenja kod muškaraca, definiše se kao iregularna proliferacija vezivnog tkiva, glatkih mišića i grandularnog epitela unutar tranzicione zone prostate. Prostatitis se klinički manifestuje bolnim mokrenjem, otežanim pražnjenjem bešike, učestalom potrebom za mokrenjem, bolovima u penisu, testisima, čak i tokom ili nakon ejakulacije, povezanih sa groznicom i jezom[3].

Prostata specifični antigen (PSA) je glikoprotein koji proizvede uglavnom eptelijalne ćelije duž acinusa i duktusa prostatne žlezde. On je biološki ili tumor marker za stanja kao što su benigna hiperplazija prostate, karcinom prostate, i pokazao se korisnim za skrining i potvrđivanju dijagnoze kod značajnog broja pacijenata sa karcinomom prostate[4]. Prostata specifični antigen test rutinski se koristi za skrining karcinoma prostate u SAD još od ranih devedesetih godina prošlog veka. Serumski PSA nivo normalno je veoma nizak. Kada su normalne strukture prostate narušene kao usled oboljenja prostate, inflamacije i traume, tada dolazi do lakšeg ulaska PSA u sistemsku cirkulaciju. Serumska PSA koncentracija ≥ 4 ng/ml generalno se smatra indikatorom karcinoma prostate; kada se sumnja na postojanje ovog karcinoma potrebno je uraditi biopsiju prostate kako bi se potencijalna dijagnoza potvrdila ili odbacila. Serumski PSA test ima suboptimalne specifikacije, s obzirom na to da PSA nivo može biti povećan i kod nemalignih stanja kao što su simptomatski i asimptomatski prostatitis[5-8].

Introduction

Periodontal disease is a complex polymicrobial inflammation of the tissues supporting the teeth, caused by certain particular micro organisms or clusters of such microorganisms, leading to the continuous destruction of the periodontal ligament and the alveolar bone[1].

The importance of understanding the mechanisms of pathogenesis of periodontal disease will provide a better understanding of the disease. Research findings point to the potential links between periodontitis and systemic disorders, such as diabetes, coronary heart disease, stroke, pregnancy related adverse conditions, lung disorders and others. Prostatitis is one of the disorders that has shown to have a relationship with periodontitis. Both periodontal disease and prostatitis are age-related diseases that affect millions of people worldwide. These findings together have led to many developments and broadening perspectives about managing periodontitis, as a new discipline of periodontal medicine[2].

Benign prostatic hyperplasia (BPH), as one of the most common disease in men is defined as unregulated proliferation of connective tissue, smooth muscle and glandular epithelium within the prostate transition zone. Prostatitis clinically presents with painful urination, difficulty in emptying the bladder, frequent tendency to urinate, pain in penis, testicles, even during or after ejaculation, associated with fever and chills[3].

Prostate specific antigen (PSA), is a glycoprotein produced mainly by the epithelial cells along the acini and ducts of the prostate gland. It is a biological or tumor marker for conditions such as benign prostatic hyperplasia, prostate cancer, and the screening of which has proven to be beneficial in the confirmatory diagnosis of substantial numbers prostate cancer patients[4]. The prostate specific antigen PSA test has been routinely used for prostate cancer screening in the US since the early 1990s. The serum PSA levels are normally very low. When the normal prostatic structure is disrupted, like prostatic disease, inflammation or trauma, it permits the entry of more PSA to the systemic circulation. A serum PSA concentration ≥ 4ng/ml is generally considered an indicator for a prostate biopsy to be made in order to confirm or deny the diagnosis of prostate cancer. The serum PSA test has suboptimal specifications because PSA concentration can be elevated in non-malignant condition such as symptomatic and asymptomatic prostatitis[5-8].

Etiologija hroničnog prostatitisa zavisi od inflamatornih faktora domaćina, kao što su proinflamatorni citokini, interleukina (IL 1β) i tumor nekrozis faktora α (TNF α). Povećanje nivoa proinflamatornih citikona i anti-inflamatornih citokina povezano je sa patogenezom parodontopatija kao i prostatitisa. Sličnost etiopatogeneze ovih oboljenja sugeriše na moguću povezanost ovih oboljenja, što može biti u vezi i sa povišenim novoom PSA[9]. Predloženi mehanizam povezanosti parodontopatije i prostatitisa uključuje i bakterijemiju nastalu usled oslabljenog parodontalnog epitela i sistemsku imunološku disregulaciju. Veruje se da disbioza mikrobioma kod parodontalne bolesti dovodi i do imunološke invazije i do proinflamatornog stanja[10,11]. Razumevanje niza zdravstvenih stanja i izloženosti koja utiču na serumski PSA nivo potrebno je kao pomoć pri donošenju odluke za skrining ı izvođenje biopsije prostate. Jedno od takvih zdravstvenih stanja je parodontopatija. Budući da parodontopatija i prostatitis imaju gram-negativne bakterije kao ekološke agense[9], mnoge studije ispitivale su moguću povezanost parodontopatije i PSA kod muškaraca, koji su bili podvrgnuti biopsiji prostate ili su imali horničnu parodontalnu bolest[12,13].

Stoga, sproveli smo ovu studiju da ispitamo povezanost klinički procenjene parodontalne bolesti i PSA kod muškaraca starosti 50 i više godina i uporedimo nivo PSA u serumu sa paro-dontalim kliničkim parametrima koji uključuju plak indeks (PI), indeks inflamacije gingive (IGI), indeks krvarenja gingive (IKG), nivo pripojnog epitela (NPE) između pacijenata ispitivanih grupa.

Cilj studije bio je proceniti moguću povezanost hronične parodontopatije i prostatisa, praćenjem nivoa PSA kod pacijenata sa umerenom i teškom formom parodontopatije.

Materijal i metode

Studija je sprovedena na Stomatološkom fakultetu u Skoplju, Klinici za parodontologiju i oralnu medicinu i Medicinskom fakultetu u Skoplju, kao i na Klinici za urologiju. Svih 40 studijom obuhvaćenih pacijenata bilo je hospitalizovano na Klinici za Urologiju sa dijgnostikovnim prostatitisom i procenjenim PSA nivoom. Svi pacijenti dobili su informacije o istraživanju i dali su pisanu saglasnost o učešću. Uključujući kriterijumi bili su starost pacijenta ≥40 godina, broj zuba ≥ 12, procenjeni PSA nivo ≥ 4ng/ml, i nepodvrgnutost oralnoj profilaksi u predhodnih 6 meseci. Pacijenti koji su u anamnezi imali medicinski kompromitovana stanja, kao što

Etiology of chronic prostatitis depends on the inflammatory factors of multiple hosts' such as pro inflammatory cytokines, interleukin (IL 1β) and tumor necrosis factor α (TNF α). Increased levels of pro-inflammatory and anti-inflammatory cytokines have been associated with the pathogenesis of periodontitis as well as prostatitis. Similarity in the etiopathogenesis of these diseases denotes a possible relationship between the two, which may be apparent with the elevated PSA values in circulation[9]. Proposed mechanisms for the association between periodontitis and prostatitis include the bacteremia secondary to the weakened periodontal epithelium and systemic immune dysregulation. The dysbiosis microbiome in periodontal diseases is believed to create both an immune-invasion and a proinflammatory state[10,11]. Understanding the array of health conditions and exposures that influence serum PSA is needed to aid in clinical decision-making for screening and for performing a prostate biopsy. One possible health condition is periodontal disease. Since both periodontal disease and prostatitis have Gram-negative bacteria as etiologic agents[9], many studies have investigated the association between periodontal disease and PSA among men who underwent prostate biopsy or had chronic periodontal disease[12,13].

Therefore, we performed the current study to evaluate the association between clinically assessed periodontal disease and PSA in men aged 50 and older and compare the serum PSA levels with periodontal clinical parameters which include Dental plaque index (DPI), Index of gingival inflammation (IGI), Gingival bleeding index (GBI) and Clinical attachment level (CAL) between the study groups.

The aim of the study was to estimate the possible association between chronic periodontitis and prostatitis, evaluating the PSA levels in patients with moderate and severe periodontitis.

Material and methods

The study was performed in the Faculty of Dentistry in Skopje, Clinic for Periodontology and Oral medicine and Faculty of Medicine, Urology Clinic in Skopje. Forty patients who attended in the study were hospitalized in the Urology Clinic of the Faculty of Medicine in Skopje and diagnosed with prostatitis and elevated PSA levels. All the participants in the study were informed about the research and they gave their written consent to participate in the research.

su infarkt miokarda, moždani udar, transplantacija organa u predhodnih 6 meseci bili su isključeni iz studije. Izvršen je parodontološki pregled pacijenata kojim su registrovani sledeći indeksi: plak indeks (PI) po Silness-Loe[14], indeks inflamacije gingive (IGI) po Silness-Loe[15], indeks krvarenja gingive (IKG) po Ainamo Bayu[16], kao i nivo pripojnog epitela (NPE)[17]. Za svakog pacijenta obuhvaćenog studijom, iz anamnestičkog zdravstvenog kartona uzeti su podaci o PSA nivou i dijagnostikovanim oboljenjem.

Statistička analiza

Istraživanje je sprovedeno deskriptivnom statističkom analizom. Razlika u srednjim vrednostima, kao i statistička značajnost analizirana su Studentovim t-testom. Povezanost PSA skora sa kliničkim parametrima procenjena je Pearsonovom korelacionom analizom.

Rezultati

Prema težini parodontalne bolesti, pacijente smo podelili u dve grupe, grupu pacijenata sa umerenom parodontopatijom i grupu pacijenata sa teškom parodontopatijom, po 20 u svakoj grupi. Pacijenti sa umerenom parodontopatijom bili su prosečne starosti 52 godine, dok su pacijenti sa teškom parodontopatijom bili prosečne starosti 62 godine (Figura 1). U prvoj grupi, od 20 pacijenata njih 16 (80%) bili su sa benignom hiperplazijom prostate, dok je 4 pacijenta (20%) bilo sa znacima maligniteta. Nasuprot tome, u drugoj grupi 17 pacijenata (85%) je bilo sa znacima maligniteta, dok su 3 pacijenta (15%) bila sa benignom hiperplazijom prostate. Utvrđene su statistički značajne razlike ($p < 0,05$) između vrednosti parodontalnih indeksa (PI, IIGI, IKG, NPE) i PSA nivoa između ispitivanih grupa, pacijenata sa umerenom parodontopatijom (Tabela 1) i naročito kod pacijenata sa teškom parodontopatijom (Tabela 2). Takođe detektovali smo porast nivoa PSA sa progresijom bolesti. Pearson ova korelaciona analiza između parodontalnih indeksa i PSA nivoa u dve ispitivane grupe pacijenata nije pokazala statistički značajnu korelaciju u obe ispitivane grupe (Figura 2,3,4,5,6,7,8,9).

Inclusion criteria were that patients aged ≥40, with ≥ 12 teeth, with elevated serum PSA ≥ 4ng/ml had not undergone oral prophylaxis in the previous six months. Those with any history of systematically compromised conditions such as myocardial infarction, stroke and organ transplantation during the previous 6 months were not covered in the study. We performed periodontal examination on all respondents and noted the following index parameters: DPI of Silness-Loe[14], IGI of Loe-Silness[15], GBI of Ainamo and Bay[16] and CAL[17]. In each of them, data on PSA values and the appropriate diagnosis were taken from the anamnestic health card.

Statistical analysis

The present study was carried out by descriptive statistical analysis. Difference in means as statistically significant was analyzed using Student's t-test. The relationship between PSA scores with all clinical parameters was assessed using Pearson's correlation coefficient technique.

Results

We divided the patients into two groups according to the severity of the periodontal disease, patients with moderate and patients with severe periodontitis, 20 in each group. Patients with moderate periodontitis were at an average age of 52 years, and those with severe, at 62 years. (Figure 1). In the first group of 20 patients, 16 patients (80%) were with benign prostate hyperplasia, and 4 patients (20%) with signs of malignancy. Conversely, in the second group, 17 patients (85%) had signs of malignancy and 3 patients (15%) had benign prostate hyperplasia. Statistically significant differences were noted, ($p<0.05$) between periodontal index values (DPI, IGI, GBI, CAL) and PSA levels within the two examined groups, patients with moderate periodontitis, (Table 1) and specifically in patients with severe periodontitis, (Table 2), where we consequently noted higher periodontal index values than those with a moderate form. We also detected an increase in PSA values with disease progression. Pearson coefficient test among periodontal indices (DPI, IGI, GBI and CAL) and PSA levels in two examined groups showed statistically no significant correlation in the both examine groups (Figure 2,3,4,5,6,7,8,9).

Tabela 1. Parodontalni indeksi (PI, IGI, IKG, NPE) i PSA nivo kod pacijenata sa umerenom parodontopatijom
Table 1. Periodontal indices (DPI, IGI, GBI,CAL) and PSA levels in patients with moderate periodontitis

Moderare parodontopatija / Umerena periodontitis	X	SD	N	Diff	Std Diff	t	df	p
DPI/PI	1.4	0.50						
PSA/PSA	7.2	1.43	20	-5.8	1.47	-17.6	19	0.000000
IGI/IGI	1.9	0.55						
PSA/PSA	7.2	1.43	20	-5.3	1.38	-17.7	19	0.000000
GBI/IKG	1.9	0.55						
PSA/PSA	7.2	1.43	20	-5.3	1.41	-16.7	19	0.000000
CAL/NPE	3.5	0.82						
PSA	7.2	1.43	20	-3.7	1.83	-9.0	19	0.000000

Tabela 2. Parodontalni indeksi (PI, IGI, IKG, NPE) i PSA nivo kod pacijenata sa teškom parodontopatijom
Table 2. Periodontal indices (DPI, IGI, GBI, CAL) and PSA levels in patients with severe periodontitis

Teška parodontopatija/Severe periodontitis	X	SD	N	Diff	Std Diff	t	df	p
DPI/PI	2.2	0.61						
PSA/PSA	13.7	2.00	20	-11.5	2.11	-24.31	19	0.000000
IGI/IGI	2,4	0,5						
PSA/PSA	13.7	2.00	20	-11.3	1.94	-25.92	19	0.000000
GBI/IKG	2.8	0.41						
PSA/PSA	13.7	2.00	20	-10.9	2.17	-22.42	19	0.000000
CAL/NPE	5.3	0.8						
PSA	13.7	2.00	20	-8.4	2.18	-17.18	19	0.000000

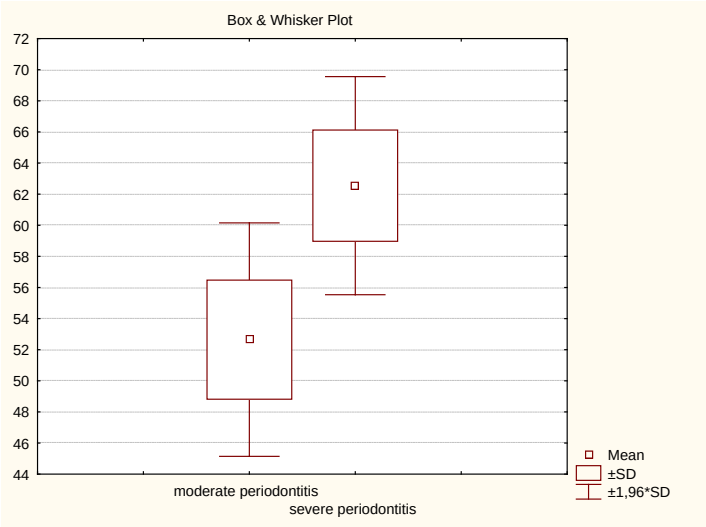

Figura 1. Prosečna starost pacijenata sa umerenom i teškom parodontopatijom
Figure 1. Average age values in patients with moderate and severe periodontitis

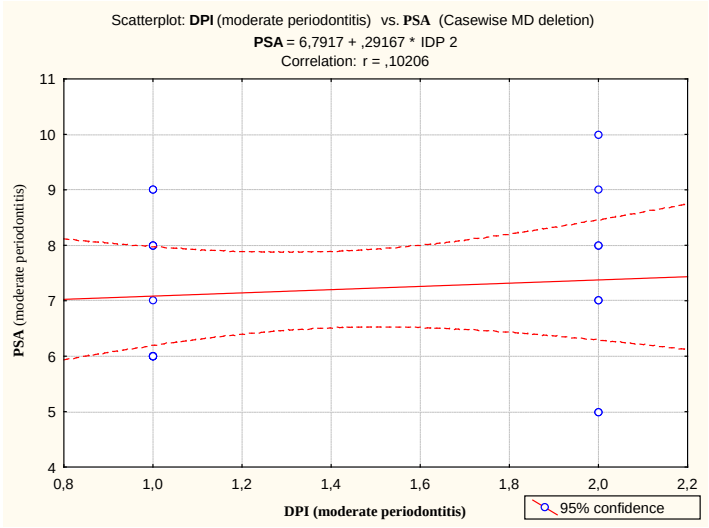

Figura 2. Pearsonov korelacioni koeficijent za vrednosti PI prema PSA kod pacijenata sa umerenom parodontopatijom (r = 0,10206)
Figure 2. Pearson's correlation coefficient value DPI vs. PSAin patients with moderate periodontitis(r= 0.10206)

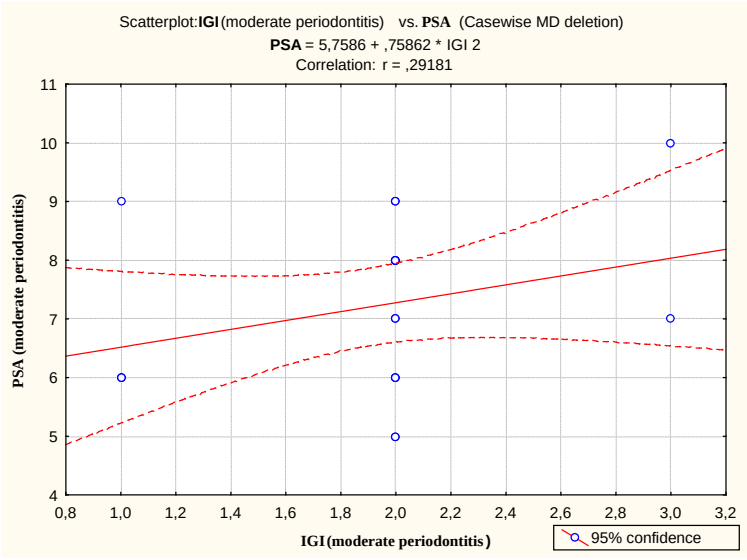

Figura 3. Pearsonov korelacioni koeficijent za vrednosti IGI prema PSA kod pacijenata sa umerenom parodontopatijom (r = 0,29181)
Figure 3. Pearson'scorrelation coefficient value IGI vs. PSA in patients with moderate periodontitis (r=0.29181)

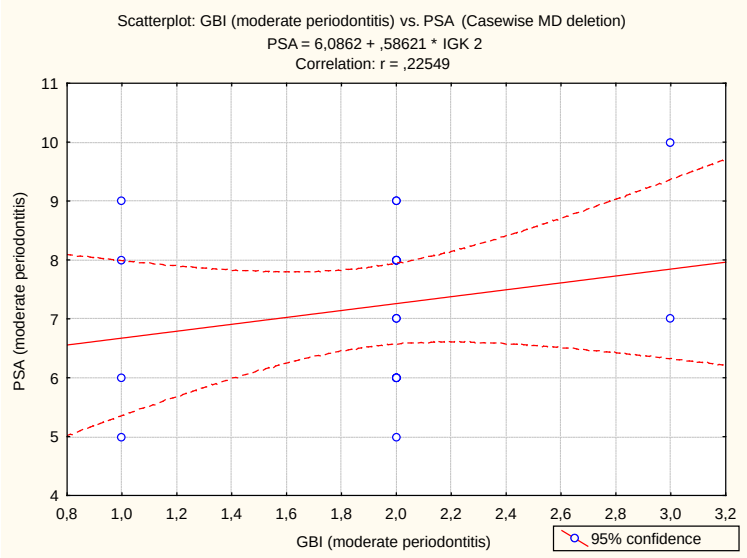

Figura 4. Pearsonov korelacioni koeficijent za vrednosti IKG prema PSA kod pacijenata sa umerenom parodontopatijom (r = 0,22549)
Figure 4. Pearson'scorrelation coefficient value GBI vs. PSA in patients with moderate periodontitis (r=0.22549)

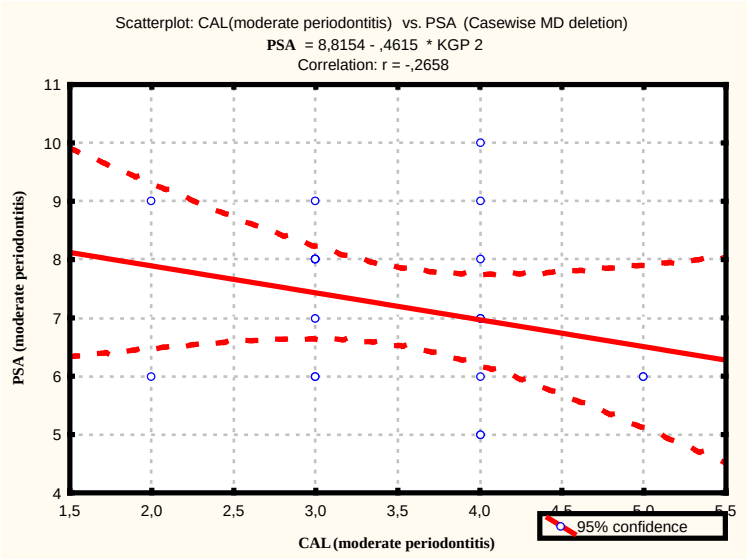

Figura 5. Pearsonov korelacioni koeficijent za vrednosti NPE prema PSA kod pacijenata sa umerenom parodontopatijom (r = 0,2658)
Figure 5. Pearson corelation's coefficient value CAL vs. PSA in patients with moderate periodontitis (r=0,2658)

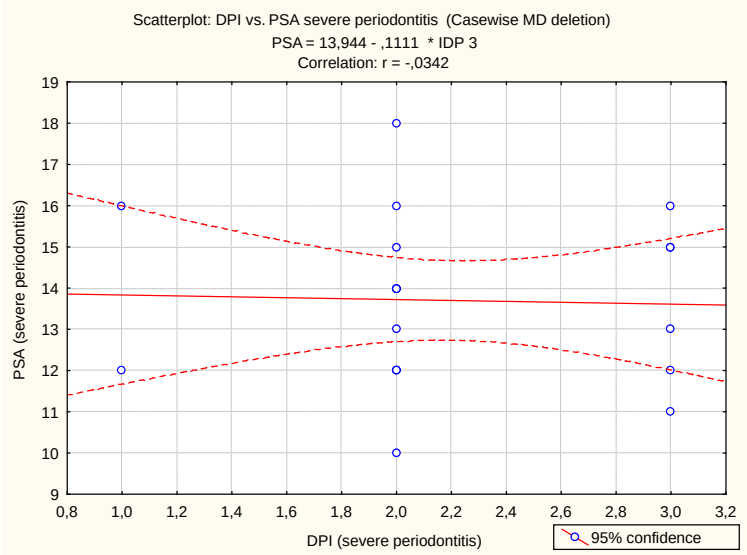

Figura 6. Pearsonov korelacioni koeficijent za vrednosti PI prema PSA kod pacijenata sa teškom parodontopatijom (r = -0,0342)
Figure 6. Pearson's correlation coefficient value DPI vs. PSA in patients with severe periodontitis(r=-0.0342)

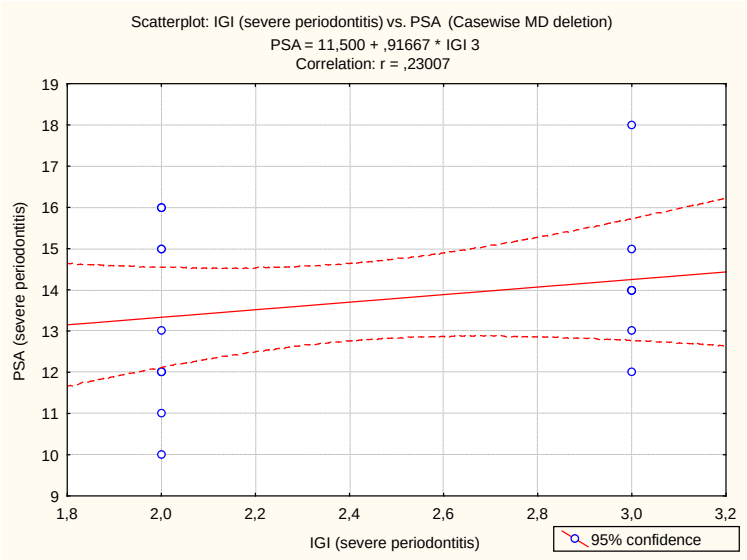

Figura 7. Pearsonov korelacioni koeficijent za vrednosti IGI prema PSA kod pacijenata sa teškom parodontopatijom (r = 0,23007)
Figure 7. Pearson's correlation coefficient value IGI vs. PSA in patients with severe periodontitis(r=0.23007)

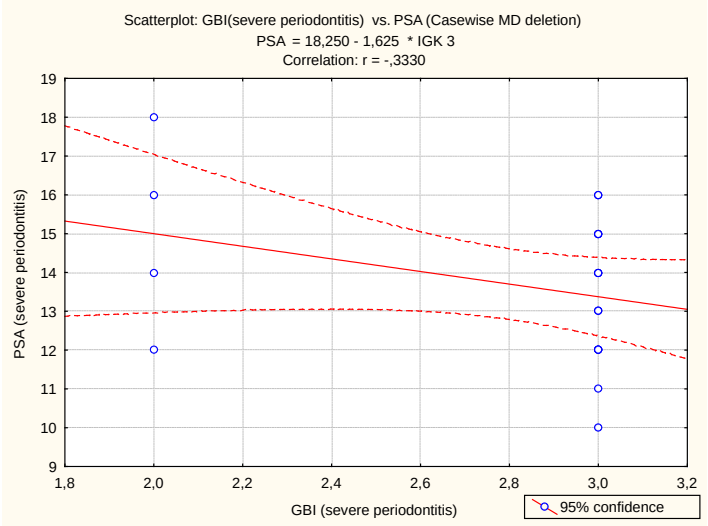

Figura 8. Pearsonov korelacioni koeficijent za vrednosti IKG prema PSA kod pacijenata sa teškom parodontopatijom (r = - 0,3330)

Figure 8. Pearson's correlation coefficient value GBI vs. PSA in patients with severe periodontitis(r=-0.3330)

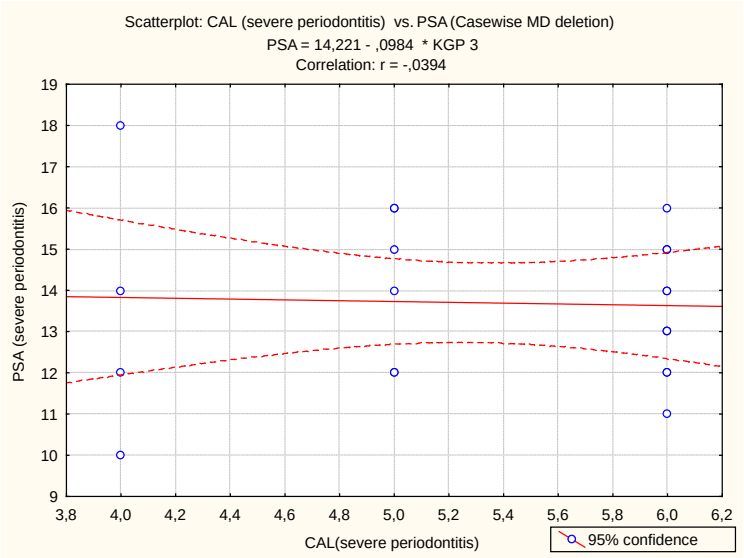

Figura 9. Pearsonov korelacioni koeficijent za vrednosti NPE prema PSA kod pacijenata sa teškom parodontopatijom (r = - 0,0394)

Figure 9. Pearson'scorrelation coefficient value CAL vs. PSA in patients with severe periodontitis(r=-0.0394)

Diskusija

Studijom je ispitivana povezanost parodontopatije i prostatitisa. Parodontopatija je sistemsko stanje koje doprinosi inflamatornoj reakciji domaćina kroz povaćeni nivo proinflamatornih citokina. Proinflamatorni citokini od značaja su u patogenezi i parodontopatije i prostatitisa. Parodontalno oboljenje dovodi do porasta proinflamatornih citokina kao što su IL-1, IL6 i TNF, koji su takođe pronađeni u serumu muškaraca sa dijagnostikovanim prostatitisom. U tom smislu, parodontopatija indikrektno doprinosi prostatitisu i to povećanim inflmatornim odgovorom na prostatitis[18,19]. Povišeni nivo proinflamatornih citokina zabeležen je kod muškaraca sa prostatitisom u odnosu na nivo ovih citokina kod zdravih muškarca[20,21].

Joshi i sar.[9] pokazali su to da su pacijenti koji su istovremeno imali prostatistis sa umerenom ili teškom formom parodontopatije imali viši nivo PSA u odnosu na pacijente koji su imali samo jednooboljenje, bilo koje, od ovih oboljenja. Oni su sugerisali da parodontopatija širenjem proinflamatornih citokina može poremetiti integritet epitela žlezda prostate i dovesti do prostatitisa, što delimično objašnjava povišeni PSA nivo u serumu. Postoji još jedno objašnjenje. Periodoncijum kao udaljeni izvor koji nije u vezi sa prostatitisom, može se smatrati odgovornim za povišeni PSA u serumu[22]. U ovoj studiji registrovali smo pozitivnu povezanost između PSA nivoa i težine parodontopatije. Pacijenti sa teškom formom parodontopatije imali su viši PSA nivo u odnosu na pacijente sa umerenom formom parodontopatije, što implicira da vrednosti PSA nivoa rastu sa težinom parodontopatije i prostatitisa. U grupi pacijenata sa teškom formom parodontopatije najveći procenat, tačnije 85% bili su sa znacima maligniteta prostate. U grupi pacijenata sa umerenom formom parodintopatije, 80% pacijenata bili su sa znacima benigne hiperplazije prostate. Ovakav nalaz u skladu je sa rezulataima Joshi N. i sar. koji su zaključili da pacijenti koji su imali komorbitet sa NPE > 2,7mm i umerenom i teškom formom parodontopatije imali povišeni nivo PSA u odnosu na one sa samo jednim stanjem[9]. Oni su takođe istakli to da tretiranje parodontopatije dovodi do redukcije PSA nivoa što može biti odraz smanjenja intraprostatke upale.

Discussion

The association between periodontitis and prostatitis is yet to be established. Periodontal disease is a systemic condition that contributes to an inflammatory reaction on the host through increased levels of pro-inflammatory cytokines. The role played by pro-inflammatory cytokines in the pathogenesis of periodontitis and prostatitis has been recognized. Periodontal disease leads to increased levels of pro-inflammatory cytokines such as IL-1, IL-6 and TNF, which were found in the blood serum of men with prostatitis. In that regard, periodontitis indirectly contributes to prostatitis by increasing inflammatory response to prostatitis[18,19]. Elevated levels of pro-inflammatory cytokines are reported in men with prostatitis and compared to those of healthy individuals[20,21].

Joshi et al.[9] showed that patients with prostatitis and moderate and severe periodontitis have higher PSA levels than those with either condition alone. They suggested that periodontitis through dissemination of pro-inflammatory cytokines may disrupt the integrity of prostate glandular epithelium and lead to prostatitis, so in that way, it partly explains increased serum PSA levels. There is another possibility. Periodontium, as a distant non prostatitis source of PSA may also be considered responsible for the increase in serum PSA levels[22]. In the present study we noted a positive relationship between PSA levels and the severity of periodontitis. Patients with severe periodontitis have a higher PSA levels than those with moderate periodontitis, implying that PSA values go up with the severity of periodontitis and prostatitis. In the group with severe periodontitis most of the patients, 85% of them exactly, were with signs of prostate malignancy. The other group with moderate periodontitis, 80% of patients were with signs of benign prostate hyperplasia. This observation is in agreement with Joshi N et al. which concluded that patients having comorbidity of CAL > 2.7mm and moderate or severe prostatitis had higher levels of PSA than those with one of these conditions[9]. They also reported that treating the periodontal disease reduced PSA levels, which may be a reflection of a reduction of intraprostatic inflammation. Elimination of periodontal pathogens through periodontal therapy may reduce the exposure of the prostate to bacteria toxins.

Eliminacija parodontalnih patogena tokom terapije parodontopatije može redukovati izloženost prostate bakterijskim toksinima.

Značajno poboljšanje registrovano je u IPSS u periodu između 4 nedelje i 8 nedelja nakon parodontalnog tretmana, što može biti rezultat smanjenja PSA u serumu i nivoa inflamatornih citokina, kao što su CRP i IL-1 beta, nakon nehirurškog tretmana kod muškaraca sa hroničnom parodontopatijom, sa istovremenim smanjenjem veličine žlezda prostate[23].

U našoj studiji, 85% muškaraca sa teškom formom parodontopatije bili su sa znacima maligniteta prostate. Sa druge strane, u grupi pacijenata sa umerenom formom parodontopatije 80% njihe je bilo sa znacima benigne hiperplazije prostate. Ovakav nalaz takođe je u skladu sa nalazom Kandira i sar., koji su pokazali to da pacijenti koji pate od umerenog ili teškog prostatitisa imaju viši PSA nivo u odnosu na pacijente sa blagom formom ili bez ovog oboljenja. Patohistološkom analizom biopsiranog uzorka oni su utvrdili i vezu između nivoa PSA u serumu i asertivnosti inflamacije prostate[24].

Zaključak

Rezultate treba razmotriti sa aspekta dizajna studije. Uprkos ograničenjima naše studije kao što su veličina uzorka i nedostatak kontrolne grupe, studija je pružila podatke o uzročnoj povezanosti parodontopatije i visokog nivoa PSA u serumu. Drugo ograničenje predstavljalo je određivanje nivoa PSA izvršeno u određenom trenutku, te nivo PSA nije praćen tokom dužeg vremenskog perioda. Neophodna je dobro kontrolisana longitudinalna studija sa većom veličinom uzorka, kao i praćenje inflamatornih citokina u patogenezi parodontopatije i prostatitisa kako bi se dodatno razjasnila povezanost ove dve bolesti.

Significant improvements were noticed in IPSS for a period of 4–8 weeks after periodontal treatment, which may be the result of a reduction in the serum PSA and inflammatory cytokine levels such as CRP and IL-1 beta, after nonsurgical treatment in men with chronic periodontitis, also resulting in the shrinking of the prostate gland in size[23].

In our study, 85% of the patients in the group with severe periodontitis were with signs of prostate malignancy. On the other side, the group with moderate periodontitis, 80% of patients were with a sign of benign prostate hyperplasia. This is also in confirmatory with the findings of Kandira et al., who showed higher PSA levels in patients suffering from moderate to severe prostatitis in comparison with those with mild or no condition of the same. They also approved the affirmative association between the serum PSA levels and the assertiveness of inflammation of prostate glands, through the histopathological findings from the biopsy[24].

Conclusion

Findings should be considered in terms of the study designed. Despite the limitations of our study due to the size of the sample and the lack of control group, it does not fail to provide a causal affiliation to periodontitis and high serum PSA levels. Another limitation is that the PSA levels determination were taken at one point in time rather than over a longer time period. A well-controlled longitudinal study with a larger sample size as well as monitoring the inflammatory cytokines in the pathogenesis of periodontitis and prostatitis is warranted to further clarify the association between these two diseases.

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