



UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
CENTRO DE CIÊNCIAS DA SAÚDE
FACULDADE DE ODONTOLOGIA
DEPARTAMENTO DE CLÍNICA ODONTOLÓGICA

Cristine da Silva Furtado Amaral

A RELAÇÃO DA DEPENDÊNCIA ALCOÓLICA COM A
DOENÇA PERIODONTAL

Rio de Janeiro
2007

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DOENÇA PERIODONTAL

Dissertação de Mestrado apresentada ao Programa de Pós-graduação em Odontologia (Periodontia), Faculdade de Odontologia, Universidade Federal do Rio de Janeiro como parte dos requisitos necessários à obtenção do Grau de Mestre em Odontologia (Periodontia).

Orientadora:

Prof^a Dr^a Anna Thereza Thomé Leão

Rio de Janeiro
2007

A RELAÇÃO DA DEPENDÊNCIA ALCOÓLICA COM A DOENÇA
PERIODONTAL

Cristine da Silva Furtado Amaral

Dissertação de Mestrado submetida ao Programa de Pós-graduação da Faculdade de Odontologia da Universidade Federal do Rio de Janeiro- UFRJ, como parte dos requisitos à obtenção do grau de Mestre, sob orientação da professora Anna Thereza Thomé Leão.

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“O que vale na vida não é o ponto de partida e
sim a caminhada,
Caminhando e semeando, no fim terás o que
colher.”

Cora Coralina

RESUMO

AMARAL, Cristine da Silva Furtado. **A relação da dependência alcoólica com a doença periodontal**. Rio de Janeiro, 2007. Dissertação (Mestrado em odontologia, área de concentração em Periodontia) – Faculdade de Odontologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2007.

O presente estudo avaliou a relação da dependência alcoólica com a doença periodontal. Um estudo transversal, com quarenta e nove homens alcoolistas e quarenta e nove não alcoolistas, foi realizado no Instituto Philippe Pinel no Rio de Janeiro. Os pacientes foram selecionados para a dependência alcoólica utilizando o questionário CAGE e os critérios da CID-10. Os dados sócio-econômicos e parâmetros clínicos periodontais: placa visível (PV), sangramento à sondagem (SS), nível clínico de inserção (NCI) e profundidade de bolsa à sondagem (PBS), foram coletados. Os grupos foram controlados para o fumo. NCI e PBS foram agrupados em três categorias: porcentagem de sítios <4mm, 4-6mm e >6mm. As médias de NCI e PBS foram calculadas. Comparação intergrupos dos dados sócio-econômicos da média da porcentagem dos parâmetros clínicos e da média do NCI e PBS foram obtidas pelos testes de Qui-quadrado e Mann –Whitney, respectivamente. Análises de regressão linear múltipla e logística foram realizadas para testar a associação da dependência alcoólica e NCI e PBS ajustando para o efeito da placa, idade, renda, educação, condições de vida e fumo.

O grupo de alcoolistas apresentou maior média de NCI e PBS e de porcentagem de sítios de 4-6mm e >6mm de PBS e NCI do que os não alcoolistas. Houve uma associação significativa entre a dependência de álcool e o log da média de NCI ($p=0,00$) e o log da média de PBS ($p=0,00$). A OR para os dependentes de álcool foi de 3,08 (IC-1,01-9, 45, $p= 0,04$) para NCI e de 4,58 (IC-1,42-14, 75, $p= 0,01$) para PBS.

Os resultados sugerem que a dependência alcoólica está associada com a gravidade da doença periodontal.

ABSTRACT

AMARAL, Cristine da Silva Furtado. **The relationship between the alcohol dependence and periodontal disease.** Rio de Janeiro, 2007. Dissertação (Mestrado em odontologia, área de concentração em Periodontia) – Faculdade de Odontologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2007.

The present study was carried out to evaluate the relationship between alcohol dependence and periodontal disease. A cross-sectional study of 49 alcoholic and 49 non-alcoholic men was conducted at Philippe Pinel Institute in Rio de Janeiro. Patients were screened for alcohol dependence using the CAGE questionnaire and ICD-10 criteria. Sociodemographic data and periodontal clinical parameters: visible plaque (VP), bleeding on probing (BOP), clinical attachment levels (CAL) and probing pocket depth (PPD), were collected. Groups were controlled for smoking. CAL and PPD were grouped in three categories: percentage of sites <4mm, 4mm-6mm and >6mm. The mean CAL and PPD were calculated. Intergroup comparisons of the sociodemographic data of the mean percentage of clinical parameters and of the mean CAL and PPD were obtained by the Chi-square and the Mann-Whitney test, respectively. Independent effect of alcohol dependence on CAL and PPD was assessed by multiple linear and logistic regression analyses adjusting simultaneously for the effects of plaque, age, income, education, living conditions and smoking.

The alcoholic group presented a higher mean CAL and mean PPD, and a higher percentage of sites 4-6mm and >6mm of CAL and PPD than the non-alcoholic group. There was a significant relationship between alcohol dependence and log mean CAL ($p=0.00$) and log mean PPD ($p=0.00$). OR for alcohol dependent group were 3.08 (CI-1.01-9.45, $p=0.04$) for CAL and 4.58 (CI-1.42-14.75, $p=0.01$) for PPD.

The data suggest an association between alcohol dependence and severity of periodontal disease.

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LISTA DE SIGLAS E ABREVIATURAS

- AIDS- “Acquired Immune Deficiency Syndrome”
- ANUG- “Acute necrotizing ulcerative gingivitis”
- ANUP- “Acute necrotizing ulcerative periodontitis”
- AUDIT- “Alcohol Use Disorders Identification”
- APA- “American Psychiatric Association”
- BOP- “Bleeding on probing”
- CAGE- “Cut-down, annoyed, guilt, eye-opener”
- CAL- “Clinical attachment level”
- CAPES- Coordenação de Aperfeiçoamento de Pessoal de Ensino Superior
- CCT’s- “Controlled Clinical Trials”
- CI- “Confidential intervals”
- CID-10- Classificação Internacional das Doenças-10
- CPI- “Community Periodontal Index”
- DSM-III-R- “Diagnostic and Statistical Manual of Mental Disorders III-R”
- DSM-IV- “Diagnostic and Statistical Manual of Mental Disorders IV”
- FFQ- “Frequency food questionnaire”
- IC- Intervalo de confiança
- ICC- “Intraclass correlation test”
- ICD-10- “International classification of Diseases -10”
- GGT- “Gamma glutamyl transpeptidase”
- LILACS- Literatura Latino-Americana e do Caribe em Ciências da Saúde
- NCI- Nível clínico de inserção
- OMS- “Organização Mundial de Saúde”
- OR- “Odds ratio”
- PBS- Profundidade de bolsa à sondagem
- PPD- “Probing pocket depth”
- PV- Placa visível
- RCT’s- “Randomized -Controlled Trials”
- SS- Sangramento à sondagem
- UTA- Unidade de Tratamento de Alcoolistas
- VP- “Visible plaque”
- WHO- “World Health Organization”

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1. INTRODUÇÃO

A doença periodontal é uma inflamação crônica dos tecidos periodontais causada por patógenos específicos que estão associados a formas progressivas da doença. O biofilme dental é o fator etiológico primário, porém condições locais ou sistêmicas podem alterar a resposta do hospedeiro e atuar como fatores de risco para a doença periodontal (PAGE & KORNMAN, 1997; NUM, 2003).

Fatores genéticos, adquiridos (doenças sistêmicas, estresse) e comportamentais (fumo) podem modificar a manifestação e a gravidade da doença periodontal. Esses fatores modificadores são considerados fatores de risco, podendo comprometer a resposta do hospedeiro, interferir na reparação tecidual, na idade de estabelecimento da doença, no grau de destruição periodontal, na resposta ao tratamento periodontal, assim como, na gravidade, progressão, e frequência de recorrência da doença (PAGE & KORNMAN, 1997).

Estudos têm demonstrado que, apesar do amplo conhecimento de associação entre fatores de risco locais e sistêmicos na etiologia da doença periodontal, existe uma variação na progressão da doença, que não pode ser explicada somente por estes fatores (MARCENES & SHEIHAM, 1992).

O consumo excessivo e constante de álcool pode aumentar a suscetibilidade do hospedeiro a infecções, elevando a sua vulnerabilidade a doenças (SZABO, 1999). Esse consumo excessivo e constante, dependendo da dose, frequência e circunstância, além de fatores genéticos, sociais e psicológicos, é o começo necessário para a dependência alcoólica (LARANJEIRAS & SURJAN, 2001). A síndrome da dependência alcoólica (SDA) proposta por Edwards & Gross (1976) cria uma distinção entre a dependência propriamente dita e os danos causados pelo uso do álcool, mostrando a doença como uma desordem que se instala ao longo da vida. Hoje as classificações aceitas para a síndrome de dependência de álcool são a

da Organização Mundial de Saúde- CID-10 (OMS, 1992) e a da Associação Americana de Psiquiatria (AAP, 1994).

A prevalência do alcoolismo atinge cerca de 3 a 10% da população adulta brasileira. Estudos epidemiológicos vêm apresentando índices de dependência cada vez mais altos nesses últimos anos no Brasil (GALDURÓZ et al., 2005) consistindo desta forma um problema de saúde pública. A Organização Mundial de Saúde estima que a ingestão excessiva de álcool seja a terceira causa de morte no mundo, depois de cânceres e cardiopatias (OMS, 1993).

A dependência alcoólica pode acarretar danos físicos, psicológicos e sociais, prejuízo no trabalho e nas relações interpessoais. O álcool tem ação tóxica direta sobre diversos órgãos. As complicações mais frequentes são as hepáticas (cirrose), gastrointestinais, cardiovasculares como infarto e hipertensão, neurológicas, endocrinológicas e imunológicas, além de aumentar o risco do câncer de próstata, garganta e outros órgãos (LARANJEIRAS & SURJAN, 2001; HORNECKER et al., 2003). Em relação à saúde oral, os efeitos do álcool estão frequentemente associados a uma deficiência e negligência na higiene oral, conseqüentemente um elevado acúmulo de placa e depósitos de cálculo adjacentes aos tecidos gengivais. A morbidade dentária é de duas a três vezes maior nesta população (LARATO, 1972; HARRIS et al., 1996).

Estudos recentes têm observado a associação entre a dependência alcoólica e a doença periodontal, considerando mecanismos biológicos que justificam o efeito do álcool como um fator associado ao risco da doença periodontal (NOVACECK et al., 1995; ENBERG et al., 2001.; KHOCHT et al., 2003). O álcool danifica neutrófilos, macrófagos, e a função das células T, aumentando a probabilidade de infecções (SZABO, 1999). Evidências in vitro (CHEUNG et al., 1995), animal (FARLEY et al., 1985) e humanos (PERPESACK et al., 1992) sugerem que o álcool estimula a reabsorção óssea e supressão do “turnover” ósseo.

Além disso, o álcool pode afetar diretamente o periodonto, assim como, outros tecidos da orofaringe (MAIER et al., 1994; ODGEN et al., 1999).

A relação da dependência alcoólica com a doença periodontal ainda não foi claramente elucidada. Na literatura também não há estudos brasileiros relacionando alcoolismo à doença periodontal. Destacando assim, a importância de se determinar o efeito desse possível fator de risco na etiologia da doença periodontal.

Desta forma, o presente estudo avaliou a relação entre a dependência alcoólica e a doença periodontal em indivíduos dependentes de álcool comparados a indivíduos não dependentes de um hospital no Rio de Janeiro.

2. PROPOSIÇÃO

2.1 OBJETIVO GERAL

Avaliar a relação da dependência do álcool com a gravidade da doença periodontal.

2.2 OBJETIVOS ESPECÍFICOS

2.2.1. Avaliar a associação entre a dependência de álcool e a prevalência de placa visível;

2.2.2. Avaliar a associação entre a dependência de álcool e a doença periodontal considerando placa bacteriana, idade, fumo e fatores sócio-econômicos.

3. DELINEAMENTO DA PESQUISA

O primeiro artigo deste estudo objetivou a realização de uma revisão sistemática sobre a dependência alcoólica, o consumo de álcool e a doença periodontal. Este estudo compreendeu uma busca sistemática nas bases de dados: PUBMED, LILACS e banco de teses CAPES com o intuito de analisar a relação da exposição álcool e a doença periodontal. A busca foi realizada entre dezembro de 2006 a janeiro de 2007 por dois pesquisadores. Foram encontrados 594 estudos até janeiro de 2007 onde somente 14 destes estudos atendiam aos critérios de inclusão da presente revisão.

O segundo artigo deste estudo objetivou avaliar a relação da dependência alcoólica com a doença periodontal em indivíduos alcoolistas da Unidade de Tratamento de Alcoolistas (UTA) do Instituto Municipal Phillippe Pinel do Rio de Janeiro. Este trabalho foi realizado após a aprovação pelo Comitê de Ética em Pesquisa do Instituto Municipal Philippe Pinel do Rio de Janeiro (Anexo 1). Todos os indivíduos participantes assinaram o Termo de Consentimento Livre e Esclarecido (Anexo 2). A amostra deste estudo foi de conveniência e composta por indivíduos dependentes de álcool da UTA e não dependentes de álcool. Os não dependentes de álcool eram visitantes ou parentes de pacientes que fossem ao Instituto Philippe Pinel. Dessa forma, os questionários e a avaliação clínica periodontal foram realizados por dois examinadores no período de dezembro de 2005 (para o estudo piloto) e de abril a agosto de 2006 (para o estudo principal).

4. ARTIGOS SUBMETIDOS

Artigo 1- **“The relationship of alcohol dependence and alcohol consumption with periodontal disease: a systematic review”**, a ser submetido ao periódico Journal of Clinical Periodontology.

Artigo 2- **“The relationship between alcohol dependence and periodontal disease”**, a ser submetido ao periódico Journal of Clinical Periodontology.

4.1 ARTIGO 1

The relationship of alcohol dependence and alcohol consumption with periodontal disease: a systematic review.

Running title: Alcohol and periodontal disease.

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ABSTRACT

Background: The aim of this systematic review was to evaluate the studies about the relationship of alcohol dependence and alcohol consumption with periodontal disease.

Methods: A comprehensive search was performed in the Cochrane Central Register of controlled trials, PUBMED, LILACS and CAPES thesis database from January 1980 to January 2007. The reference lists of the identified studies were also searched.

Results: Of the 594 papers identified, 10 cross-sectional and 4 longitudinal studies met the inclusion criteria. Seven of the 11 studies on alcohol consumption and 2 of the 3 studies on alcohol dependence reported positive associations between alcohol intake and periodontal disease. There was heterogeneity among studies concerning the methods of assessment of alcohol dependence, alcohol consumption and periodontal disease. Therefore no meta-analysis was performed. The control for smoking was properly addressed in all selected studies. However, the confounding effect of dental plaque was taken into account in only 2 studies.

Conclusions: Alcohol consumption can be considered a risk indicator for periodontal disease. Longitudinal studies on the association of alcohol dependence and alcohol consumption with periodontal disease are recommended to confirm the association or not.

Key words: alcohol consumption, alcohol dependence, periodontal disease, periodontitis, systematic review.

INTRODUCTION

Periodontal disease is a multifactorial infection characterized by periodontal tissues support breakdown. There is enough evidence to consider specific pathogenic bacteria from subgingival dental biofilm and the imbalance between host response and dental biofilm the main causes of periodontal disease. Local or systemic conditions, such as smoking and diabetes mellitus can modify the host response against periodontal pathogens. These factors can increase the host susceptibility for periodontal disease activity (Page & Kornman 1997). In addition, putative risk factors including aging, psychosocial factors, HIV infection and genetic polymorphism have also been identified through epidemiological studies (Albandar 2002).

Although the available knowledge concerning the association between local and systemic risk factors in the etiology of periodontal disease, there is an important variation in the progression of the disease that cannot only be explained by these factors (Marcenes & Sheiham 1992).

Alcoholism or alcohol abuse can influence host defenses causing toxic damage as fatty liver, cirrhosis, cerebral atrophy, cardiomyopathy, gastrointestinal bleeding and pancreatitis (Hornecker et al. 2003). The World Health Organization estimates that extreme alcohol ingestion is the third cause of death in the world, after cancers and cardiovascular diseases. Alcoholism is a chronic illness with a slow evolution, taking on average 15 to 20 years to present clinical evidence. It is considered one of the most serious problems of public health (WHO 1992). Apart from the reliable evidence that alcohol intake cause serious damage to general health, studies have been suggesting that alcohol consumption and alcohol dependence may cause harmful effects to the oral cavity such as caries, losses of teeth, oropharynx cancers and periodontal problems (Larato 1972, Harris et al. 1997, Enberg et al.

2001). Some review papers have been pointing out possible risk factors for periodontal disease, including dental biofilm, diabetes, gender, aging, psychosocial factors and HIV infection (Clarke et al. 1995, Stanford & Rees 2003, Heitz-Mayfield 2005, Petersen & Ogawa 2005, Ramseier 2005). However, no systematic review on the possible influence of alcohol consumption and alcohol dependence on periodontal disease was carried out.

The aim of this study was to conduct a systematic review on the relationship of alcohol consumption and alcohol dependence with periodontal disease. The focus question was: Does alcohol consumption or alcohol dependence increase the risk for periodontitis?

METHODS

The methodology applied in this review cover the literature search strategy, inclusion and exclusion criteria for selecting studies, and screening and selection of papers.

Search strategy

This review was conducted using the methodology developed by the Cochrane Collaboration Group (Alderson et al. 2004). The search strategy incorporated searching of electronic database, supplemented by checking bibliographies of review articles. We searched at the Cochrane Central Register of controlled trials, PUBMED, LILACS and the CAPES thesis/ dissertation database. The databases were searched from January 1980 to January 2007. The following terms were used for the search strategy at PUBMED: ((alcohol consumption OR alcohol drinking OR alcohol beverage OR alcoholism OR alcohol abuse OR alcohol addiction OR alcohol dependence) OR (dental health behavior OR harmful habits)) AND (periodontal disease OR periodont*)

For the LILACS and CAPES Thesis database we used the following terms: Alcohol consumption and periodontal disease OR Alcohol consumption and periodontitis OR alcohol drinking and periodontal disease OR alcohol drinking and periodontitis OR alcoholism and

periodontal disease OR alcoholism and periodontitis OR alcohol abuse and periodontal disease OR alcohol abuse and periodontitis OR alcohol dependence and periodontal disease OR alcohol dependence and periodontitis.

Inclusion criteria

Randomized-controlled trials (RCT's), controlled clinical trials (CCT's), cohort studies, case-control and cross-sectional studies were selected. Only papers written in English and Portuguese language were included. Titles without abstract of which the title suggested that they were related to the objectives of this review were selected to screen full text.

Exclusion criteria

Papers published before 1980 were excluded. In addition, editorial letters, historical reviews and descriptive studies such as case reports and case series were also excluded.

Screening and selection of papers

The papers were screened independently by two reviewers (Leão A.T.T. and Amaral C.S.F.). At first, they were screened by title and abstracts. Then a second step, full text-papers were retrieved and selected based on the inclusion criteria. Disagreements between the two reviewers were resolved by discussion with a third reviewer (Vettore M.V.).

For full-text screening, the following inclusion criteria were taken into consideration:

Studies involving human beings;

Study design: randomized-controlled trials, controlled clinical trials, cohort studies, case-control and cross-sectional studies;

Dental diseases and/or clinical parameters measured: gingivitis, periodontitis, plaque index, gingivitis index, probing pocket depth, clinical attachment level.

RESULTS

Figure 1 summarizes the result of the search strategy process. Our initial search detected 594 papers and of them 68 were excluded based on the year of publication. According with the inclusion and exclusion criteria, 14 studies met the inclusion criteria. The reasons for exclusion papers are presented in Figure 1.

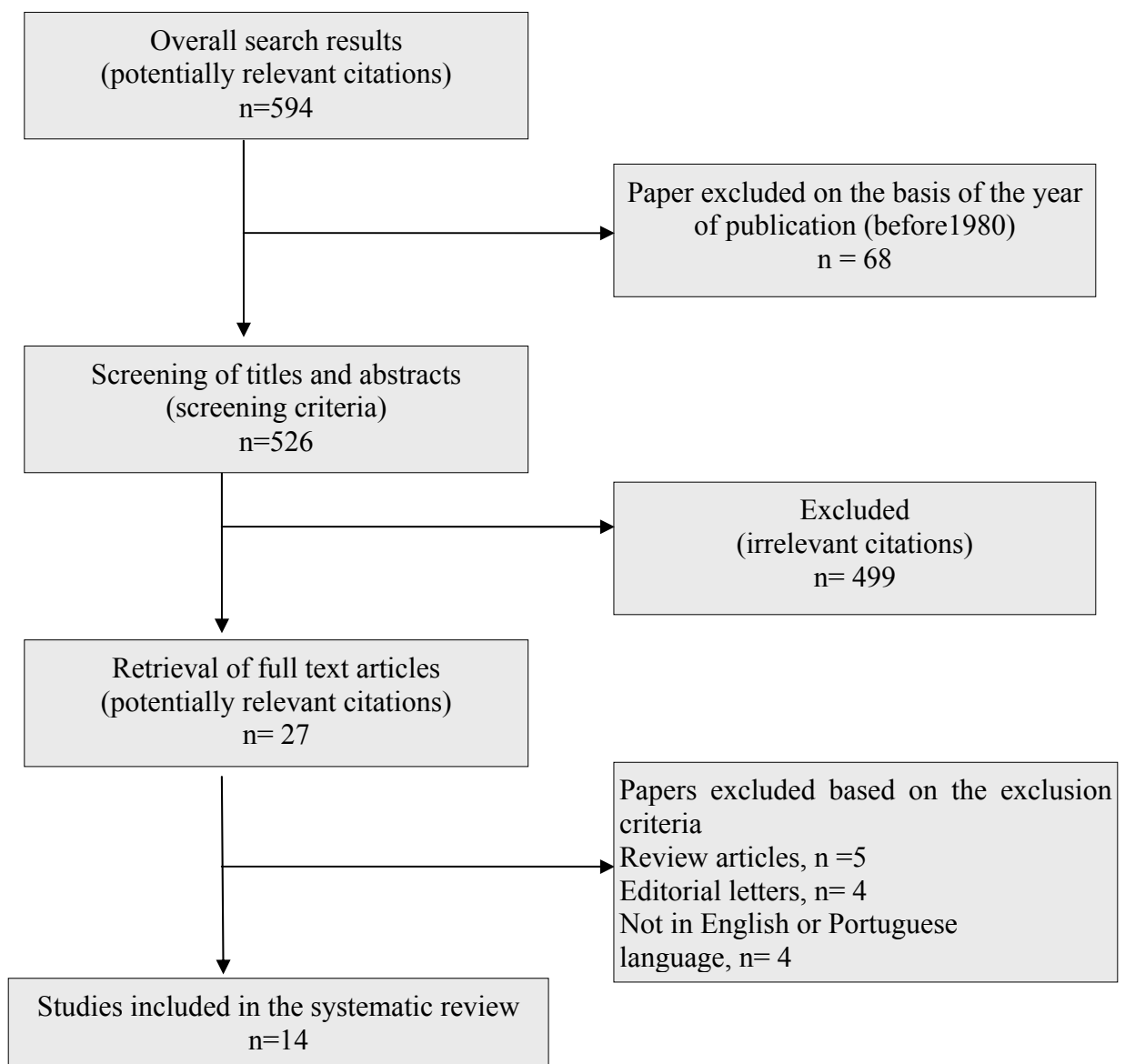


Figure 1: Study identification flow chart.

Table 1 presents the characteristics of participants, study design, periodontal disease variables, alcohol consumption and alcohol dependence assessment and control for confounders of the selected studies. Of the 14 selected studies, 11 investigated the relationship between alcohol consumption and periodontal disease (Sakki et al. 1995, Shizukuishi et al. 1998, Tezal et al. 2001, Ogawa et al. 2002, Pitiphat et al. 2003, Tezal et al. 2004, Nishida et al. 2004, Shimazaki et al. 2005, Torrungruang et al. 2005, Okamoto et al. 2006, Bouchard et al. 2006) and 3 studies assessed the relationship between alcohol dependence and periodontal disease (Novacek et al. 1995, Enberg et al. 2001, Khocht et al. 2003).

According to study design, 10 studies were cross-sectional (Sakki et al. 1995, Shizukuishi et al. 1998, Enberg et al. 2001, Tezal et al. 2001, Khocht et al. 2003, Tezal et al. 2004, Nishida et al. 2004, Shimazaki et al. 2005, Torrungruang et al. 2005, Bouchard et al. 2006), and 4 were longitudinal (Novacek et al. 1995, Ogawa et al. 2002, Pitiphat et al. 2003, Okamoto et al. 2006).

The study strategy used to test the association of alcohol consumption and alcohol dependence with periodontal disease was predominantly based on the comparison of periodontal clinical parameters between groups of subjects with different characteristics of alcohol consumption and alcohol dependence.

The mean age of subjects in the studies ranged from 20 to 79 years old. Twelve investigations included males and females in the sample, but in two studies only men took part in the study (Pitiphat et al. 2003, Okamoto et al. 2006). Some studies worked with large sample sizes, involving more than 10.000 subjects (Pitiphat et al. 2003, Tezal et al. 2004). Other studies were undertaken with small samples, e.g. Kocht et al. 2003, n=65. There was heterogeneity in the methodology and sample size between selected studies, which may have affected their power and precision. In addition, a wide range of periodontal clinical measures and periodontal indices were used.

The results are presented according to the target exposure: alcohol consumption (Table 1) and alcohol dependence (Table 2). Relevant information of demographic characteristics, method of alcohol consumption and alcohol dependence assessment, periodontal disease measures and confounding are also presented.

Alcohol consumption

Of the 11 studies on the relationship between alcohol consumption and periodontal disease, 1 longitudinal and 6 cross-sectional studies found positive associations (Sakki et al. 1995, Shizukuishi et al. 1998, Tezal et al. 2001, Pitiphat et al. 2003, Tezal et al. 2004, Nishida et al. 2004, Shimazaki et al. 2005).

Periodontal disease measures

The measures of periodontal disease in studies on alcohol consumption varied considerably. Some studies used only periodontal pocket depth (PPD) as a periodontal measure (Sakki et al. 1995, Nishida et al. 2004). This parameter could lead to bias of classification, since PPD does not reflect previous loss of periodontium. Panoramic XR was used as the only exam to assess periodontal disease in one study (Pitiphat et al. 2003). Besides, it was a complementary exam in another one (Tezal et al. 2001). The Community Periodontal Index (CPI) was used in 2 studies (Shizukuishi et al. 1998, Okamoto et al. 2006).

In 6 studies measures of periodontal disease were clinical attachment loss (CAL) and PPD, which are considered the gold standard procedure for periodontal disease evaluation (Tezal et al. 2001, Ogawa et al. 2002, Tezal et al. 2004, Shimazaki et al. 2005, Torrungruang et al. 2005, Bouchard et al. 2006).

Six studies reported the kappa coefficient of the clinical calibration for periodontal parameters between examiners (Sakki et al. 1995, Enberg et al. 2001, Ogawa et al. 2002, Nishida et al. 2004, Torrungruang et al. 2005, Bouchard et al. 2006) and one study reported

the percentage of agreement (Shizukuishi et al. 1998). In other 3 studies clinical calibration were performed but the results was not reported (Tezal et al. 2001, Khocht et al. 2003, Tezal et al. 2004). In 4 studies there was no information on clinical calibration for periodontal measures (Novaceck et al. 1995, Pitiphat et al. 2003, Shimazaki et al. 2005, Okamoto et al. 2006).

Exposure assessment

The alcohol consumption was assessed using different strategies, namely number of drinks, frequency of alcohol consumption, and the type of drink (whisky, beer, wine, liquor). Other methodological variability among selected studies was in respect to the amount of alcohol consumed. Five studies assessed alcohol consumption by the amount of grams intake per day, using different cut points (Pithiphat et al. 2003, Nishida et al. 2004, Shimazaki et al. 2005, Okamoto et al. 2006, Bouchard et al. 2006), while in other studies the assessment of alcohol consumption took into account the number of drinks consumed per day or week (Sakki et al. 1995, Tezal et al. 2001, Tezal et al. 2004), the alcohol consumed per day (Shizukuishi et al. 1998, Ogawa et al. 2002), and the frequency of consuming alcohol (Torrungruang et al. 2005).

As the assessment of alcohol consumption varied among studies, individuals who were classified as high alcohol consumers in one study could be classified as medium consumers in another. So, there was a clear heterogeneity among studies concerning the exposure assessment. Some studies have also investigated the effects of different types of alcohol beverage (wine, beer, liquor) on periodontal disease (Tezal et al. 2001, Pitiphat et al. 2003, Tezal et al. 2004). One study reported significant relationship of beer and hard liquor consumption with CAL measures (Tezal et al. 2004).

In two studies validated questionnaires were used to collect the information on alcohol consumption: The Semi quantitative Food Frequency Questionnaire (FFQ) (Pitiphat et al.

2003) and the self reported alcohol consumption (Tezal et al. 2001). However, in 9 studies there was no information about what questionnaires were used in the assessment of alcohol consumption. (Sakki et al. 1995, Shizukuishi et al. 1998, Ogawa et al. 2002, Tezal et al. 2004, Nishida et al. 2004, Shimazaki et al. 2005, Torrungruang et al. 2005, Okamoto et al. 2006, Bouchard et al. 2006). In these studies possible bias of assessment of alcohol consumption might have occurred as there was no information about the validity of the questionnaires used.

Confounders

The controlling of confounders, such as smoking and dental plaque, is suitable to test the association between alcohol consumption and periodontal disease. All selected studies controlled for smoking habits, but only 4 of the 11 studies adjusted for dental plaque (Tezal et al. 2001, Shimazaki et al. 2005, Torrungruang et al. 2005, Bouchard et al. 2006). Among the 4 studies that adjusted for dental plaque, two found positive associations between alcohol consumption and periodontal disease (Tezal et al. 2001, Shimazaki et al. 2005).

Table 1. Characteristics of the studies between alcohol consumption and periodontal disease.

Authors	Study design	Sample size	Age (years)	Gender	Exposure assessment	Periodontal variables	Controls for confounders	Results
Bouchard et al. 2006	Cross-sectional	2.132	Range: 35-65	Female:1.088 Male:1.044	Non-drinkers, occasional drinkers, regular drinkers (g/day) [□]	CAL, PPD, PI, GBI	Age, gender, height, BMI, SES, teeth, decayed teeth, GBI, dental visits, smoking, alcohol intake, SBP, DBP, GT hypertensive, cholesterol	CAL \geq 5mm Occasional drinkers OR: 1.0 Non-drinkers/regular drinkers- OR: 1.6 (1.2-2.2) p<0.001
Okamoto et al. 2006	Longitudinal study	1.332	Mean: 44 \pm 6.4	Male :1.332	Alcohol consumed (g/day) Non-drinkers (including ex-drinkers), consuming alcohol <20g of alcohol \geq 20g of alcohol	CPI based on PPD \geq 4mm	Age, smoking	<20g of alcohol OR: 0.88 (0.65-1.17) \geq 20g of alcohol OR: 1.05 (0.73-1.51)
Torrungruang et al. 2005	Cross-sectional	2.005	Mean: 60 \pm 5.0 Range: 50-73	Female:513 Male:1.492	Non-drinkers, former drinkers, current drinkers (g/day). Drinkers person who consumed any type of alcoholic beverage at least 12 drinks in 1 year period.	CAL, PPD, PI, supra-plaque	Age, gender, education level, income, smoking, DM, BMI, WC, risk for bacterial endocarditis, hematogenous, infection hemodialysis	These data suggest no association between alcohol consumption and periodontitis
Shimazaki et al. 2005	Cross-sectional	961	Range: 40-79	Female:583 Male:378	Non-drinker=0g/day Light drinker=0.1 to 14.9g/day, moderate drinker=15-29.9g/day, heavy drinker \geq 30g/day Kind of amount of beverage	PPD, CAL, PI	Alcohol consumption, smoking, GT, age, number of teeth, gender, PI	15-29.9 alcohol (g/day) OR:2.7 (1.1-6.6) >30g alcohol (g/day) OR: 2.5 (1.1-5.7)
Nishida et al. 2004	Cross-sectional	372	Mean: 41 \pm 1.1 Range: 20-59	Female:82 Male:290	Alcohol g/day and kind of alcoholic beverage	PPD	Age, gender, BMI, smoking, frequency of tooth brushing/day, alcohol consumption	<33 g/day OR: 1.0 \geq 33g/day OR: 1.98 (1.04-3.76) p=0.0037

Table 1. (continued)

Authors	Study design	Sample size	Age (years)	Gender	Exposure assessment	Periodontal variables	Controls for confounders	Results
Tezal et al. 2004	Cross-sectional	13.198	Mean: 43±19.0	Female:6.716 Male:6007	Number of drinks in the past 12 months ^d	CAL, PPD, GBI	Age, smoking, gender, race, income, DM, remaining teeth, GBI.	CAL - 5 drinks OR: 1.22 (1.02-1.47) 10 drinks OR: 1.39 (1.13-1.71) 15 drinks OR: 1.54 (1.22-1.93) 20 drinks 1.67 (1.25-2.23)
Pitiphat et al. 2003	Longitudinal study	39.432	Range: 40-75	Male:39.432	FFQ, alcohol consumption (g/day), type of beverage	1 questions about periodontal disease, XR	Smoking, BMI, physical activity, DM, average caloric intake, deceased periodontitis, myocardial infarction or stroke, angina, cancer, asthma.	Alcohol intake 0.1-4.9 g/day OR: 1.24 (1.09-1.42), 5.0-14.9g/day OR:1.18 (1.04-1.35), 15-29.9g/day OR: 1.18 (1.01-1.38), ≥ 30g/day OR: 1.27(1.08-1.49)
Ogawa et al. 2002	Longitudinal study	436	70 years	Female:202 Male:234	Alcohol drinking habits: daily and not daily.	CAL	Gender, smoking, missing teeth, visit dentist regularly, feel need for treatment, recent visit dentist in a year, use of floss, use of a interdental brush, brushing frequently, blood pressures levels, liver agents, immunoglobulins, lip factors, nutritional factors.	There was no significant correlation between individuals exhibiting additional attachment loss and alcohol consumption.

Table 1. (continued)

Authors	Study design	Sample size	Age (years)	Gender	Exposure assessment	Periodontal variables	Controls for confounders	Results
Tezal et al. 2001	Cross-sectional	1,371	Mean: 49±14.0 Range: 25-74	Female:710 Male:661	Number of drinks/week [¥]	CAL, PPD, GB, supra plaque, calculus, ABL	Need of antibiotic premedication to prevent infective endocarditis and endentoussness, education, income, smoking, age, race, DM, allergy, PI.	≥ 5 drinks/week OR: 1.36 (1.02-1.80) ≥10 drinkers/week OR: 1.44 (1.04-2.00)
Shizukuishi et al. 1998	Cross-sectional	310	Mean: 39±11.0 Range: 20-59	Female:58 Male:252	Amount of alcohol consumed/day: every day and not every day	Calculus, GB, PPD-CPI	Age, gender, physical exercise, alcohol consumption, smoking, sleeping hours, eating breakfast, snacking, working hours, subjects mental stress.	Alcohol consumption every day/ not every day OR: 1.8 (1.1-3.0)
Sakki et al. 1995	Cross-sectional	527	55	Female:261 Male:266	Number of alcohol drinks consumed in 2 weeks, what drinks and how many occasions	PPD	Dietary habits, alcohol consumption, smoking, tooth brushing frequency.	Alcohol consumption 0/ 2weeks OR:1.0 0-7/2 weeks OR: 1.76 (1.08-2.87) 7 or more/2 weeks OR: 2.52 (1.40-4.54), p= 0.01

OR= odds ratio, CAL= clinical attachment level, PPD= probing pocket depth, PI= plaque index, GBI= gingival bleeding index., SES=socioeconomic status, SBP= systolic blood pressure, DBP= diastolic blood pressure, GT= glucose tolerance, DM=Diabetes Mellitus, RT= remaining teeth, BMI= body mass index, WC= waist circumference. □ “one drink”: unclear, †Number of drinks in the past 12 months= “unclear”, ¥= one drink= 12 ounces of beer, 4 ounces of wine, 1 ounce of hard liquor.

Alcohol dependence

Three studies were conducted to evaluate the association between alcohol dependence and periodontal disease. One of the 2 cross-sectional studies and one prospective study reported positive associations between alcohol dependence and periodontal disease (Novacek et al. 1995, Enberg et al. 2001, Khocht et al. 2003) (Table 2).

Periodontal disease measurements

The periodontal status assessment was performed by CAL measures in two studies (Novacek et al. 1995, Khocht et al. 2003). One study used panoramic XR to analyze vertical periodontal infrabony pockets, furcation involvements and the presence of dental calculus (Enberg et al. 2001). Those studies reported worse periodontal conditions in alcoholic individuals, although using different definitions of periodontal disease.

Alcohol dependence assessment

The questionnaires used to detect alcohol dependence varied among the studies. The DSM III/IV of American Psychiatric Association was used in 2 studies (Enberg et al. 2001, Khocht et al. 2003), the ICD-10 of World Health Organization in one study (Enberg et al. 2001) and the AUDIT questionnaire in 1 study (Enberg et al. 2001).

The Gamma Glutamyl Transferase (GGT) method, which is a specific blood test to recognize the amount of alcohol in the liver, was used to measure the alcohol levels in the blood circulation in two studies in alcohol dependence (Kocht et al. 2003). Histological or liver biopsy was also conducted in one study (Novacek et al. 1995).

Confounders

Of the 3 studies on the relationship between alcohol dependence and periodontal disease, two controlled for dental plaque (Novacek et al. 1995, Kocht et al. 2003). In one study a positive association was shown, but in the other one only bivariate analysis was

performed and spurious association might be found due to lack of control for dental plaque (Enberg et al. 2001).

Due to the variability in the definition and assessment of periodontal disease, alcohol consumption and alcohol dependence among studies, a meta-analysis could not be performed.

Table 2. Characteristics of the studies between alcohol dependence and periodontal disease

Authors	Study design	Sample size	Age (years)	Gender	Exposure assessment	Periodontal variables	Controls for confounders	Results
Khocht et al.2003	Cross-sectional	65	Range: 30-60	Female:32 Male:33	DSM-III-R, blood alcohol levels, GGT blood levels	CAL, PPD, GBI, PI	Lifetreatment, medical disorders, age, gender, smoker, blood alcohol level, years since dependence.	Alcoholics manifested AL, by greater increases in gingival margin than non-alcoholics.
Enberg et al. 2001	Cross-sectional	138	Mean: 47 ± 7.7 Range: 30-74	Female:45 Male:93	DSM-IV, ICD-10, AUDIT	Panoramic XR	Marital status, living conditions, professional education, employment, longest period in the same job, time since last dental examination, previous alcohol consumption, previous alcohol treatment.	Poor dental health among alcoholics may be related to the social situation and that the poor prevention of dental disease may be a consequence of alcoholism.
Novaceck et al.1995	Prospective	236	Range: 21-60	Female:72 Male:164	Histological criteria or, if liver biopsy not possible on clinical serological, laboratorial findings	CAL, IHO	Alcohol g/day, smoking, dietary habits, dental hygiene, last dental examination, education.	Measures of oral hygiene p<0.01, dental care p< 0.001 and periodontal parameters were worse and the number of teeth requiring treatment (p<0.001) was higher in alcoholics with or without cirrhosis.

AL=attachment loss, CAL= clinical attachment level, PPD= probing pocket depth, PI= plaque index, GBI= gingival bleeding index, IHO= index of oral hygiene, GGT= gamma glutamyl transpeptidase.

DISCUSSION

The relationship of alcohol dependence and alcohol consumption with periodontal disease has not been frequently under review. Since 1995, normative review papers on risk factors for periodontal disease have been published addressing the effect of alcohol intake on periodontal disease (Clarke et al. 1995, Stanford & Rees 2003, Heitz-Mayfield 2005, Petersen & Ogawa 2005, Ramseier 2005).

The previous review papers did not use systematic methods to evaluate the possible influence of alcohol intake on periodontal status. It means that they did not retrieve references using a protocol and they did not address specific studies on the relationship of alcohol dependence and alcohol consumption with periodontal disease. In these review papers, relevant topics in the methods that can affect the results of epidemiologic studies were also not analyzed. Therefore no information was discussed about periodontal disease measures, alcohol and alcohol consumption assessment and the presence of potential confounding bias.

No paper reviewed the possible influence of alcohol dependence on periodontal status. In addition, the relationship between alcohol consumption and periodontal disease in previous reviews was considered in papers that analyzed several potential risk factors for periodontal disease. Therefore, no systematic review on the relationship of alcohol consumption and alcohol dependence with periodontal disease was performed.

Traditional narrative reviews have several disadvantages that systematic reviews appear to overcome. The classic review is subjective and therefore prone to bias and error (Egger & Smith 1997). Without guidance by formal rules, reviewers can disagree about issues as basic as what types of studies it is appropriate to include and how to balance the quantitative evidence they provide. Selective inclusion of studies that support the authors' point of view is common as the frequency of citation of studies is related to their outcome,

with studies in line with the prevailing opinion being quoted more frequently than unsupportive studies (Götzsche 1997).

The results of the identified studies on the relationship of alcohol consumption and alcohol dependence with periodontal disease were presented in separately, because alcohol consumption and alcohol dependence are different conditions of alcohol exposure.

The decision for not conducting a meta-analysis was because combining results of studies into one overall estimate could be misleading as there was considerably heterogeneity among the selected studies for patients' selection criteria, sample size, assessment of alcohol consumption and alcohol dependence, periodontal disease measures and statistical analysis. So, the reasons for heterogeneity in the design and methods need to be understood.

Divergences among studies on the periodontal disease assessment are understandable. The lack of consensus about the criteria for periodontal disease definition in epidemiologic studies is in the current agenda of the American Academy of Periodontology. Although there is indication that the full mouth periodontal exam, including probing pocket depth and clinical attachment level measures is the gold standard to characterize the periodontal status, in only 6 of 11 studies on alcohol consumption and periodontal disease this was observed. In addition, there is still a debate on what cut-off of periodontal measures it is adequate to define an individual with or without periodontal disease. To overcome it some periodontal indices, such as CPI have been proposed (Ainamo et al. 1982). The periodontal indices have been recommended to characterize the prevalence in epidemiologic surveys. However, as they frequently cause an overestimation on periodontal disease, they have been misused in studies on risk factors for periodontal disease.

There is considerable diversity in the definition and in the methods used to assess alcohol consumption and alcohol dependence. Despite there being validated questionnaires for alcohol dependence (Mayfield et al. 1974, Saunders et al. 1993) and alcohol consumption

(Giovannucci et al. 1991) in the literature, the assessment of alcohol use was commonly affected by the variety of aspects of consumption, including frequency of alcohol intake, types of alcoholic beverage and the unit of measure for alcohol.

Most of the analyzed studies in this review were cross-sectional and showed a positive association of alcohol dependence and alcohol consumption with periodontal disease despite the above mentioned differences in the methods. Few studies were conducted on alcohol dependence and periodontal disease. So, the available evidence can be considered too sparse to draw any conclusion about the possible relationship between alcohol dependence and periodontal disease. However, there is sound evidence to suggest alcohol consumption is a risk indicator for periodontal disease. Longitudinal studies are needed to confirm the hypothesis that alcohol can be a risk factor for periodontal disease.

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4.1 ARTIGO 2

The relationship between alcohol dependence and periodontal disease.

Running title: Alcohol dependence and periodontitis.

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ABSTRACT

Aim: This study was carried out to evaluate the relationship between alcohol dependence and periodontal disease.

Materials and Methods: A cross-sectional study of 49 alcoholic and 49 non-alcoholic men was conducted at Philippe Pinel Institute in Rio de Janeiro. Patients were screened for alcohol dependence using the CAGE questionnaire and the ICD-10 criteria. Sociodemographic data and periodontal clinical parameters such as, visible plaque, bleeding on probing, probing pocket depth (PPD) and clinical attachment levels (CAL), were collected. Groups were controlled for smoking. Intergroup comparisons of socio-demographic data and mean percentage of clinical parameters were analyzed by the Chi-square and the Mann-Whitney tests. Independent effect of alcohol dependence on CAL and PPD was assessed by multiple regression analyses, logistic and linear, adjusting simultaneously for the effects of plaque, age, income, education, and living conditions.

Results: A significant linear relationship was found between alcohol dependence and log mean CAL ($p \leq 0.001$) and PPD ($p \leq 0.001$). Multiple logistic regression analysis showed that alcohol dependence OR=3.08, $p \leq 0.05$ and OR= 4.58 $p \leq 0.01$ was significantly and independently associated with mean CAL and mean PPD.

Conclusion: Alcohol dependence may be associated with increased severity of CAL and PPD.

Key words: alcoholism, alcohol dependence, periodontal disease, periodontitis, epidemiology.

INTRODUCTION

Alcohol dependence is a serious public health problem. The World Health Organization estimated that 2 billion people across the world are alcohol consumers and 76.3 million of them suffer from some alcohol induced complications (WHO 2004). The same sources put at 1.8 million the annual number of alcohol dependence related deaths. In Brazil, in particular, it is estimated that 68% of the population consumes alcohol while 11.2% of them are alcohol dependent. It is also estimated that Brazilian males consume alcohol at a higher rate than their female counterparts. (Galduróz et al. 2005).

Effects of alcoholism take years to become evident and can influence host defense causing toxic damages such as fatty liver/ cirrhosis, cerebral atrophy, cardiomyopathy, gastrointestinal bleeding, pancreatitis, and alcoholic coma (Hornecker et al. 2003). Besides that, effects on the oral cavity such as oropharynx cancer, caries, missing/loss of teeth, and greater risk of developing periodontal problems have also been identified (Larato 1972, Harris et al. 1996).

Periodontal disease is characterized by inflammation of the teeth supporting tissues. The etiology of this disease is multifactorial and the dental biofilm is the primary etiological factor of it (Kornman & Löe 1993). An imbalance between potentially pathogenic microorganisms and the efficacy of host response can change the environment associated with the disease. Therefore, progression and manifestation of periodontal disease is influenced by a wide variety of determinants that include social, behavioral, local, and systemic factors. These determinants can modify the host protective mechanism and act as risk factors (Page & Kornman 1997, Nunn 2003).

Some studies have suggested that the effect of alcohol on periodontal disease is related to the oral hygiene status of chronic alcohol users (Larato 1972, Sakki et al. 1995). However,

the existence of a biologic plausibility explaining the effect of alcohol in periodontal tissues has also been indicated in recent studies (Tezal et al. 2001, Pitiphat et al. 2003, Tezal et al. 2004). Alcohol affects the host response, impairs neutrophil, macrophage and T-cell functions, and increases frequency of infections. Furthermore, it has toxic effects on liver and interferes with protein metabolism. Studies in vitro have shown that ethanol stimulates bone resorption, suppresses bone turnover and may have a direct toxic effect on periodontal tissues (Szabo 1999, Tezal et al. 2001, Pitiphat et al. 2003).

In view of what is outlined above, the excessive and constant level of alcohol consumption may affect the host response to infections caused by bacteria, increasing the vulnerability of the host (Szabo 1999). However, specifically for the subject topic of this research, the investigations so far carried out on the association between periodontal disease and alcoholism are limited and more studies are needed (Novaceck et al. 1995, Enberg et al. 2001, Kocht et al. 2003).

The purpose of this study is to evaluate the relationship between severity of periodontal disease and alcohol dependence in a population drawn from a hospital in Rio de Janeiro, Brazil.

MATERIALS AND METHODS

Study population/Subjects

This study was approved by the Ethics and Research Committee of the Philippe Pinel Institute, in Rio de Janeiro. Initially a pilot study was carried out involving 30 men (20 alcoholic and 10 non-alcoholic subjects). The purpose of the pilot study was to calibrate two examiners for periodontal clinical parameters and to test two questionnaires, CAGE (Mayfield et al. 1974) and AUDIT (Saunders et al. 1993), for understanding. Those instruments are used

as alcohol screening tests and have been previously validated for the Brazilian population (Masur & Monteiro 1983, Mendoza-Sassi & Béria 2003)

Sample size was calculated from pilot study results to detect a difference of 10% between groups with at least type II error at 0.20 at 5% significance level. For the main study, a total of 49 alcoholic and 49 non-alcoholic subjects, aged between 30 and 60 years old, balanced for smoking, were allocated into two groups. Alcoholics were recruited in the Alcoholic Treatment Unit at Philippe Pinel Institute and were all undertaking ambulatory treatment, diagnosed as alcohol-dependent currently abstenic, in accordance to the ICD-10 criteria (WHO 1992). The non-alcoholic group, recruited at that same hospital, was composed by visitors to alcoholic patients. Selected subjects had at least fifteen teeth and had not been submitted to antibiotic medication or periodontal therapy during the previous six months before the examination. Individuals who presented ANUG, ANUP, and systemic conditions associated with periodontal disease such as Diabetes Mellitus and AIDS were not included in the sample. The same applied to cocaine users.

In this cross-sectional study, alcoholic and non-alcoholic subjects were screened for suitability and, if accepted, were invited to take part in the study. Because the sample was balanced for smoking six individuals of the comparative group were excluded. After signing an Ethics Committee-approved consent document, subjects were submitted to investigation. Medical and smoking history information was then collected. CAGE was used to screen alcohol dependence in both groups. Those with at least two positive answers were classified as alcohol dependent. Subsequently, a questionnaire on socio-demographic data, such as age, education, income, smoking and living conditions (i.e., live on their own or with a mate/family) was conducted. Finally, two dentists, previously calibrated for periodontal clinical parameters, examined the patients.

Oral examination

The periodontal clinical parameters were recorded at six sites per tooth (mesiobuccal, buccal, distobuccal, mesiolingual, lingual and distolingual) for all teeth, excluding third molars. Exams were conducted using a North Carolina periodontal probe (Hu-Friedy, Chicago, IL, USA) and included visible plaque (VP) (Ainamo & Bay 1975), bleeding on probing (BOP) (Ainamo & Bay 1975), clinical attachment level (CAL) and probing pocket depth (PPD).

Statistical analysis

Periodontal clinical parameters CAL and PPD, collected in the pilot study for intra and intercalibration, were analyzed through the Intraclass Correlation Coefficient Test (ICC). The correlation coefficient between the two questionnaires, CAGE and AUDIT, was also calculated.

Intergroup comparison of means for age was obtained by the Mann-Whitney test. Percentage of the socio-demographic data was calculated for both groups and a Chi-Square Test was conducted to evaluate differences between groups.

Clinical parameters were computed for each participant and were averaged across subjects in the two groups. Mean percentage of CAL and PPD sites were calculated. Differences between clinical parameters were examined in site subsets defined by CAL and PPD categories of < 4mm, 4-6 mm and >6 mm. Additionally, mean percentage of BOP and VP were calculated. In the three categories defined by CAL and PPD, BOP and VP, significance of differences for mean percentage of sites between alcoholic and non-alcoholic subjects were sought using the Mann-Whitney Test.

Mean CAL and mean PPD were calculated for each subject and were used as continuous and as dichotomized variables. Dichotomization cut-points for mean CAL and mean PPD were respectively taken as 3.56 mm and 3.26 mm, which represent the upper

quartiles of their respective distributions for the population under investigation (Tezal et al. 2001). The normal distribution of these variables was tested by Kolmogorov-Smirnov test.

The logistic and the linear regression were analyzed. Logistic regression was applied to identify the associations of mean PPD and mean CAL with alcohol dependence, percentage of plaque, age, smoking, income, living conditions and education. The dependent variables used were the dichotomized mean PPD and the dichotomized mean CAL. Continuous variables, percentage of plaque and age, were categorized into quartiles. Odds ratio (OR) with 95% confidence intervals (CI) were computed; $p \leq 0.05$ were considered statistically significant.

After adjusting for the effects of confounders, a multiple linear regression analysis was conducted to assess the independent effect of alcohol dependence on mean PPD and mean CAL. The distribution of the dependent variables was skewed and a log transformation of the mean PPD and the mean CAL was conducted.

RESULTS

For the two examiners involved in the pilot study, a clinical calibration for periodontal parameters was performed. For the intracalibration of examiner 1, results for the Intraclass Correlation Coefficient Test (ICC) for CAL and PPD were respectively 81% and 86%. Corresponding figures for examiner 2 were respectively 79% and 80%. Intercalibration ICC results were 84% for CAL and 78% for PPD.

CAGE and AUDIT questionnaire results were compared with agreement coefficient and 100% agreement was reached in classifying alcoholic and non-alcoholic individuals. Being shorter and easier to apply, the CAGE questionnaire was selected for the study.

Sociodemographic data

Sociodemographic data is presented in Table 1. Mean age of the 98 subjects involved was 43.86 (8.25) and 65.3% of them were smokers. The alcoholic group had a higher mean age ($p=0.006$) and no significant differences were found for income, education and living conditions between groups.

Table 1. Demographic and socioeconomic characteristics of male subjects distributed within groups.

Parameters	Alcoholics (N= 49)	Non- alcoholics (N=49)	p value
Age * (years)	46.2 (8.0)	41.5 (7.9)	0.006
Income[†]			0.580
Brazilian minimum wage			
≤ 6 minimum wage	42 (85.7%)	40 (81.6%)	
> 6 minimum wage	7 (14.3%)	9 (18.4%)	
Education[†]			0.100
≤ 8 years	31 (63.3%)	23 (46.9%)	
> 8 years	18 (36.7%)	26 (53.1%)	
Living Conditions[†]			1.000
Alone	12 (24.5%)	12 (24.5%)	
Mate /Family	37 (75.5%)	37 (75.5%)	
Smokers[‡] (yes)	32 (65.3%)	32 (65.3%)	

*mean (SD), p value refers to Mann-Whitney test.

† p value refers to Chi square test.

‡ groups were controlled for smoking.

Clinical data

Clinical periodontal parameters for the two groups are shown in Table 2. Mean of sites and mean percentage of sites for PPD and CAL (4mm-6mm and >6mm) turned out statistically higher for the alcohol dependent group. No significant differences between

the two groups were found for mean percentage of sites with visible plaque and bleeding on probing.

Table 2. Clinical parameters of alcoholic and non alcoholic groups.

Parameters	Alcoholics (N= 49)	Non- alcoholics (N=49)	p value*
Clinical attachment level			
Sites Mean (SD)	3.5 (1.7)	2.9 (1.2)	<0.001
<i>Mean percentage of sites:</i>			
< 4 mm (%)	67.6 (29)	83.4 (17.7)	0.004
4-6 mm (%)	27 (22.3)	14.8 (15.4)	0.005
> 6 mm (%)	5.4 (14.3)	1.7 (3.8)	0.030
Probing pocket depth			
Sites Mean (SD)	3.2 (1.2)	2.7 (1.0)	<0.001
<i>Mean percentage of sites:</i>			
< 4 mm (%)	73.9 (26.5)	88.6 (15.6)	0.005
4-6 mm (%)	24.1 (23.6)	11.0 (14.9)	0.007
> 6 mm (%)	2.0 (5.06)	0.4 (1.2)	0.020
<i>% sites with:</i>			
Visible plaque	58.9 (31.6)	51.0 (25.2)	0.180
Bleeding on probing	19.2 (25.0)	13.9 (18.9)	0.350

*p refers to Mann-Whitney test.

Tables 3 and 4 summarize the results for multivariate logistic regression analyses, after simultaneously controlling for percentage of plaque, age, income, education, living conditions and smoking. For these tests, subjects who were alcohol dependent were found to be at a higher risk of having a higher mean CAL and mean PPD than non-alcoholic patients (OR=3.08, 95% CI= 1.01-9.45, p=0.04 and OR= 4.58, 95% CI= 1.42 to 14.75, p=0.01).

For the multiple linear analysis, after adjusting for the same covariates as in multiple logistic regression, a significant linear relationship was found between alcohol dependence and log mean PPD ($p < 0.001$) and log mean CAL ($p < 0.001$). (Data not show).

Table 3. Adjusted Odds Ratio of mean CAL* associated with independent variables.

Independent Variables	Odds Ratio	95% CI	p-value
Alcoholics	3.08	1.01-9.45	0.04
Age	0.93	0.57-1.51	0.79
Plaque	2.38	1.38-4.12	0.002
Income	1.66	0.32-8.62	0.54
Education	0.44	0.13-1.44	0.17
Living Conditions	1.41	0.39-5.05	0.59
Smoking	2.69	0.74-9.71	0.12

*Mean CAL was dichotomized in 3.56 mm, this cut point corresponding to the upper quartile of its distribution.

† Odds Ratios were derived from multivariate logistic regression.

Table 4. Adjusted Odds Ratio of mean PPD* associated with independent variables.

Independent Variables	Odds Ratio	95% CI	p-value
Alcoholics	4.58	1.42-14.75	0.01
Age	1.14	0.69-1.87	0.60
Plaque	2.48	1.44-4.27	0.001
Income	0.64	0.10-3.90	0.62
Education	0.85	0.26-2.72	0.79
Living Conditions	1.13	0.31-4.06	0.84
Smoking	2.60	0.70-9.66	0.15

*Mean PPD was dichotomized in 3.26 mm, this cut point corresponding to the upper quartile of its distribution.

† Odds Ratios were derived from multivariate logistic regression.

DISCUSSION

This study provides evidence that further substantiates the hypothesis that alcohol dependence is associated with periodontal disease. The development of periodontal disease, as indicated in many previous studies, is a multifactorial process that involves biological as well as social factors (Sakki et al. 1995, Marcenes & Sheiham 1992). However, few papers in the literature specifically investigated the existence of links between alcohol dependence and periodontal disease (Novaceck et al. 1995, Enberg et al. 2001, Khocht et al. 2003). In this cross-sectional study we investigated that relationship and found that alcohol dependence was significantly associated with mean of probing pocket depth and clinical attachment loss. These associations were established independently of other potential confounders and may be related to the severity of periodontal disease in these patients.

In the literature, only three studies could be found investigating the association between alcohol dependence and periodontal disease. Novaceck et al. (1995) assessed the role of alcoholism and cirrhosis on periodontal disease after examining 64 alcoholic with cirrhosis, 68 alcoholic without cirrhosis, 33 non alcoholics with cirrhosis and 71 healthy control subjects. The presence of cirrhosis, oral hygiene, age, time spent since last examination and cigarette smoking were significantly associated with increased loss of attachment in a stepwise multiple regression analysis. In another study, Enberg et al. (2001) compared two groups to analyze the association between periodontal lesions and alcohol dependence. Panoramic radiographs were used to assess bone loss. Diagnoses of alcohol dependence followed the criteria set out in DSM-IV (APA 1995) and ICD-10 (WHO 1992). A higher prevalence of periodontal disease among alcoholic subjects was observed. Finally, Khocht et al. (2003), in a cross-sectional study involving 40 alcoholics and 25 controls, used the DSM-III-R (APA 1987) and the biological marker GGTP to assess alcohol dependence, and conducted a series of regression analyses, adjusting for age, gender and smoking. The authors suggested that persistent alcohol abuse affects severity of periodontal disease.

It may be argued that, for some previous studies in the literature, associations found between alcohol and periodontal disease may be due to potential periodontal disease risk factors that were not controlled (Enberg et al. 2001). Lack of control for periodontal pathogenesis confounders, such as levels of dental plaque, should be considered when analyzing these results.

Previous studies have shown that age was associated with periodontitis (Albandar 2002). Although in this investigation, in the bivariate analysis, age was significantly higher for the alcoholic group, when multiple linear and logistic regressions analysis were conducted to test the association of alcohol dependence with periodontal clinical parameters, controlling for age, alcohol still had a relationship with CAL and PPD.

In this study, level of plaque was similar for alcoholic and non-alcoholic subjects and was associated with mean PPD and mean CAL in multiple regression models (Table 3 and 4). Previously, the effect of alcohol on periodontal disease was commonly explained by poor oral hygiene (Larato 1972, Sakki et al. 1995). In our study, however, alcohol dependence showed an adverse effect on mean CAL and mean PPD when plaque was controlled. This result is in accordance with other studies, which analyzed the association of alcohol consumption and alcohol dependence, controlling for plaque (Novacek et al. 1995, Tezal et al. 2001, Kotch et al 2003, Shimazaki et al. 2005).

Neglect and lack of care may explain an increased level of plaque in alcoholics. However, one cannot forget that alcoholism leads to adverse effects on bone metabolism and healing (Tezal et al. 2001). Moreover, alcoholics may suffer from some abnormalities in immune system functions caused by years of dependence and that can modify the host response (Schleifer et al. 1999, Khocht et al. 2003). In the present study, results suggest that alcohol dependence may be a predictor for periodontal disease. These findings do not establish a causal link. It is thus reasonable to hypothesize that such dependence can affect the biologic environment leading to disease susceptibility.

The correlation between smoking and periodontal disease has been well established (Beck et al. 1990, Grossi et al. 1994, Tomar et al. 2000, Hyman & Reid 2003). So much so that, today, smoking is considered a risk factor for periodontal disease, affecting the periodontium adversely (Tonetti 1998). In our study, groups were controlled for smoking. Results from the multiple regression analysis showed that even after controlling for smoking (Table 3 and 4), alcohol dependence was associated with mean of PPD and CAL, implying that the relationship between alcohol dependence and periodontal disease does not depend smoking habits. This is in agreement with previous studies that found no association between alcohol and clinical attachment loss (Tezal et al. 2001, Khocht et al. 2003, Tezal et al. 2004).

Alcohol dependence is a psychiatric diagnosis indicating the patient to be impaired by that substance. However, it does not take in consideration the degree of exposure to the substance. For our data, under the use of the WHO criteria on alcohol dependence in currently abstinent subjects and the CAGE questionnaire, these subjects were shown to be alcohol dependents. These results corroborate findings of the Bush et al. (1997) study, conducted in a general hospital using the same questionnaire. They also highlight the importance of the use of screening methods and easy to apply questionnaires. The CAGE questionnaire, in particular, also presents a high sensibility and specificity, even when compared with biological markers (Gül et al. 2005).

Some limitations of our study must be considered when interpreting our findings. The sample used was a convenience one and was not representative of the Brazilian population. In addition, the cross-sectional design might have not indicated a temporal relationship between alcohol dependence and periodontal disease. Consequently, alcoholic subjects considered in this study may already have had periodontal disease before acquiring the habit of drinking. It is thus necessary to conduct more powerful studies, such as prospective studies, relating the sequence of risk factors to periodontal disease in order to establish causal relations between alcohol dependence and periodontal disease.

In conclusion, alcohol dependence may be a predisposing factor for periodontal disease. Further studies are necessary to understand the role of alcohol dependence as a putative risk factor for periodontal disease and determine the pathogenic mechanisms of alcohol on periodontal disease.

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5. DISCUSSÃO

Esse estudo forneceu uma evidência positiva para substanciar a hipótese que dependência alcoólica está associada à doença periodontal. Muitos estudos demonstram que o desenvolvimento da doença periodontal é multifatorial envolvendo tanto fatores sociais quanto biológicos (SAKKI et al., 1995; MARCENES & SHEIHAM, 1992). Um pequeno número de estudos, entretanto, (NOVACECK et al., 1995; ENBERG et al., 2001; KHOCHT et al., 2003) explorou o papel da possível relação da dependência alcoólica com a doença periodontal. Nesse estudo transversal nós avaliamos essa relação e encontramos que a dependência alcoólica estava significativamente associada com a média da perda do nível clínico de inserção e profundidade de bolsa à sondagem. Esta associação foi independente de outros potenciais confundimentos e pode estar relacionada com a gravidade da doença periodontal nestes indivíduos. Segundo nossa revisão bibliográfica, este é o primeiro estudo a cerca desta associação entre a relação da dependência alcoólica com a doença periodontal realizado no Brasil.

Somente três estudos na literatura investigaram a associação entre a dependência alcoólica e a doença periodontal. Novaceck et al. (1995) avaliou o papel do alcoolismo e cirrose na periodontite ao examinar 64 alcoolistas cirróticos, 68 alcoolistas sem cirrose, 33 não alcoolistas cirróticos e 71 indivíduos saudáveis no grupo controle. A presença de cirrose, higiene oral, tempo desde o último exame realizado e o fumo foram significativamente associados ao aumento da perda de inserção na análise de regressão múltipla. Em outro estudo, Enberg et al. (2001) comparou dois grupos para analisar a doença periodontal e a dependência alcoólica. Radiografias panorâmicas foram utilizadas para avaliar a perda óssea. O diagnóstico de dependência alcoólica seguiu os critérios do DSM-IV (APA, 1994) e CID-10 (OMS, 1992). Uma maior prevalência da doença periodontal foi observada nos indivíduos

alcoolistas. Kocht et al. (2003) em um estudo transversal, envolvendo 40 alcoolistas e 25 controles, utilizou o DSM-III-R (APA, 1987) e um marcador biológico, o GGTP, para avaliar a dependência alcoólica. Análises de regressão ajustadas para idade, sexo e fumo foram realizadas. Os autores sugeriram que o abuso persistente de álcool afetou a gravidade da doença periodontal.

É possível argumentar que a associação entre o álcool e a doença periodontal encontrada por alguns autores pode ter sido influenciada por potenciais fatores de risco para a doença periodontal que não foram controlados (ENBERG et al., 2001). A diversidade metodológica empregada, bem como a falta de controle das variáveis de confundimento para a doença periodontal, como a placa, torna difícil concluir o real efeito do álcool na patogênese da doença periodontal.

Não houve diferença significativa para renda, educação e condições de vida entre os grupos no presente estudo (Tabela 1- Artigo 2). Investigações anteriores demonstraram que idade e sexo estão associados com a doença periodontal (ALBANDAR, 2002). Embora, na análise bivariada, a idade foi significativamente maior no grupo dos alcoolistas, quando a regressão múltipla foi realizada (linear e logística) (Tabela 3 e 4- Artigo 2) para testar a associação da dependência alcoólica com os parâmetros periodontais, controlando para idade, o álcool ainda demonstrou um efeito adverso no NCI e PBS. Em relação ao sexo, os estudos de dependência alcoólica demonstram que a prevalência de alcoolistas do gênero masculino é relativamente maior (GRANT, 1997). Por isso, avaliamos somente no nosso estudo indivíduos do gênero masculino.

O nível de placa foi similar entre os alcoolistas e não alcoolistas e foi também associado com a média de NCI e PBS nos modelos de regressão múltipla (Tabela 3 e 4- Artigo 2). Placa é um fator etiológico da doença periodontal, sendo assim, um aumento no nível de placa afeta os parâmetros clínicos periodontais. O efeito do álcool na doença

periodontal foi comumente explicado pela má higiene oral por alguns autores (LARATO, 1972; SAKKI et al., 1995). Neste estudo, quando a placa foi controlada, no teste de regressão, a dependência alcoólica ainda mostrou um efeito adverso na média de NCI e PBS. Esses resultados estão de acordo com outros trabalhos, que analisaram tanto o consumo de álcool quanto a dependência, controlando para placa (NOVACEK et al., 1995; TEZAL et al., 2001; KOTCH et al., 2003; SHIMAZAKI et al., 2005).

A negligência e a falta de cuidados orais podem explicar o nível de placa nos indivíduos alcoolistas. Entretanto, não podemos nos esquecer que o alcoolismo pode levar a efeitos adversos no metabolismo ósseo e cicatricial (TEZAL et al., 2001). Além disso, esses indivíduos sofrem de anormalidades nas funções do sistema imune (SCHLEIFER et al., 1999; KHOCHT et al., 2003) causadas por anos de dependência ao álcool o que pode modificar a resposta do hospedeiro. Nossos resultados sugeriram que a dependência é um fator predisponente para a doença periodontal. No entanto, esses achados não estabelecem uma relação causal. É razoável hipotetizar que a dependência pode afetar o ambiente biológico levando uma suscetibilidade aumentada a doença periodontal.

A correlação entre fumo e doença periodontal foi bem documentada (BECK et al., 1990; GROSSI et al., 1994; TOMAR et al., 2000; HYMAN, REID, 2003). Tanto que o fumo é considerado hoje um fator de risco para a doença periodontal. No nosso estudo, os dois grupos foram controlados para fumo. Os resultados da análise de regressão múltipla demonstraram que mesmo controlando para o fumo (Tabela 3 e 4- Artigo 2), a dependência alcoólica estava significativamente associada ao aumento das médias de NCI e PBS. Isso implica que essa relação entre a dependência alcoólica e a doença periodontal não depende do hábito de fumar, estando de acordo, com outros estudos que identificaram associação entre o álcool e a perda clínica de inserção (TEZAL et al., 2004; KHOCHT et al., 2003; TEZAL et al., 2001).

A dependência alcoólica é um diagnóstico psiquiátrico indicando que um dano ao paciente ocorreu devido à substância, não levando em consideração o grau de exposição da mesma. Por meio dos critérios de diagnóstico da CID-10 (OMS 1992) para dependência alcoólica em pacientes em tratamento ambulatorial atualmente em abstinência e pelo questionário CAGE, foi possível diagnosticar os pacientes que apresentavam dependência alcoólica. O CAGE é um instrumento utilizado em diversos trabalhos mostrando ser confiável e de rápida aplicação (DA PAZ FILHO et al., 2001; AMARAL & MALBERGIER, 2004). Este apresenta uma alta especificidade e sensibilidade, mesmo quando comparado aos marcadores biológicos para triagem da dependência alcoólica (GÜL et al., 2005).

Algumas limitações no nosso estudo devem ser consideradas ao interpretar nossos achados. A amostra foi de conveniência e não representativa da população. Em adição, o desenho transversal do estudo pode ter indicado uma relação temporal entre a dependência alcoólica e a doença periodontal. Conseqüentemente, os indivíduos considerados nesse estudo como alcoolistas, podem ter desenvolvido a doença periodontal antes de adquirir o alcoolismo. Sendo necessário portanto, realizar futuramente estudos prospectivos relacionando a seqüência dos fatores de risco para a doença periodontal, a fim de estabelecer uma relação causal entre a dependência alcoólica e a doença periodontal.

6. CONCLUSÃO

Baseado nos dados obtidos neste estudo pode-se concluir que nesta amostra:

- A placa não se mostrou associada à dependência alcoólica.
- A dependência alcoólica está associada à gravidade da doença periodontal.

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ANEXOS

ANEXO 1



Comitê de Ética em Pesquisa –Conselhos Humanos

PARECER CONSUBSTANCIADO CEP PINEL

CEP PINEL -
PROTOCOLO N°005/oo5

TÍTULO DO PROJETO DE PESQUISA:
A relação da dependência alcóolica com a doença periodontal

PESQUISADOR RESPONSÁVEL:
Cristine da Silva Furtado Amaral

INSTITUIÇÃO PROPONENTE:
Ufrj Departamento de Periodontia

O Comitê de Ética em Pesquisa do Instituto Philippe Pinel reunido em _novembro de 2005 _____, emitiu o seguinte Parecer sobre o Projeto em questão:

Este projeto tem como objetivo principal verificar a correlação entre dependência do álcool e a prevalência de doenças periodontais.

Propõe-se a avaliar também a associação com o tabagismo desta prevalência da placa visível; sangramento gengival; fatores sócioeconomicos e numero de cigarros entre os usuários de álcool, a partir de duas hipóteses: não há diferenciação entre não alcoolistas e alcoolistas e/ou os alcoolistas apresentariam maior incidência de placa.

Como metodologia está previsto estudo transversal, com pacientes voluntários selecionados por conveniência, dos dois grupos: alcoolistas e não alcoolistas. Após o resultado que será distribuído aos participantes, será fornecido instruções de terapia oral e um kit com escova e fio.

De acordo com o parecer trata-se de projeto bem fundamentado teoricamente e com metodologia adequada aos seus objetivos. Atende aos quesitos éticos em relação ao grupo a ser pesquisado, tanto nos procedimentos quanto no TCLE, não havendo portanto nenhum empecilho à sua realização .

A partir da avaliação o CEIPPINEL considera o protocolo aprovado sem recomendações

O CEP PINEL lembra ainda que a condição de aprovação exige:

- ◆ Que sejam encaminhados ao CEP PINEL um relatório parcial de andamento e o resultado final do Projeto.
- ◆ Que sejam notificados ao CEP eventos a diversos significativos no decorrer da pesquisa.
- ◆ Que sejam notificados eventuais modificações no Protocolo da Pesquisa.


Lucia Luiz Pinto
Coordenadora do CEP PINEL

ANEXO 2

UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
FACULDADE DE ODONTOLOGIA
DEPARTAMENTO DE CLÍNICA ODONTOLÓGICA

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

A relação da dependência alcoólica com a doença periodontal

Prezado Senhor,

A pesquisadora Dr^a. Cristine da Silva Furtado Amaral da Faculdade de Odontologia da UFRJ gostaria de convidá-lo a participar de uma pesquisa com o objetivo de avaliar o uso de álcool e a doença periodontal.

A pesquisadora realizará exame bucal, remoção de placa e questionários. É importante dizer que o exame não trará desconfortos, riscos ou prejuízos para saúde dos participantes. Ao final do exame serão dados a vocês instruções de higiene da boca e informações sobre o seu estado de saúde da gengiva, em conjunto com escova de dente e fio dental.

A participação é absolutamente voluntária e em casos de desistência não haverá prejuízo em relação ao tratamento do paciente. Os exames bucais realizados pelo pesquisador são sigilosos e confidenciais, sendo que a identidade do participante só será utilizada por membros da equipe de trabalho. Sendo os resultados dos exames da pesquisa de responsabilidade da pesquisadora. Se o Senhor desistir de participar do trabalho, os responsáveis por esse projeto se comprometem a não utilizar seus dados, bem como destruir os questionários. Entretanto, os resultados em sua totalidade, serão publicados em literatura científica especializada, estando também disponíveis para consulta na Biblioteca Central do Centro de Ciências da Saúde (CCS/UFRJ).

Caso o Sr^o aceite em colaborar com o programa que acabamos de lhe expor, solicitamos sua assinatura no final deste convite.

Em caso de dúvidas e necessidades, você poderá entrar em contato com: Dr^a Cristine da Silva Furtado Amaral na Faculdade de Odontologia da UFRJ, Av. Brigadiiro Trompowsky,s/n, Cidade Universitária, Rio de Janeiro, ou pelos telefones 2562-2001 ou 2562-2098-RJ.

Declaro ter lido e entendido os termos da pesquisa a ser realizada pela Faculdade de Odontologia da UFRJ sobre doença da gengiva, uso de álcool, dando expressamente o meu “De acordo” com os mesmos, e com reserva do meu direito de desistência, assumo o compromisso de minha participação no programa de pesquisa.

Rio de Janeiro, ____ de _____ de _____.

Nome do paciente

Assinatura do Paciente

Assinatura do pesquisador responsável
Cristine da Silva Furtado Amaral

ANEXO 3- Prontuário Odontológico

ANAMNESE

I- IDENTIFICAÇÃO DO PACIENTE

NOME COMPLETO: _____

IDADE: _____

NATURALIDADE: _____ DATA DE NASCIMENTO: _____

ENDEREÇO RESIDENCIAL: _____

TELEFONE: _____ CIDADE: _____

QUESTIONÁRIO DE SAÚDE: (aprovado pela ADA- WISCOUSIN Dental Association/ EUA)

Preencha com as respostas apropriadas:

-
1. Você está sob cuidados médicos? SIM () NÃO ()
 2. Desde quando? _____ / _____ / _____ Por quê? _____
 3. Você está tomando medicamentos? SIM () NÃO ()
 4. Qual(is) _____
 5. Toma periodicamente substâncias que afetam a saúde? SIM () NÃO ()
 6. Você sente a boca seca? SIM () NÃO ()
 7. Você está usando ou usou alguma droga como as ao lado especificadas? Por exemplo, Cannabis (maconha), cocaína (coca), heroína, anfetamina. SIM () NÃO ()
 8. Está sendo tratado para enfermidades cardíacas ou lhe foi dito que poderia padecer de alguma delas? SIM () NÃO ()
 9. Usa marcapasso ou válvula cardíaca artificial? SIM () NÃO ()
 10. Teve febre reumática? SIM () NÃO ()
 11. Esteve sobre tratamento com radiação ou quimioterapia para combater tumor, neoplasia ou outra condição? SIM () NÃO ()
 12. Tem pressão alta ou pressão baixa? SIM () NÃO ()
 13. Tem alterações no sangue, como anemia, leucemia etc? SIM () NÃO ()
 14. Tem problemas renais? SIM () NÃO ()
 15. Tem problemas hepáticos? SIM () NÃO ()
 16. É diabético? SIM () NÃO ()
 17. Sofre de asma? SIM () NÃO ()
 18. Tem epilepsia ou ataques nervosos? SIM () NÃO ()
 19. Está com alguma doença venérea? SIM () NÃO ()
 20. Foi diagnosticado ser HIV positivo? SIM () NÃO ()
 21. Tem AIDS? SIM () NÃO ()
 22. Teve hepatite ou tem anticorpos contra enfermidade? SIM () NÃO ()
 23. Está com tuberculose? SIM () NÃO ()

24. Utiliza habitualmente substâncias controladas? SIM () NÃO ()
25. Está sob tratamento psiquiátrico? SIM () NÃO ()
26. Realizou tratamento periodontal (tratamento de gengiva) nos últimos seis meses?
SIM () NÃO ()
27. Utilizou algum enxaguatório bucal nos últimos 15 dias? SIM () NÃO ()
28. Utilizou antibiótico nesse últimos 6 meses? SIM () NÃO ()

Há algo que devamos saber sua saúde e que não tenhamos perguntado neste formulário?

Certifico que as informações prestadas são exatas.

_____.

Assinatura do paciente

Data: ____/____/____.

ANEXO 5- CAGE

1. Alguma vez você sentiu que deveria diminuir a quantidade de bebida ou parar de beber?

SIM () NÃO ()

2. As pessoas o aborrecem porque criticam o seu modo de beber?

SIM () NÃO ()

3. Você se sente culpado pela maneira com que costuma beber?

SIM () NÃO ()

4. Você costuma beber pela manhã para diminuir o nervosismo ou a ressaca?

SIM () NÃO ()

ANEXO 6- DADOS SÓCIO- ECONÔMICOS

Nome: _____ Data: _____

1) Qual é a sua ocupação profissional atual? _____.

2) Qual é o seu estado civil?

(a) Solteiro (a)

(b) Casado (a)

(c) Divorciado (a)

(d) Viúvo (a)

(e) Outro (Por favor, diga qual) _____.

3) Você está vivendo

(a) Sozinho (a)

(b) Com o esposo (a)

(c) Com um (a) companheiro (a)

(d) Com outra (s) pessoa (s). Por favor, especifique: _____.

4) Qual das seguintes alternativas descreveria melhor o seu nível de instrução?

(a) Primário incompleto

(b) Primário completo

(c) Ginásio completo

(d) Ginásio incompleto

(e) Secundário incompleto

(f) Secundário completo

(g) Superior incompleto

(h) Superior completo

(i) Outro (Por favor, explique) _____.

5) Qual é o seu nível sócio-econômico (renda familiar):

(a) Até 1 salário mínimo (\leq 350 reais)

(b) Até 3 salários mínimos(351- 1050 reais)

(c) De 3 a 6 salários mínimos(1051-2100 reais)

(d) De 6 a 10 salários mínimos (2101- 3500 reais)

(e) Mais de 10 salários mínimos ($>$ 3500 reais)

6) Qual é o número de dependentes na sua família? _____

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