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Prevalencija asimptomatskoga apeksnog parodontitisa i njegova povezanost s bolešću koronarnih arterija u brazilskoj subpopulaciji

Prevalence of Asymptomatic Apical Periodontitis and its Association with Coronary Artery Disease in a Brazilian Subpopulation

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Sažetak

Svrha rada: Željela se odrediti prevalencija asimptomatskoga apikalnog parodontitisa (AAP) i njegova povezanost s bolešću koronarnih arterija (BKA) u brazilskoj populaciji, i to prema spolu, dobi i zahvaćenim zubima. **Materijali i metode:** Prikupljeni su podatci iz kartona pacijenata ($n = 1346$) koji su se liječili u Klinici za endodenciju Sveučilišta Pernambuco u razdoblju od 2003. do 2010. Iz svakoga su izdvojene sljedeće varijable: spol, dob, endemski kompromitirani zubi, dijagnosticirana endodentska bolest i povijest BKA. Podatci su analizirani razinom značajnosti postavljenom na pet posto. **Rezultati:** AAP je dijagnosticiran kod 574 pacijenta (42,6 %), odnosno na 641 zubu (40,1 %). Podjednako su bila zahvaćena oba spola ($p = 0,082$) i sve dobne skupine ($p = 0,190$). Gornji sjekutići (52,8 %, $p < 0,001$) bili su češće zahvaćeni AAP-om. Pacijenti s AAP-om imali su 1,45 puta veću vjerojatnost da će oboljeti od BKA ($p = 0,307$). **Zaključak:** Rezultati su pokazali da je prevalencija AAP-a u ovoj populaciji bila velika i slična onoj u ostalim zemljama. Ustanovljena je pozitivna, ali ne i statistički značajna, povezanost između AAP-a i BKA.

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Ključne riječi

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Uvod

Asimptomatski apikalni parodontitis (AAP) definira se kao kronična upala i destrukcija apikalnog parodonta koji nastaje kao odgovor na bakterijsku infekciju korijenskog kanala, a manifestira se kao apikalna radiolucencija i ne uzrokuje kliničke simptome (1). Epidemiološka istraživanja o prevalenciji AAP-a u različitim zemljama, poput Kanade (2), Japana (3), Kolumbije (4), Španjolske (5) i Nigerije (6), pokazala su da je navedena patologija oralno-zdravstveni problem koji pogađa znatan broj ljudi diljem svijeta.

U posljednjih nekoliko godina u sve više istraživanja pronađeni su dokazi koji govore u prilog povezanosti kroničnih oralnih infekcija i razvoja sistemskih bolesti (7). Taj se problem nametnuo kao jedno od glavnih područja istraživanja u parodontologiji. Tako je pronađena povezanost između kroničnoga parodontitisa i bolesti koronarnih arterija (8), moždanog udara (9), akutnoga infarkta miokarda (10), cerebrovas-

Introduction

Asymptomatic apical periodontitis (AAP) is defined as a chronic inflammation and destruction of apical periodontium caused in response to bacterial infection of the root canal system, which appears as an apical radiolucent area, and does not produce clinical symptoms (1). Epidemiological studies on the prevalence of AAP in different countries such as Canada (2), Japan (3), Colombia (4), Spain (5) and Nigeria (6) have revealed that this pathology is an oral health problem that affects significant proportions of people throughout the world.

In recent years, a growing number of studies have found evidence that there is an association between chronic oral infections and the development of adverse systemic health conditions (7). This topic has emerged as one of the main areas of research in Periodontics. Some studies have found links between chronic periodontal disease and coronary heart disease (8), stroke (9), acute myocardial infarct size (10), cerebrovas-

vaskularne bolesti (11) i nastanka ateromatoznog plaka (12). Unatoč mnogobrojnim razlikama između kronične upalne bolesti parodontološkog i endodontskog podrijetla, obje imaju važna zajednička obilježja – to su kronične infekcije oralne šupljine, dijele iste gram-negativne anaerobne mikrobe (13) i povezane su s lokalno povećanim razinama upalnih markera koji mogu imati sistemsko značenje (14, 15). Zato se može zaključiti da je AAP povezan s istim sistemskim bolestima kao i parodontne bolesti (16).

Dostupni znanstveni dokazi upućuju na to da zdravlje periapikalnog tkiva može biti izravno povezano s pacijentovim kardiovaskularnim stanjem (14, 16 – 22). No dokazi za to su ograničeni. Stoga je svrha ovog istraživanja bila procijeniti prevalenciju AAP-a u brazilskoj subpopulaciji i njegovu povezanost s bolešću koronarnih arterija (BKA).

Materijali i metode

Nakon odobrenja Etičkoga povjerenstva (Federalno sveučilište Pernambuco – UFPE, Recife, Brazil) prikupljene su informacije na temelju odgovarajućeg uzorka medicinskih kartona pacijenata koji su tražili pomoć specijalista endodoncije UFPE-a između travnja 2003. i ožujka 2010. Uključeni su samo zapisi koji su sadržavali detalje medicinske anamneze, kliničku procjenu parodontološkog statusa, uključujući sondiranje i nalaze kliničkog pregleda zuba na kojemu se trebalo obaviti endodontsko liječenje, a uključivao je test vitaliteta, perkusiju i palpaciju te rendgenske snimke.

Iz svakog kartona izdvojene su sljedeće varijable: spol, dob, broj endodontski kompromitiranih zuba, dijagnosticirana endodontska bolest i BKA. AAP je dijagnosticiran kao apikalna radiolucencija dvostruko veće širine od normalnoga parodontnog ligamenta oko asimptomatskoga nekrotičnog zuba (1, 23). Sve varijable bilježio je jedan istraživač. Kako bi se izbjegle dvojbe, iz istraživanja su bili isključeni pušači, pacijenti s dijagnosticiranom kroničnom parodontnom bolesti ili dijabetesom.

Dobivene informacije uvrštene su u tablicu te analizirane deskriptivnom statistikom i Pearsonovim hi-kvadrat testom s razinom značajnosti postavljenom na pet posto. Korišten je statistički paket za društvene znanosti, verzija 21 (SPSS, Chicago, IL, SAD).

Rezultati

Uključeno je ukupno 1600 endodontski kompromitiranih zuba 1346 pacijenata. Među njima je bilo 908 žena (67,5 %). AAP je otkriven na 641 zubu (40,1 %, tablica 1.), odnosno kod 574 pacijenta (42,6 %, tablica 2.). Oba spola (39,2 % muškaraca i 44,2 % žena, $p = 0,082$) i sve dobne skupine ($p = 0,190$, tablica 2.) bili su slično pogođeni.

U gornjoj čeljusti sjekutići su bili najčešće (52,8 %) zahvaćeni AAP-om ($p < 0,001$, tablica 1.), a u donjoj čeljusti

cular disease (11), and development of atheromatous plaques (12). Despite numerous differences between chronic inflammatory diseases of periodontal and endodontic origins, both have important characteristics in common: they are chronic infections of the oral cavity; they share a common gram-negative anaerobic microbiota (13) and they are both accompanied by increased local levels of inflammatory markers which may extend to systemic levels (14, 15). It can, therefore, be assumed that AAP is associated with the same systemic disorders that are related to the periodontal disease (16).

The available scientific evidence shows that the periapical health status of patients may be directly related to their status of cardiovascular health (14, 16-22). However, the evidence remains limited. Therefore, the purpose of the present study was to evaluate the prevalence of AAP in a Brazilian subpopulation, as well as its association with coronary artery disease (CAD).

Materials and Methods

After approval by the Ethics Committee (Federal University of Pernambuco – UFPE, Recife, Brazil), information from a convenience sample of medical records of patients that had sought dental care in the Specialization Course in Endodontics of UFPE between April 2003 and March 2010 were collected. Only medical records containing full details of medical history and systemic health conditions that was self-reported during the process of medical history taking, and confirmed by an attached medical report; clinical assessments of periodontal status, including periodontal probing; and examination of the teeth referred for root canal treatment by means of pulp vitality tests, percussion and palpation, and periapical radiographs were included.

From each medical record, the following variables were recorded: gender, age, number of the endodontically compromised teeth, endodontic pathologies diagnosed, and history of CAD. AAP was diagnosed as an apical radiolucency over twice the width of the normal periodontal ligament in an asymptomatic necrotic tooth (1, 23). All variables were recorded by 1 observer. To exclude possible confounding factors, smoker patients, or those who were diagnosed with chronic periodontal disease or diabetes were excluded from the study.

The information obtained was tabulated and analyzed using descriptive statistics, applying the Pearson's chi-square test, adopting the significance level of 5%. The Statistical Package for Social Sciences, version 21 (SPSS, Chicago, IL) was used.

Results

A total of 1600 endodontically compromised teeth of 1346 patients were evaluated. Of those, 908 individuals were female (67.5%). AAP was detected in 641 teeth (40.1%, Table 1) and in 574 patients (42.6%, Table 2). Both genders (39.2% male and 44.2% female, $p = 0.082$) and all age groups ($p = 0.190$, Table 2) were affected similarly.

In the upper arch, the incisors (52.8%) were the dental elements most affected by AAP ($p < 0.001$, Table 1), while in

Tablica 1. Prevalencija asimptomatskoga apikalnog parodontitisa prema vrsti zuba
Table 1 Prevalence of asymptomatic apical periodontitis according to dental groups

Vrste zuba • Dental groups	Zubi • Teeth				p vrijednost • p value	
	Svi zubi • All teeth	S AAP-om • With AAP		Bez AAP-a • Without AAP		
		n	%	n		%
GORNJI • MAXILLARY						
Sjekutić • Incisors	320	169	52.8	151	47.2	p ^(a) < 0.001*
Očnjak • Canines	62	28	45.2	34	54.8	
1. pretkutnjak • 1st Premolars	160	63	39.4	97	60.6	
2. pretkutnjak • 2nd Premolars	164	61	37.2	103	62.8	
1. kutnjak • 1st Molars	212	65	30.7	147	69.3	
2. kutnjak • 2nd Molars	78	16	20.5	62	79.5	
3. kutnjak • 3rd Molars	8	3	37.5	5	62.5	
Ukupno • Subtotal	1004	405	40.3	599	59.7	
DONJI • MANDIBULAR						
Sjekutić • Incisors	38	15	39.5	23	60.5	
Očnjak • Canines	19	5	26.3	14	73.7	
1. pretkutnjak • 1st Premolars	61	27	44.3	34	55.7	
2. pretkutnjak • 2nd Premolars	93	43	46.2	50	53.8	
1. kutnjak • 1st Molars	246	99	40.2	147	59.8	
2. kutnjak • 2nd Molars	116	43	37.1	73	62.9	
3. kutnjak • 3rd Molars	23	4	17.4	19	82.6	
Ukupno • Subtotal	596	236	39.6	360	60.4	
UKUPNO • TOTAL	1600	641	40.1	959	59.9	

AAP: asimptomatski apikalni parodontitis • asymptomatic apical periodontitis
 (*): statistički značajna razlika na razini 5,0 % • Significant association to the level of 5.0%
 (a): Pearsonov hi-kvadrat test • Using Pearson's chi-square test

Tablica 2. Prevalencija asimptomatskoga apikalnog parodontitisa prema dobnoj skupini
Table 2 Prevalence of asymptomatic apical periodontitis according to age groups

Dobna skupina • Age group (godine • years)	Pacijenti • Patients				p vrijednost • p value	
	Svi pacijenti • All patients	S AAP-om • With AAP		Bez AAP-a • Without AAP		
		n	%	n		%
≤ 18	226	84	37.2	142	62.8	p ^(a) = 0.190
19 – 29	300	133	44.3	167	55.7	
30 – 39	334	132	39.5	202	60.5	
40 – 49	266	124	46.6	142	53.4	
50 – 59	165	74	44.8	91	55.2	
≥ 60	55	27	49.1	28	50.9	
Ukupno • Total	1346	574	42,6	772	57,4	

AAP: asimptomatski apikalni parodontitis • asymptomatic apical periodontitis
 (a): Pearsonov hi-kvadrat test • Using Pearson's chi-square test

Tablica 3. Prevalencija bolesti koronarnih arterija u odnosu na asimptomatski apikalni parodontitis
Table 3 Prevalence of coronary artery disease according to asymptomatic apical periodontitis

AAP	Pacijenti • Patients				p vrijednost • p value	OR (IP 95 %) • OR (CI 95%)	
	svi pacijenti • All patients	S BKA-om • With CAD		Bez BKA • Without CAD			
		n	%	N			%
Sa • With	574	16	2.8	558	97.2	p ^(a) = 0.307	1.45 (0.71 – 2.95)
Bez • Without	772	15	1.9	757	98.1		
UKUPNO • TOTAL	1346	31	2.3	1315	97.7		

AAP: asimptomatski apikalni parodontitis • asymptomatic apical periodontitis
 BKA • CAD: bolest koronarnih arterija • coronary artery disease
 (a): Pearsonov hi-kvadrat test • Using Pearson's chi-square test
 OR: Odds ratio
 IP • CI: interval pouzdanosti • Confidence Interval

drugi pretkutnjaci (46,2 %) ($p = 0,187$). AAP s jednakom učestalošću pogađa gornju i donju čeljust (40,3 % i 39,6 %, $p = 0,770$).

Prevalencija BKA iznosila je 2,3 posto. Pacijenti s AAP-om imali su 1,45 veću vjerojatnost od obolijevanja od BKA u usporedbi s pacijentima bez AAP-a ($p = 0,307$, tablica 3.).

Rasprava

Primarna svrha ovoga presječnog istraživanja bila je, analizom medicinskih kartona pacijenata liječenih u klinici na sjeveroistoku Brazila, opisati učestalost asimptomatskoga apikalnog parodontitisa i njegovu povezanost s BKA-om u brazilskoj urbanoj subpopulaciji. Budući da pacijenti uključeni u ovo istraživanje nisu slučajno uzorkovani, nego su odabrani među onima koji su tražili liječenje, treba biti oprezan pri ekstrapolaciji rezultata za brazilsku populaciju u cjelini.

Prevalencija AAP-a u ovom istraživanju (40,1 % zuba) bila je u skladu s istraživanjima provedenima u drugim populacijama, kao u Rabatu u Maroku (24), Barceloni u Španjolskoj (5) i Ile-Ifeu u Nigeriji (6), gdje se kretala između 38 i 63 posto. No učestalost je bila veća nego u objavljenim istraživanjima provedenima na engleskoj (4,1 %) (25) i škotskoj (5,8 %) (26) te kosovskoj (12,3 %) populaciji (27).

Razlike uočene u rezultatima navedenih istraživanja mogu se opravdati različitim stupnjevima društvenoga i gospodarskoga razvoja u tim zemljama te nedostatkom homogenosti između analiziranih populacija, ali i nedostatkom standardizacije metoda evaluacije, što su čimbenici koji otežavaju usporedbu rezultata različitih istraživanja.

Uzorak u našem istraživanju uglavnom su činile pacijentice (67,5 %). U ranijim istraživanjima postignuti su slični rezultati, te je istaknuto da se spolna diskrepancija događa zato što se žene više brinu o svojem zdravlju i izgledu negoli muškarci (28). S druge strane, u našem je istraživanju prevalencija AAP-a kod muškaraca i žena bila slična (39,2 % i 44,2 %, $p = 0,082$), što pokazuje da nije povezan sa spolom, kao što je to prije bilo istaknuto u drugim istraživanjima (29 – 31).

Autori poput Kamberija i suradnika (27), Paesa da Silve Ramosa Fernandes i njegovih kolega (30) te Petersa i suradnika (31), pokazali su povećanu prevalenciju AAP-a u odnosu na dob bolesnika. Iako su naši rezultati otkrili da ne postoji statistički značajna razlika između dobnih skupina ($p = 0,190$), prevalencija AAP-a bila je veća ako je bolesnik bio stariji od 60 godina (49,1 %), a pojedinci mlađi od 18 godina imali su nižu (37,2 %). Prema Terçasu i suradnicima (29) ovaj je rezultat očekivan s obzirom na to da je tijekom godina zub izložen karijesu, parodontnim bolestima, trenju i raznim operativnim postupcima koji povećavaju učestalost upale pulpe.

Rezultati našeg istraživanja pokazuju da su središnji i gornji bočni sjekutići najčešće pogođeni AAP-om ($p < 0,001$). Ovi rezultati mogu se objasniti socijalno-ekonomskim statusom uzorka populacije (pacijent ne može platiti naknadnu za dugotrajno protetičko liječenje, pa je vjerojatno izabrao ekstrakciju kompromitiranih stražnjih zuba, te zadržavanje gornjih prednjih zuba zbog estetskih razloga). Uz to, središnji

the lower jaw, the second premolars (46.2%) were the most frequently affected teeth ($p = 0.187$). AAP affects the maxilla and the mandible with equal frequency (40.3% and 39.6%, respectively, $p = 0.770$).

The prevalence of CAD was 2.3%. The patients with AAP presented 1.45 times more chances of exhibiting CAD compared to those without AAP ($p = 0.307$, Table 3).

Discussion

The primary objective of this cross-sectional study was to describe the prevalence of asymptomatic apical periodontitis, as well as its association with CAD in a Brazilian urban subpopulation by analysis of medical records of patients treated in a walk-in clinic in the Northeast of Brazil. Since the patients studied did not represent a random sample of the population, but instead constituted individuals who had sought dental treatment, the extrapolation of results for the Brazilian population in general should be made with caution.

The prevalence of AAP in this study (40.1% of teeth) was in accordance with studies conducted in other populations such as in Rabat in Morocco (24), Barcelona in Spain (5) and Ile-Ife in Nigeria (6), where AAP ranged from 38-63% of the teeth examined. However, these scores were higher than those reported in other surveys conducted in English (4.1%) (25), Scottish (5,8%) (26), and Kosovan (12.3%) populations(27).

The discrepancies observed between the results of the above-mentioned studies can be justified by different degrees of social and economic development among populations, as well as the lack of homogeneity among the analyzed population, and the lack of standardization of evaluation methods, factors that hamper the comparison of the results from different studies.

The sample in our survey was mostly composed of female patients (67.5%). Previous research reported similar results, stating that this gender discrepancy occurs because women take care of their health and appearance better than men (28). On the other hand, in our study, men and women exhibited similar AAP prevalence (39.2% and 44.2%, respectively, $p = 0.082$), showing that AAP is not related to gender, as previously reported by other studies (29-31).

Some authors such as Kamberi et al. (27), Paes da Silva Ramos Fernandes et al. (30), and Peters et al. (31) have demonstrated an increased prevalence of AAP with the advance of patient age. Although our results revealed that there was no statistically significant difference between the age groups ($p = 0,190$), the prevalence of AAP was higher in patients older than 60 years (49.1%), while the individuals younger than 18 years had a lower prevalence (37.2%). According to Terças et al. (29), this result is expected since, with the advance of age, the tooth is exposed to caries, periodontal disease, friction and various surgical procedures that increase the incidence of pulpar inflammation.

The results of our study showed that the central and lateral upper incisors were the teeth which were most commonly affected by AAP ($p < 0.001$). These results can be explained by the socioeconomic status of the population sample. Since

i gornji bočni sjekutići najčešće su zubi pogođeni traumom koja se često povezuje s lezijama AAP-a (28).

Autori poput Kamberija i suradnika (27), Paesa da Silve Ramosa Fernandes i njegovih kolega (30) te Peters i suradnici (31) istaknuli su da se prevalencija AAP-a povećava s porastom dobi pacijenta. Iako u našem istraživanju nije bilo statistički značajne razlike među dobnim skupinama ($p = 0,190$), prevalencija AAP-a bila je veća kod pacijenata starijih od 60 godina (49,1 %), a ako su bili mlađi od 18 godina bila je manja (37,2 %). Prema Terçasu i suradnicima (29), takav je rezultat očekivan jer su s godinama zubi podložniji nastanku karijesa, parodontnim bolestima i trošenju, a češći su i zahvati koji povećavaju rizik od upale pulpe.

Rezultati ovog istraživanja pokazali su da su središnji i gornji bočni sjekutići bili najčešće zahvaćeni AAP-om ($p < 0,001$). Ti se rezultati mogu objasniti socijalno-ekonomskim statusom uključenih pacijenata zato što, vjerojatno, nisu mogli platiti protetičku terapiju pa su odabrali vađenje pogođenih stražnjih zuba, a prednje su čuvali iz estetskih razloga. Usto su središnji i bočni gornji sjekutići najčešće zahvaćeni traumama, što je često povezano s lezijama AAP-a (28).

Jedno od najzanimljivijih pitanja koje znanstvena zajednica danas istražuje jest moguća povezanost kronične intraoralne upale i sistemskog zdravlja. Povezanost između upale endodontskog podrijetla i kardiovaskularne bolesti biološki je moguća s obzirom na to da, kao u slučaju parodontitisa, sistemsko širenje visoke razine upalnih markera može posljedično rezultirati štetnim kardiovaskularnim učincima (21, 32).

Naše istraživanje pokazalo je korelaciju, iako ne statistički značajnu, između AAP-a i BKA, pri čemu su pacijenti s AAP-om imali 1,45 puta veću vjerojatnost da će oboljeti od BKA. Taj je rezultat u skladu s rezultatima Coste i suradnika (16) koji su potvrdili da su pacijenti s AAP-om imali 2,79 puta veći rizik od razvoja BKA, u odnosu na pacijente bez AAP-a.

Glavno ograničenje našeg istraživanja odnosi se na nedostatak pristupa detaljnijim informacijama o kardiovaskularnom zdravlju uključenih pacijenata. Nažalost, dostupni podatci bili su ograničeni na njihove kartone koji su sadržavali informacije na temelju samoopažanja tijekom anamneze. Zato je vjerojatno broj osoba s BKA-om podcijenjen, bilo zbog neznanja dijela pacijenata o stvarnom stanju njihova kardiovaskularnog sustava, bilo zbog izostavljanja te informacije.

Unatoč navedenim ograničenjima, ovdje prikazani rezultati klinički su relevantni zbog ograničenog broja istraživanja objavljenih u međunarodnoj literaturi o toj temi. Zato je potrebno više istraživanja kojima bi se potvrdio nepovoljan utjecaj endodontskih infekcija na sistemsko zdravlje.

Zaključak

Na temelju rezultata ovog istraživanja može se zaključiti da je prevalencija AAP-a u obuhvaćenoj populaciji visoka i slična onoj u drugim zemljama. Bila su obuhvaćena oba spola i sve dobne skupine. Gornji sjekutići bili su češće zahvaćeni AAP-om. Nadalje, pronađena je pozitivna korelacija između AAP-a i BKA, no statistički nije bila značajna.

the patients were unable to pay for a subsequent prosthetic onerous treatment, they probably chose extraction of the compromised posterior teeth, and retention of the upper anterior teeth for cosmetic reasons. In addition, the central and lateral upper incisors are the teeth that are most frequently affected by trauma, which is often associated with AAP lesions (28).

One of the most interesting questions that the scientific community is exploring today is the possible link between oral chronic inflammation and systemic health. Associations between inflammations of endodontic origin and cardiovascular disease are biologically plausible, given that, as in periodontal infections, the systemic dissemination of high levels of inflammatory markers may lead to subsequent deleterious cardiovascular effects (21, 32,33).

Our study found a close, although not significant, correlation between AAP and CAD, showing that the patients with AAP had 1.45 times more chances of exhibiting CAD.

This result is in line with that obtained by Costa et al. (16), who confirmed that a patient with AAP had 2.79 times higher risk of developing CAD compared to a patient without AAP.

The main limitation of our study relates to the lack of access to more detailed information on the status of cardiovascular health presented by the patients evaluated. Unfortunately, the available data were restricted to medical records containing medical information based on self-reported data during the process of medical history taking and confirmed by an attached medical report. It is, therefore, likely that the number of individuals with CAD reported in the present study has been underestimated, either due to the lack of knowledge on the part of the patients of their cardiovascular condition or due to omission of this piece of information.

Despite the limitations mentioned, the results presented here are clinically relevant because of the limited number of studies which have been published in the international literature on this topic. Thus, more research is needed into the role of endodontic infections and the development of adverse systemic health outcomes.

Conclusions

From the results obtained in this study, we concluded that the prevalence of AAP in this population was high and similar to that observed in other countries. Both genders, and all age groups were affected indistinctly. Upper incisors were affected most frequently by AAP. Moreover, a positive but not statistically significant association was found between AAP and CAD.

Sukob interesa

Autori opovrgavaju sukob interesa u kontekstu ovog istraživanja.

Izjava

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Conflict of interest

The authors deny any conflicts of interest related to this study.

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Abstract

Objective: The aim of the present study was to determine the prevalence of asymptomatic apical periodontitis (AAP) and its association with coronary artery disease (CAD) in a Brazilian subpopulation, and to examine the correlation of AAP with gender, age and most frequently affected dental elements. **Methods:** The data were collected from medical records of the patients ($n = 1346$) treated at the Specialization in Endodontics Clinic of the Federal University of Pernambuco in the period between 2003 and 2010. From each patient, the following variables were recorded: gender, age, endodontically compromised teeth, endodontic diseases diagnosed and the history of CAD. The data were analyzed using Pearson's chi-square test adopting a significance level of 5%. **Results:** AAP was diagnosed in 574 patients (42.6%), corresponding to 641 teeth (40.1%). Both genders ($p = 0.082$), and all age groups ($p = 0.190$) were affected similarly. The upper incisors (52.8%, $p < 0.001$) had a higher prevalence of AAP. The patients with AAP showed 1.45 times more chance of exhibiting CAD ($p = 0.307$). **Conclusions:** The results pointed out that the prevalence of AAP in this population was high and similar to that observed in other countries. A positive association, but not statistically significant, between AAP and CAD was found. **Keywords:** Endodontics; Apical Periodontitis; Coronary Artery Disease; Epidemiology

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Key words

Periapical Periodontitis; Coronary Artery Disease

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