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Project Mondzorg Ouderen; Bewustwording onder zorgprofessionals.

Dit document bevat gerangschikt op ziektebeeld een verwijzing naar wetenschappelijke literatuur waarin de relatie tussen mondgezondheid en desbetreffend ziektebeeld wordt beschreven. Door op een van de onderstaande hoofdstukken te klikken komt u gelijk op de betreffende pagina.

Voor alle artikelen die vrij beschikbaar zijn is de website hieronder toegevoegd o.v.v. 'vrij beschikbaar'.

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1. Hart- en vaatziekten

Titel publicatie: [Periodontitis is an independent risk indicator for atherosclerotic cardiovascular diseases among 60 174 participants in a large dental school in the Netherlands](#)

Beukers, N.G.F.M., Heijden, G.J.M.G., Wijk, A.J. van, Loos, B.G. (2016). Periodontitis is an independent risk indicator for atherosclerotic cardiovascular diseases among 60 174 participants in a large dental school in the Netherlands. *J. Epidemiol Community Health*, 0, 1-6.

Abstract

The association between periodontitis and atherosclerotic cardiovascular diseases (ACVD) has been established in some modestly sized studies (<10 000). Rarely, however, periodontitis has been studied directly; often tooth loss or self-reported periodontitis has been used as a proxy measure for periodontitis. Our aim is to investigate the adjusted association between periodontitis and ACVD among all individuals registered in a large dental school in the Netherlands (Academic Centre for Dentistry Amsterdam (ACTA)).

Anonymised data were extracted from the electronic health records for all registered patients aged >35 years (period 1998–2013). A participant was recorded as having periodontitis based on diagnostic and treatment codes. Any affirmative answer for cerebrovascular accidents, angina pectoris and/or myocardial infarction labelled a participant as having ACVD. Other risk factors for ACVD, notably age, sex, smoking, diabetes, hypertension, hypercholesterolaemia and social economic status, were also extracted. Logistic regression analyses were used to evaluate the adjusted associations between periodontitis and ACVD.

60 174 individuals were identified; 4.7% of the periodontitis participants (455/9730) and 1.9% of the non-periodontitis participants (962/50 444) reported ACVD; periodontitis showed a significant association with ACVD (OR 2.52; 95% CI 2.3 to 2.8). After adjustment for the confounders, periodontitis remained independently associated with ACVD (OR 1.59; 95% CI 1.39 to 1.81). With subsequent stratification for age and sex, periodontitis remained independently associated with ACVD.

This cross-sectional analysis of a large cohort in the Netherlands of 60 174 participants shows the independent association of periodontitis with ACVD.

Full tekst vrij beschikbaar op:

<http://jech.bmj.com/content/early/2016/08/08/jech-2015-206745.full.pdf+html>

Geraadpleegd op 14-11-2016

Titel publicatie: [Relatie tussen parodontale gezondheid en algemene gezondheid 1. Luchtweginfecties en hart- en vaatziekten.](#)

Nesse, W., Spijkervet, F.K.L., Abbas, F. & Vissink, A. (2006). *Nederlands tijdschrift voor Tandheelkunde*, 113, 186-190.

Abstract

The possible link between oral and general health is based on an old concept. This paper summarizes current ideas on the role of translocation of oral pathogens to other parts of the body in the development of systemic disease. It appears that colonisation of the oral cavity by respiratory pathogens is a risk factor in the development of pneumonia in institutionalised elderly and intensive care patients. Using a chlorhexidine oral rinse may reduce the risk of pneumonia. Furthermore, periodontal disease is associated with an increased risk of cardiovascular disease. Translocation of oral microorganisms and an increase in serum concentrations of inflammatory mediators are considered to play a role in the development of cardiovascular disease. Potentially, preventive oral health care and periodontal intervention could play a part in preventing cardiovascular disease.

Full tekst vrij beschikbaar op:

<http://parsprototo.info/docs/Pneumonia%20and%20Cardiovascular%20Disease.pdf>

Geraadpleegd op 14-11-2016

2. Beroerte

Titel publicatie: [The association between cumulative periodontal disease and stroke history in older adults.](#)

Lee, H., Garcia, R.I., Sok-Ja, J., Jones, J.A., Mascarenhas, A.K., Scott, T.E., & Nunn, M.E. (2006). *J periodontal*, 77, 1744-1754.

Abstract

Since the late 1980s, several studies have been conducted to investigate the relationship between periodontal disease and ischemic stroke. The purpose of this study is to investigate the relationship of periodontal disease to the self-reported history of stroke in the elderly (60 years of age and older) by examining the data of the Third National Health and Nutrition Examination Survey (NHANES III).

Data from NHANES III, a large population-based cross-sectional survey of the United States, were used for this study. Because 1,563 of the 5,123 subjects in the study were edentulous, and periodontal disease is a major cause of tooth loss, it was necessary to account for edentulousness in the statistical analysis to avoid bias. Hence, a new index called the periodontal health status (PHS) index was developed to address this problem. Two measures of PHS were developed: PHS I, based on the median percentage of sites with ≥ 2 mm clinical attachment loss (CAL), and PHS II, based on the median percentage of sites with ≥ 3 mm CAL. Multiple logistic regression analysis was used to test for the association of PHS with stroke history. Two types of a multiple logistic regression model were fit: 1) logistic regression modeling with adjustment for age and tobacco use only; and 2) logistic regression modeling with adjustment of all statistically significant confounders.

Based on multiple logistic regression analysis of PHS with adjustment for age and tobacco use only, completely edentulous elderly adults (PHS Class 5) and partially edentulous (teeth in one arch) elderly adults with appreciable clinical attachment loss (PHS Class 4) were significantly more likely to have a history of stroke compared to dentate adults (teeth in both arches) without appreciable clinical attachment loss (PHS Class 1). When multiple logistic regression models were fit with adjustment of all significant confounders, no statistically significant association was found between PHS and stroke.

Based on the results of this study, there is evidence of an association between cumulative periodontal disease, based on PHS, and a history of stroke. However, it is unclear whether cumulative periodontal disease is an independent risk factor for stroke or a risk marker for the disease.

Full tekst vrij beschikbaar op:

<http://www.joponline.org/doi/pdf/10.1902/jop.2006.050339>

Geraadpleegd op 14-11-2016

Seymour, G.J., Ford, P.J., Cullinan, M.P., Leishman, S. & Yamazaki, K. (2007). Relationship between periodontal infections and systemic disease. *Clinical Microbiology and Infection*, 13 (suppl4), 3-10.

Abstract

Oral conditions such as gingivitis and chronic periodontitis are found worldwide and are among the most prevalent microbial diseases of mankind. The cause of these common inflammatory conditions is the complex microbiota found as dental plaque, a complex microbial biofilm. Despite 3000 years of history demonstrating the influence of oral status on general health, it is only in recent decades that the association between periodontal diseases and systemic conditions such as coronary heart disease and stroke, and a higher risk of preterm low birth-weight babies, has been realised. Similarly, recognition of the threats posed by periodontal diseases to individuals with chronic diseases such as diabetes, respiratory diseases and osteoporosis is relatively recent. Despite these epidemiological associations, the mechanisms for the various relationships remain unknown. Nevertheless, a number of hypotheses have been postulated, including common susceptibility, systemic inflammation with increased circulating cytokines and mediators, direct infection and cross-reactivity or molecular mimicry between bacterial antigens and self-antigens. With respect to the latter, cross-reactive antibodies and T-cells between self heat-shock proteins (HSPs) and *Porphyromonas gingivalis* GroEL have been demonstrated in the peripheral blood of patients with atherosclerosis as well as in the atherosclerotic plaques themselves. In addition, *P. gingivalis* infection has been shown to enhance the development and progression of atherosclerosis in apoE-deficient mice. From these data, it is clear that oral infection may represent a significant risk-factor for systemic diseases, and hence the control of oral disease is essential in the prevention and management of these systemic conditions.

Full tekst vrij beschikbaar op:

<http://www.sciencedirect.com/science/article/pii/S1198743X14624599>

Geraadpleegd op 14-11-2016

3. Diabetes

Titel publicatie: [Diabetes and tooth loss in a national sample of dentate adults reporting annual dental visits.](#)

Kapp, J.M., Boren, S.A., Yun, S. & Lemaster, J., (2007). Diabetes and tooth loss in a national sample of dentate adults reporting annual dental visits. *Preventing chronic disease*. 3, 1-8.

Abstract

Periodontal disease has been associated with tooth loss and reported as more prevalent among people with diabetes than among those without diabetes. Having an annual dental examination is a national goal of Healthy People 2010. Our objective was to examine whether an association exists between diabetes and tooth loss among a population reporting an annual dental visit.

We used data from the 2004 Behavioral Risk Factor Surveillance System to examine the association between self-reported diabetes and tooth removal due to decay or periodontal disease among 155,280 respondents reporting a dental visit within the past year. We calculated prevalence estimates, odds ratios, and 95% confidence intervals. Multiple logistic regression allowed for adjustment.

The overall prevalence of tooth removal among the people in the study was 38.3%. People with diabetes had a significantly higher prevalence of tooth removal. In a multivariable model adjusting for selected covariates, respondents with diabetes were 1.46 times as likely (95% CI, 1.30-1.64) to have at least one tooth removed than respondents without diabetes. A stronger association between diabetes and tooth loss was observed among people in the younger age groups than among those in the older age groups.

Even among people reporting a recent dental visit, diabetes was independently associated with tooth loss. Multidisciplinary efforts are needed to raise awareness of the risk of tooth loss among younger people with diabetes. Good oral hygiene as well as annual dental examinations are important for preventing tooth loss.

Full tekst vrij beschikbaar op:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1955413/pdf/PCD43A59.pdf>

Geraadpleegd op 14-11-2016

Lacopino, A.M., (2001). Periodontitis and diabetes interrelationships: Role of inflammation. *Annals of Periodontology*. 6, 125-137.

Abstract

Diabetes mellitus is a systemic disease with several major complications affecting both the quality and length of life. One of these complications is periodontal disease (periodontitis). Periodontitis is much more than a localized oral infection. Recent data indicate that periodontitis may cause changes in systemic physiology. The interrelationships between periodontitis and diabetes provide an example of systemic disease predisposing to oral infection, and once that infection is established, the oral infection exacerbates systemic disease. In this case, it may also be possible for the oral infection to predispose to systemic disease. In order to understand the cellular/molecular mechanisms responsible for such a cyclical association, one must identify common physiological changes associated with diabetes and periodontitis that produce a synergy when the conditions coexist. A potential mechanistic link involves the broad axis of inflammation, specifically immune cell phenotype, serum lipid levels, and tissue homeostasis. Diabetes-induced changes in immune cell function produce an inflammatory immune cell phenotype (upregulation of proinflammatory cytokines from monocytes/polymorphonuclear leukocytes and downregulation of growth factors from macrophages). This predisposes to chronic inflammation, progressive tissue breakdown, and diminished tissue repair capacity. Periodontal tissues frequently manifest these changes because they are constantly wounded by substances emanating from bacterial biofilms. Diabetic patients are prone to elevated low density lipoprotein cholesterol and triglycerides (LDL/TRG) even when blood glucose levels are well controlled. This is significant, as recent studies demonstrate that hyperlipidemia may be one of the factors associated with diabetes-induced immune cell alterations. Recent human studies have established a relationship between high serum lipid levels and periodontitis. Some evidence now suggests that periodontitis itself may lead to elevated LDL/TRG. Periodontitis-induced bacteremia/endotoxemia has been shown to cause elevations of serum proinflammatory cytokines such as interleukin-1 beta (IL-1 beta) and tumor necrosis factor-alpha (TNF-alpha), which have been demonstrated to produce alterations in lipid metabolism leading to hyperlipidemia. Within this context, periodontitis may contribute to elevated proinflammatory cytokines/serum lipids and potentially to systemic disease arising from chronic hyperlipidemia and/or increased inflammatory mediators. These cytokines can produce an insulin resistance syndrome similar to that observed in diabetes and initiate destruction of pancreatic beta cells leading to development of diabetes. Thus, there is potential for periodontitis to exacerbate diabetes-induced hyperlipidemia, immune cell alterations, and diminished tissue repair capacity. It may also be possible for chronic periodontitis to induce diabetes.

Full tekst vrij beschikbaar op:

<http://www.joponline.org/doi/pdf/10.1902/annals.2001.6.1.125>

Geraadpleegd op 14-11-2016

Mealey, B.L. & Oates, T.W., (2006). Diabetes Mellitus and periodontal diseases. *Journal of Periodontology*, 77, 1289-1303.

Abstract

The purpose of this review is to provide the reader with practical knowledge concerning the relationship between diabetes mellitus and periodontal diseases. Over 200 articles have been published in the English literature over the past 50 years examining the relationship between these two chronic diseases. Data interpretation is often confounded by varying definitions of diabetes and periodontitis and different clinical criteria applied to prevalence, extent, and severity of periodontal diseases, levels of glycemic control, and complications associated with diabetes.

This article provides a broad overview of the predominant findings from research published in English over the past 20 years, with reference to certain "classic" articles published prior to that time.

This article describes current diagnostic and classification criteria for diabetes and answers the following questions: 1) Does diabetes affect the risk of periodontitis, and does the level of metabolic control of diabetes have an impact on this relationship? 2) Do periodontal diseases affect the pathophysiology of diabetes mellitus or the metabolic control of diabetes? 3) What are the mechanisms by which these two diseases interrelate? and 4) How do people with diabetes and periodontal disease respond to periodontal treatment?

Diabetes increases the risk of periodontal diseases, and biologically plausible mechanisms have been demonstrated in abundance. Less clear is the impact of periodontal diseases on glycemic control of diabetes and the mechanisms through which this occurs. Inflammatory periodontal diseases may increase insulin resistance in a way similar to obesity, thereby aggravating glycemic control. Further research is needed to clarify this aspect of the relationship between periodontal diseases and diabetes

Full tekst vrij beschikbaar op:

<http://www.joponline.org/doi/pdf/10.1902/jop.2006.050459>

Geraadpleegd op 14-11-2016

Titel publicatie: [Relatie tussen parodontale gezondheid en algemene gezondheid 2. Vroeggeboorte, diabetes en auto-immuunziekten.](#)

Nesse, W., Spijkervet, F.K.L., Abbas, F. & Vissink, A. (2006). Relatie tussen parodontale gezondheid en algemene gezondheid 2. Vroeggeboorte, diabetes en auto-immuunziekten. *Nederlands tijdschrift voor Tandheelkunde*, 113, 191-196.

Abstract

The condition of the periodontium may effect people's general health. There is evidence of a correlation between periodontal disease and preterm birth or low birth weight. In pregnant women with periodontal disease, scaling and root planing seems to reduce the risk of preterm birth or low birth weight. Furthermore, periodontal disease appears to have an adverse effect on glycemic control in diabetics. However, periodontal treatment as a means to glycemic control is restricted unless it includes the use of systemic antibiotics. Slowly, a possible correlation between periodontal disease and autoimmune diseases is emerging. Further research into the correlations between periodontal disease and systemic health is desirable and might well result in new therapeutic options.

Full tekst vrij beschikbaar op:

<http://parsprototo.info/docs/Preterm%20birth,%20Diabetes%20and%20Auto-immune%20Diseases.pdf>

Geraadpleegd op 14-11-2016

Preshaw, P.M., Alba, A.L., Herrera, D., Jepsen, S., Konstantinidis, A., Makrilakis, K. & Taylor, R., (2012). Periodontitis and diabetes: a two-way relationship. *Diabetologia*, 55, 21-31.

Abstract

Periodontitis is a common chronic inflammatory disease characterised by destruction of the supporting structures of the teeth (the periodontal ligament and alveolar bone). It is highly prevalent (severe periodontitis affects 10-15% of adults) and has multiple negative impacts on quality of life. Epidemiological data confirm that diabetes is a major risk factor for periodontitis; susceptibility to periodontitis is increased by approximately threefold in people with diabetes. There is a clear relationship between degree of hyperglycaemia and severity of periodontitis. The mechanisms that underpin the links between these two conditions are not completely understood, but involve aspects of immune functioning, neutrophil activity, and cytokine biology. There is emerging evidence to support the existence of a two-way relationship between diabetes and periodontitis, with diabetes increasing the risk for periodontitis, and periodontal inflammation negatively affecting glycaemic control. Incidences of macroalbuminuria and end-stage renal disease are increased twofold and threefold, respectively, in diabetic individuals who also have severe periodontitis compared to diabetic individuals without severe periodontitis. Furthermore, the risk of cardiorenal mortality (ischaemic heart disease and diabetic nephropathy combined) is three times higher in diabetic people with severe periodontitis than in diabetic people without severe periodontitis. Treatment of periodontitis is associated with HbA(1c) reductions of approximately 0.4%. Oral and periodontal health should be promoted as integral components of diabetes management.

Full tekst vrij beschikbaar op:

<http://link.springer.com/article/10.1007%2Fs00125-011-2342-y>

Geraadpleegd op 14-11-2016

Titel publicatie: [Periodontal disease: associations with diabetes, glycemic control and complications.](#)

Taylor, G.W. & Borgnakke, W.S., (2008). Periodontal disease: associations with diabetes, glycemic control and complications. *Oral Diseases*, 14, 191-203.

Abstract

This report reviews the evidence for adverse effects of diabetes on periodontal health and periodontal disease on glycemic control and complications of diabetes.

MEDLINE search of the English language literature identified primary research reports published on (a) relationships between diabetes and periodontal diseases since 2000 and (b) effects of periodontal infection on glycemic control and diabetes complications since 1960.

Observational studies provided consistent evidence of greater prevalence, severity, extent, or progression of at least one manifestation of periodontal disease in 13/17 reports reviewed. Treatment and longitudinal observational studies provided evidence to support periodontal infection having an adverse effect on glycemic control, although not all investigations reported an improvement in glycemic control after periodontal treatment. Additionally, evidence from three observational studies supported periodontal disease increasing the risk for diabetes complications and no published reports refuted the findings.

The evidence reviewed supports diabetes having an adverse effect on periodontal health and periodontal infection having an adverse effect on glycemic control and incidence of diabetes complications. Further rigorous study is necessary to establish unequivocally that treating periodontal infections can contribute to glycemic control management and to the reduction of the burden of diabetes complications.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1601-0825.2008.01442.x/epdf>

Geraadpleegd op 14-11-2016

Teeuw, W.J., Gerdes, V.E.A. & Loos, B.G., (2010). Effect on periodontal treatment on glycemic control of diabetic patients. *Diabetes Care*, 2, 421-427.

Abstract

There is growing evidence that periodontitis may affect general health. This study was assigned to explore the robustness of observations that periodontal therapy leads to the improvement of glycemic control in diabetic patients.

A literature search (until March 2009) was carried out using two databases (MEDLINE and the Cochrane Library) with language restriction to English. Selection of publications was based on 1) original investigations, 2) controlled periodontal intervention studies where the diabetic control group received no periodontal treatment, and 3) study duration of ≥ 3 months.

Screening of the initial 639 identified studies and reference checking resulted in five suitable articles. A total of 371 patients were included in this analysis with periodontitis as predictor and the actual absolute change in A1C ($\Delta A1C$) as the outcome. The duration of follow-up was 3–9 months. All studies described a research population of type 2 diabetic patients in whom glycemic control improved after periodontal therapy compared with the control group (range $\Delta A1C$: $\Delta -1.17$ up to $\Delta -0.05\%$). The studies in a meta-analysis demonstrated a weighted mean difference of $\Delta A1C$ before and after therapy of -0.40% (95% CI -0.77 to -0.04% , $P = 0.03$) favoring periodontal intervention in type 2 diabetic patients. Nevertheless, this improvement in %A1C must be interpreted with care due to limited robustness as evidenced by heterogeneity among studies (59.5%, $P = 0.04$).

The present meta-analysis suggests that periodontal treatment leads to an improvement of glycemic control in type 2 diabetic patients for at least 3 months.

Full tekst vrij beschikbaar op:

<http://care.diabetesjournals.org/content/diacare/33/2/421.full.pdf>

Geraadpleegd op 14-11-2016

4. Luchtwegen infecties

Titel publicatie: [Systematic Review of the Association Between Respiratory Diseases and Oral Health](#).

Azarpazhooh, A., & Leake, J. (2006). Systematic Review of the Association Between Respiratory Diseases and Oral Health. *Journal of Periodontology*, 77, 1465-1482.

Abstract

The purpose of this review was to investigate evidence for a possible etiological association between oral health and pneumonia or other respiratory diseases.

The following data sources were used: Ovid MEDLINE (In-Process & Other Non-Indexed Citations, Daily Update, and OLDMEDLINE); Cumulative Index to Nursing & Allied Health Literature; Evidence Based Medicine of Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Database of Abstracts of Reviews of Effects; EMBASE; Health and Psychosocial Instruments; HealthSTAR; International Pharmaceutical Abstracts; PubMed; and Google Scholar from the earliest record until July 2005. Studies were selected from randomized controlled clinical trials and longitudinal, cohort, case-control, and epidemiological studies. Searches were limited to English language and human studies.

A total of 728 articles were searched for relevancy, determined by article title, abstract, and full copy, resulting in a yield of 19 studies that met our inclusion criteria. These articles were read and scored independently by the reviewers to obtain the evidence for this review: 1) the potential risk factors for pneumonia were identified as the presence of cariogenic and periodontal pathogens, dental decay, and poor oral hygiene in five studies; 2) a weak association between periodontal disease and chronic obstructive pulmonary disease (COPD) was identified in four poor to fair studies; and 3) 10 studies were retained providing evidence that interventions aiming to improve oral health reduced the progression or occurrence of pneumonia.

1) There is fair evidence (II-2, grade B recommendation) of an association of pneumonia with oral health (odds ratio [OR]=1.2 to 9.6 depending on oral health indicators). 2) There is poor evidence of a weak association (OR<2.0) between COPD and oral health (II-2/3, grade C recommendation). 3) There is good evidence (I, grade A recommendation) that improved oral hygiene and frequent professional oral health care reduces the progression or occurrence of respiratory diseases among high-risk elderly adults living in nursing homes and especially those in intensive care units (ICUs) (number needed to treat [NNT]=2 to 16; relative risk reduction [RRR]=34% to 83%).

Full tekst vrij beschikbaar op:

<http://www.joponline.org/doi/pdf/10.1902/jop.2006.060010>

Geraadpleegd op 14-11-2016

Titel publicatie: [Meta-analysis of dysphagia and aspiration pneumonia in frail elders.](#)

Maarel-Wierink, C.D., Vanobbergen, J.N.O., Bronkhorst, E.M., Schols, J.M.G.A., & Baat de, C. (2011) Meta-analysis of dysphagia and aspiration pneumonia in frail elders. *Journal of Dental Research*, 90, 1398-1404.

Abstract

As part of a systematic literature review, a comprehensive literature search was carried out to identify risk factors for aspiration pneumonia in frail older people. A prominent risk factor found was dysphagia with evidence level 2a, according to the Oxford Centre for Evidence-based Medicine Levels of Evidence. Subsequently, a meta-analysis of 4 cohort, 1 case-cohort, and 1 case-control study on dysphagia as a risk factor of aspiration pneumonia in frail older people was performed. Using a random effects model, we found a positive correlation between dysphagia and aspiration pneumonia: OR = 9.84; 95%CI = 4.15 - 23.33 (test for statistical homogeneity: $p < 0.001$). Then, a subgroup meta-analysis was performed with 4 cohort studies, all including patients with a cerebrovascular disease. Once again, a positive correlation was found between dysphagia and aspiration pneumonia: OR = 12.93; 95%CI = 8.61 - 19.44. The test for statistical homogeneity revealed no statistically significant result ($p = 0.15$). It was concluded that dysphagia is a serious risk factor for aspiration pneumonia in frail older people, particularly in those suffering from a cerebrovascular disease.

Full tekst vrij beschikbaar op:

<http://jdr.sagepub.com/content/90/12/1398.full.pdf+html>

Geraadpleegd op 14-11-2016

Titel publicatie: [Relatie tussen parodontale gezondheid en algemene gezondheid 1. Luchtweginfecties en hart- en vaatziekten.](#)

Nesse, W., Spijkervet, F.K.L., Abbas, F. & Vissink, A. (2006). Relatie tussen parodontale gezondheid en algemene gezondheid 1. Luchtweginfecties en hart- en vaatziekten. *Nederlands tijdschrift voor Tandheelkunde*, 113, 186-190.

Abstract

The possible link between oral and general health is based on an old concept. This paper summarizes current ideas on the role of translocation of oral pathogens to other parts of the body in the development of systemic disease. It appears that colonisation of the oral cavity by respiratory pathogens is a risk factor in the development of pneumonia in institutionalised elderly and intensive care patients. Using a chlorhexidine oral rinse may reduce the risk of pneumonia. Furthermore, periodontal disease is associated with an increased risk of cardiovascular disease. Translocation of oral microorganisms and an increase in serum concentrations of inflammatory mediators are considered to play a role in the development of cardiovascular disease. Potentially, preventive oral health care and periodontal intervention could play a part in preventing cardiovascular disease.

Full tekst vrij beschikbaar op:

<http://parsprototo.info/docs/Pneumonia%20and%20Cardiovascular%20Disease.pdf>

Geraadpleegd op 14-11-2016

Titel publicatie: [Prevention of aspiration pneumonia \(AP\) with oral care.](#)

Tada, A., & Miura, H. (2012). Prevention of aspiration pneumonia (AP) with oral care. *Archives of Gerontology and Geriatrics*, 55, 16-21.

Abstract

AP is a major cause of morbidity and mortality in elderly patients, especially frail elderly patients. The aim of this article is to review effect of oral care, including oral hygiene and improvement of oral function, on the prevention of AP among elderly people in hospitals and nursing homes. There is now a substantial body of work studying the effect of oral care on the prevention of respiratory diseases. Oral hygiene, consisting of oral decontamination and mechanical cleaning by dental professionals, has resulted in significant clinical effects (decreased incidence of pneumonia and decreased mortality from respiratory diseases) in clinical randomized trials. Moreover, studies examining oral colonization by pneumonia pathogens have shown the effect of oral hygiene on eliminating these pathogens. In addition, swallowing training has been shown to improve the movement and function of swallowing-related muscles, also resulting in decreased incidence of pneumonia. These findings support the contention that oral care is effective in the prevention of AP.

Full tekst vrij beschikbaar via:

<http://www.ncbi.nlm.nih.gov/pubmed/21764148>

Geraadpleegd op 14-11-2016

5. Reumatoïde artritis

Titel publicatie: [Periodontitis in systemic rheumatic diseases.](#)

De Pablo, P., Chapple, I.L., Buckley, C.D. & Dietrich, T. (2009). Periodontitis in systemic rheumatic diseases. *Nature Review Rheumatology*, 5, 218-224.

Abstract

Periodontitis is a chronic inflammatory disease that is characterized by loss of the periodontal ligament and alveolar bone, and is a major cause of tooth loss. Results from clinical and epidemiologic studies have suggested that periodontitis and tooth loss are more prevalent in individuals with rheumatoid arthritis (RA). However, the strength and temporality of the association are uncertain. Several biologically plausible causal and noncausal mechanisms might account for this association between periodontitis and RA. There is evidence to suggest that periodontitis could indeed be a causal factor in the initiation and maintenance of the autoimmune inflammatory response that occurs in RA. If proven, chronic periodontitis might represent an important modifiable risk factor for RA. In addition, patients with RA might show an increased risk of developing periodontitis and tooth loss through various mechanisms. Moreover, exposure to common genetic, environmental or behavioral factors might contribute to a noncausal association between both conditions.

<http://www.ncbi.nlm.nih.gov/pubmed/?term=19337286>

Geraadpleegd op 14-11-2016

Titel publicatie: [Relatie tussen parodontale gezondheid en algemene gezondheid 2. Vroeggeboorte, diabetes en auto-immuunziekten.](#)

Abstract

The condition of the periodontium may effect people's general health. There is evidence of a correlation between periodontal disease and preterm birth or low birth weight. In pregnant women with periodontal disease, scaling and root planing seems to reduce the risk of preterm birth or low birth weight. Furthermore, periodontal disease appears to have an adverse effect on glycemic control in diabetics. However, periodontal treatment as a means to glycemic control is restricted unless it includes the use of systemic antibiotics. Slowly, a possible correlation between periodontal disease and autoimmune diseases is emerging. Further research into the correlations between periodontal disease and systemic health is desirable and might well result in new therapeutic options.

Full tekst vrij beschikbaar op:

<http://parsprototo.info/docs/Preterm%20birth,%20Diabetes%20and%20Auto-immune%20Diseases.pdf>

Geraadpleegd op 14-11-2016

Titel publicatie: [Effect van parodontale behandeling op reumatoïde artritis en vice versa.](#)

Smit, M.J. de, Brouwer, E., Westra, J., Nesse, W., Vissink, A., & Winkelhoff, A.J. van. (2012). Effect van parodontale behandeling op reumatoïde artritis en vice versa. *Nederlands tijdschrift voor Tandheelkunde*, 119, 191-197.

Abstract

The pathogenesis of periodontitis and of rheumatoid arthritis show remarkable similarities. There is a distinct degree of co-existence between the 2 diseases. The prevalence of periodontitis is more pronounced in rheumatoid arthritis patients and the prevalence of rheumatoid arthritis is more pronounced in periodontitis patients. At present, a positive influence of periodontal treatment on the rheumatoid arthritis disease activity or of rheumatoid arthritis drug treatment on periodontitis is not sufficiently supported by clinical research. Periodontitis may play a role in unsatisfactory therapy response in some rheumatoid arthritis patients.

Full tekst vrij beschikbaar op:

<https://www.google.nl>

Op titel via Google rechtstreeks te vinden.

Geraadpleegd op 14-11-2016

6. Osteoporose

Titel publicatie: [Periodontitis in systemic rheumatic diseases.](#)

De Pablo, P., Chapple, I.L., Buckley, C.D. & Dietrich, T. (2009). Periodontitis in systemic rheumatic diseases. *Nature Review Rheumatology*, 5, 218-224.

Abstract

Periodontitis is a chronic inflammatory disease that is characterized by loss of the periodontal ligament and alveolar bone, and is a major cause of tooth loss. Results from clinical and epidemiologic studies have suggested that periodontitis and tooth loss are more prevalent in individuals with rheumatoid arthritis (RA). However, the strength and temporality of the association are uncertain. Several biologically plausible causal and noncausal mechanisms might account for this association between periodontitis and RA. There is evidence to suggest that periodontitis could indeed be a causal factor in the initiation and maintenance of the autoimmune inflammatory response that occurs in RA. If proven, chronic periodontitis might represent an important modifiable risk factor for RA. In addition, patients with RA might show an increased risk of developing periodontitis and tooth loss through various mechanisms. Moreover, exposure to common genetic, environmental or behavioral factors might contribute to a noncausal association between both conditions.

<http://www.ncbi.nlm.nih.gov/pubmed/?term=19337286>

Geraadpleegd op 14-11-2016

Titel publicatie: [Periodontal disease and osteoporosis association and mechanisms: A review of the literature.](#)

Marques, M.R., Silva, M.A.D. da & Barros, S.P., (2003) Periodontal disease and osteoporosis association and mechanisms: A review of the literature. *Brazilian Journal of Oral Sciences*. 4, 137-140.

Abstract

Periodontitis and osteoporosis, diseases that affect millions of people in world, present bone loss as common hallmark. Prevalence of both osteoporosis and tooth loss increase with advancing age in both women and men. Systemic bone loss has been proposed as a risk factor for periodontal disease with increasing evidences that osteoporosis, and the underlying loss of bone mass characteristic of this disease, is associated with periodontal disease and tooth loss. Periodontitis has long been defined as an infection-mediated destruction of the alveolar bone and soft tissue attachment to the tooth, responsible for most tooth loss in adult populations. Current evidences including several prospective studies support an association of osteoporosis with the onset and progression of periodontal disease in humans. Systemic loss of bone density in osteoporosis, including that of the jaw, may provide a host system that is increasingly susceptible to infectious destruction of periodontal tissue. Studies have provided evidence that hormones, heredity, and other host factors influence periodontal disease's incidence and severity. This paper reviews the role of estrogen deficiency and osteoporosis in oral bone healthy and the current evidences on the association between periodontal disease and osteoporosis.

Full tekst vrij beschikbaar op:

<http://periodicos.sbu.unicamp.br/ojs/index.php/bjos/article/view/8641660>

Klikken op: Texto completo:

[REMOTE \(ENGLISH\)](#)

Geraadpleegd op 14-11-2016

Wactawski- Wense, J. (2001) Periodontal diseases and osteoporosis: association and mechanisms. *Annual Periodontology*. 6, 287-208.

Abstract

There is increasing evidence that osteoporosis, and the underlying loss of bone mass characteristic of this disease, is associated with periodontal disease and tooth loss. Periodontitis has long been defined as an infection-mediated destruction of the alveolar bone and soft tissue attachment to the tooth, responsible for most tooth loss in adult populations. Current evidence including several prospective studies supports an association of osteoporosis with the onset and progression of periodontal disease in humans. The majority of studies have shown low bone mass to be independently associated with loss of alveolar crestal height and tooth loss. However studies that focus on the relation of clinical attachment loss and osteoporosis are less consistent. To date, the majority of studies on the relationship between periodontal disease and osteoporosis have been hindered by small sample sizes, limited control of other potential confounding factors, varying definitions of both periodontal disease and osteoporosis, and few prospective studies where the temporality of the association can be established. Potential mechanisms by which host factors may influence onset and progression of periodontal disease directly or indirectly include underlying low bone density in the oral cavity, bone loss as an inflammatory response to infection, genetic susceptibility, and shared exposure to risk factors. Systemic loss of bone density in osteoporosis, including that of the oral cavity, may provide a host system that is increasingly susceptible to infectious destruction of periodontal tissue. Studies have provided evidence that hormones, heredity, and other host factors influence periodontal disease incidence and severity. Both periodontal disease and osteoporosis are serious public-health concerns in the United States. Prevalence of both osteoporosis and tooth loss increase with advancing age in both women and men. Understanding the association between these common diseases and the mechanisms underlying those associations will aid health professionals to provide improved means to prevent, diagnose, and treat these very common diseases. This paper reviews the current evidence on the association between periodontal disease and osteoporosis.

Full tekst vrij beschikbaar op:

<http://www.joponline.org/doi/pdf/10.1902/annals.2001.6.1.197>

Geraadpleegd op 14-11-2016

7. Nierziekten

Titel publicatie: [Periodontal disease and decreased kidney function in japanese Eldery.](#)

Iwasaki, M., Taylor, G.W., Nesse, W., Vissink, A., Yoshihara, A. & Miyazaki, H. (2012). Periodontal disease and decreased kidney function in japanese Eldery. *American Journal of Kidney Diseases*, 59, 202-209.

Abstract

Early detection of decreased kidney function can help prevent the progression of kidney disease to kidney failure and cardiovascular events. Potentially significant associations between kidney function and periodontal disease have been reported in cross-sectional studies. However, no longitudinal study has been performed and no study has been performed in Japan. The aim of this longitudinal study was to investigate the effect of periodontal disease on kidney function in community-dwelling Japanese elderly.

Retrospective cohort. Members of this cohort were drawn from a longitudinal interdisciplinary study of aging. Included for this analysis were 317 participants (166 men, 151 women) aged 75 years in 2003. The periodontal inflamed surface area (PISA), reflecting the amount of inflamed periodontal tissue, was calculated for each participant. Participants were classified in quartile groups according to PISA, then divided into 2 groups (highest quartile vs the other 3 groups combined). The primary outcome for the analysis was decreased kidney function, defined as a decrease in estimated glomerular filtration rate at follow-up. Multivariable logistic regression analyses were performed to predict decreased kidney function on the basis of periodontal status, risk factors for kidney disease, and other potentially relevant covariates.

During the 2-year follow-up (2003-2005), 45 participants (14.2%) developed decreased kidney function. The highest PISA quartile was associated significantly with a greater cumulative incidence of decreased kidney function (OR, 2.24; 95% CI, 1.05-4.79) than the referent group (the other 3 quartiles) after adjusting for covariates. Extension of interpreting the findings to other age groups is limited.

These results suggest that periodontal disease may be a risk factor for decreased kidney function in Japanese elderly.

<http://www.ncbi.nlm.nih.gov/pubmed/22001179>

Geraadpleegd op 14-11-2016

8. Neurodegeneratie/ dementie

Titel publicatie: [Dementia](#).

Kester, M., (2009) Dementia. Neurology in practice. 9, 241-251.

Abstract

Dementia is a syndrome characterised by progressive deterioration of cognitive function, most commonly of memory, but other domains such as language, praxis, visual perception and most notably executive function are also often affected. Most of the causes of this syndrome are progressive, but not invariably so. As cognitive function worsens, there is increasing interference with the patients' daily activities leading to loss of independence and eventually for some the need for nursing home care. The patients usually survive 5–10 years.

Dementia is common and already places a tremendous burden, not only on patients and their carers, but also on society, a burden that will increase as life expectancy increases. Because of these worrying facts and the development of the first symptomatic treatments, dementia is of growing interest to medical professionals and the public. Furthermore, because disease modifying treatments may be on the horizon, it is ever more important to understand the pathophysiology of the different causes and types of dementia, and to make the diagnosis early—it will probably be easier to stop the damage than to undo it.

<http://pn.bmj.com/content/9/4/241.short>

Geraadpleegd op 14-11-2016

Titel publicatie: [Oral health and orofacial pain in older people with dementia: a systematic review with focus on dental hard tissues.](#)

Delwel, S., Binnekade, T.T., Perez, R.S.G.M. Hertogh, C.M.P.M., Scherder, E. J. A. & Lobbezo, F., (2016) Oral health and orofacial pain in older people with dementia: a systematic review with focus on dental hard tissues. *Clinical Oral Investigations*. DOI: [10.1007/s00784-016-1934-9](#)

Abstract

The aim of this review was to provide a systematic overview including a quality assessment of studies about oral health and orofacial pain in older people with dementia, compared to older people without dementia.

A systematic literature search was performed in PubMed, CINAHL, and the Cochrane Library. The following search terms were used: dementia and oral health or stomatognathic disease. The quality assessment of the included articles was performed using the Newcastle-Ottawa Scale (NOS).

The search yielded 527 articles, of which 37 were included for the quality assessment and quantitative overview. The median NOS score of the included studies was 5, and the mean was 4.9 (SD 2.2). The heterogeneity between the studies was considered too large to perform a meta-analysis. An equivalent prevalence of orofacial pain, number of teeth present, decayed missing filled teeth index, edentulousness percentage, and denture use was found for both groups. However, the presence of caries and retained roots was higher in older people with dementia than in those without.

Older people with dementia have worse oral health, with more retained roots and coronal and root caries, when compared to older people without dementia. Little research focused on orofacial pain in older people with dementia.

The current state of oral health in older people with dementia could be improved with oral care education of caretakers and regular professional dental care.

Full tekst vrij beschikbaar op:

<http://link.springer.com/article/10.1007%2Fs00784-016-1934-9>

Geraadpleegd op 14-11-2016

Lees, A., (2010) Parkinson's disease. *Neurology in practice*. 10, 240-246.

Abstract

Parkinson's disease is a progressive neurodegenerative disorder characterised by slowness of initiation of, and a progressive reduction in, the speed and amplitude of sequential movements (ie, motor decrement or decay), with muscular rigidity and a coarse slow pill rolling rest tremor. The pathological signature most frequently associated with this clinical picture is severe loss of pigmented neurons in the ventrolateral tier of the pars compacta of the substantia nigra with the presence of distinctive α synuclein immunoreactive inclusions in surviving nigral neurons (Lewy bodies).

<http://pn.bmj.com/content/10/4/240.extract?sid=bb36786f-012e-460f-95a3-9edde994c56d>

Geraadpleegd op 14-11-2016

Titel publicatie: [Poor oral health as a chronic, potentially modifiable dementia risk factor: review of the literature.](#)

Noble, J.M. , Scarmeas, N., Papapanou, P.N. (2013) Poor oral health as a chronic, potentially modifiable dementia risk factor: review of the literature. *Current Neurology and Neuroscience Reports*. 13, 384

Abstract

Poor oral health, including caries, tooth loss, and periodontitis, is ubiquitous worldwide, and is potentially treatable and preventable. Like adverse oral health conditions, Alzheimer disease and related disorders are also very common among aging populations. Established risk factors for Alzheimer disease include cerebrovascular disease and its vascular risk factors, many of which share associations with evidence of systemic inflammation also identified in periodontitis and other poor oral health states. In this review, we present epidemiologic evidence of links between poor oral health and both prevalent and incident cognitive impairment, and review plausible mechanisms linking these conditions, including evidence from compelling animal models. Considering that a large etiologic fraction of dementia remains unexplained, these studies argue for further multidisciplinary research between oral health conditions, including translational, epidemiologic, and possibly clinical treatment studies.

Full tekst vrij beschikbaar op:

<http://link.springer.com/article/10.1007%2Fs11910-013-0384-x>

Geraadpleegd op 14-11-2016

Titel publicatie: [Association Between Oral Health and Cognitive Status: A Systematic Review.](#)

Wu, B., Fillenbaum, G.G., Plassman, B.L., Guo, L., (2016) Association Between Oral Health and Cognitive Status: A Systematic Review. *Journal American Geriatrics Society.* 4, 739-751.

Abstract

To systematically review longitudinal studies examining the association between oral health and cognitive decline.

Studies published between January 1993 and March 2013 were identified by search of English language publications in PubMed/Medline using relevant Medical Subject Heading terms and title and abstract keywords and from CINAHL using relevant subject headings. After applying eligibility criteria and adding four studies identified from article references, 56 of the 1,412 articles identified remained; 40 were cross-sectional, and 16 were longitudinal; 11 of the latter examined the effect of oral health on change in cognitive health or dementia incidence, five examined the reverse.

Sources of information included administrative data, subject evaluations in parent studies, medical and dental records, self-reports, and in-person evaluations.

Most studies used subjects whose oral or cognitive status was known, using standard approaches to impute for missing information. The oral health information most frequently studied included number of teeth, periodontal and caries problems, and denture use. Cognition was most frequently evaluated using the Mini-Mental State Examination or according to a diagnosis of dementia.

Some studies found that oral health measures such as number of teeth and periodontal disease were associated with risk of cognitive decline or incident dementia, whereas others did not find an association. Similarly, cognitive decline was not consistently associated with greater loss of teeth or number of decayed teeth. It is likely that methodological limitations play a major role in explaining the inconsistent findings.

It is unclear how or whether oral health and cognitive status are related. Additional research is needed in which there is greater agreement on how oral health and cognitive states are assessed to better examine the linkages between these two health outcomes.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/jgs.14036/epdf>

Geraadpleegd op 14-11-2016

9. Kauwfunctie

Titel publicatie: [Association between dental status and incident disability in an older Japanese population.](#)

Aida, J., Kondo, K., Hirai, H., Nakade, M., Yamamoto, T., Hanibuchi, T., Osaka, K., Sheiham, A., Tsakos, G. & Watt, R. (2012). Association between dental status and incident disability in an older Japanese population. *Jags*, 60, 338-343.

Abstract

To determine the association between dental health status and onset of functional disability in older Japanese people.

Prospective cohort study.

Four thousand four hundred twenty-five community-dwelling individuals aged 65 and over.

The outcome measure was the onset of functional disability based on public records of people receiving long-term care insurance benefits, determined through a standardized multistep assessment of functional and cognitive impairment including a personal interview and an examination by a physician. Disability data were analyzed for 4,425 respondents during 2003 to 2007. Self-reported number of remaining teeth and eating ability were used as measures of dental health status. Age, sex, body mass index, self-rated health, present illness, smoking, alcohol, exercise, and equivalent income were used as covariates.

In the age- and sex-adjusted Cox proportional hazard models, there were significant associations between number of remaining teeth, eating ability, and onset of disability. After adjusting for sociodemographic, behavioral, and health status variables, respondents with 19 or fewer teeth had a significant 1.21 (95% confidence interval = 1.06-1.40) times higher hazard ratio for the onset of functional disability. In contrast, eating ability was not significantly associated with the onset of disability.

Poor dental status was associated with a higher risk of onset of functional disability in older Japanese people. Sociodemographic, behavioral, and health status covariates explained the association between eating ability and onset of disability.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1532-5415.2011.03791.x/epdf>

Geraadpleegd op 14-11-2016

Kester, M., (2009) Dementia. *Neurology in practice*. 9, 241-251.

Abstract

Dementia is a syndrome characterised by progressive deterioration of cognitive function, most commonly of memory, but other domains such as language, praxis, visual perception and most notably executive function are also often affected. Most of the causes of this syndrome are progressive, but not invariably so. As cognitive function worsens, there is increasing interference with the patients' daily activities leading to loss of independence and eventually for some the need for nursing home care. The patients usually survive 5–10 years.

Dementia is common and already places a tremendous burden, not only on patients and their carers, but also on society, a burden that will increase as life expectancy increases. Because of these worrying facts and the development of the first symptomatic treatments, dementia is of growing interest to medical professionals and the public. Furthermore, because disease modifying treatments may be on the horizon, it is ever more important to understand the pathophysiology of the different causes and types of dementia, and to make the diagnosis early—it will probably be easier to stop the damage than to undo it.

<http://pn.bmj.com/content/9/4/241.short>

Geraadpleegd op 14-11-2016

Scherder, E., Eggermont, L., Swaab, D., Heuvelen, M.van, Kamska, Y., Greef, M.de, Wijck, R. van & Mulder, T. (2007). Gait in ageing and associated dementias; its relationship with cognition. *Neuroscience and Biobehavioral Reviews*. 31, 485-497.

Abstract

The focus of this review is on the close relationship between gait and cognition in ageing and associated dementias. This close relationship is supported by epidemiological studies, clinical studies of older people with and without dementia that focused on the intensity of the physical activity, clinical studies with older persons without dementia examining a relationship between gait and specific cognitive processes, and human and animal experimental studies examining a neural basis for such a relationship. Despite these findings, most studies with patients with dementia focus exclusively on the relationship between cognition and dementia, with relatively few addressing the relationship between gait and dementia. However, subtle disturbances in gait can be observed in ageing and in (preclinical) subtypes of dementia that are not known for prominent motor disturbances, i.e. Mild Cognitive Impairment, Alzheimer's Disease, vascular Cognitive Impairment No Dementia, Subcortical Ischaemic Vascular Dementia, Frontotemporal Mild Cognitive Impairment, and Frontotemporal Dementia, supporting a close relationship between gait and cognition. The relationship between gait and cognition is weakened by the few available intervention studies that examine the effects of walking on cognition in patients with (preclinical) dementia. These studies report equivocal results, which will be discussed. Finally, suggestions for future research will be made.

Full tekst vrij beschikbaar op:

<http://www.sciencedirect.com/science/article/pii/S0149763406001424>

Geraadpleegd op 14-11-2016

Titel publicatie: [Functional status of masticatory system, executive function and episodic memory in older persons.](#)

Scherder, E., Postuma, W., Bakker, T., Vuijk, P.J. & Lobbezoo, F. (2008). Functional status of masticatory system, executive function and episodic memory in older persons. *Journal of Oral Rehabilitation*. 35, 324-336.

Abstract

Findings from human experimental studies suggest that mastication positively influences cognitive function. The participants in those studies were relatively young. The goal of this study was to examine the relationship between the functional status of the masticatory system, episodic memory, and executive functions in elderly people. The participants, elderly people living independently at home, were divided into two groups. One group had a full complement of natural teeth (n = 19) and the other group had full dentures (n = 19). The functional status of the masticatory system was assessed by measuring mandibular excursions (i.e. the distances over which the mandible can move in the open, lateral, and forward directions), bite force, number of occluding pairs and complaints of the masticatory system (facial pain, headaches/migraine). Executive functions and episodic memory were assessed by neuropsychological tests. Backward regression analysis showed that only in the group of elderly people with full dentures, 22% of executive functions were predicted by complaints of the masticatory system and 19.4% of episodic memory was predicted by masticatory performance (composed of mandibular excursions and bite force). The conclusion of this study is that only in older persons with full dentures the relationship between mastication, episodic memory, and executive function becomes evident when the functional status of the masticatory system decreases.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2842.2007.01842.x/abstract>

Geraadpleegd op 14-11-2016

10. Ondervoeding

Titel publicatie: [Calcium and vitamin D supplements reduce tooth loss in the elderly.](#)

Krall, E.A., Wehler, C. Garcia, R.I., Haris S.S. & Dawson-Hughes, B. (2001) Calcium and vitamin D supplements reduce tooth loss in the elderly. *The American Journal of Medicine*. 111. 452-456.

Abstract

Oral bone and tooth loss are correlated with bone loss at nonoral sites. Calcium and vitamin D supplementation slow the rate of bone loss from various skeletal sites, but it is not known if intake of these nutrients affects oral bone and, in turn, tooth retention.

Tooth loss was examined in 145 healthy subjects aged 65 years and older who completed a 3-year, randomized, placebo-controlled trial of the effect of calcium and vitamin D supplementation on bone loss from the hip, as well as a 2-year follow-up study after discontinuation of study supplements. Teeth were counted at 18 months and 5 years. A comprehensive oral examination at 5 years included assessment of caries, oral hygiene, and periodontal disease. The odds ratio (OR) and 95% confidence interval (CI) of tooth loss were estimated by stepwise multivariate logistic regression. Initial age (mean +/- SD) of subjects was 71 +/- 5 years, and the number of teeth remaining was 22 +/- 7.

During the randomized trial, 11 of the 82 subjects (13%) taking supplements and 17 of the 63 subjects (27%) taking placebo lost one or more teeth (OR = 0.4; 95% CI: 0.2 to 0.9). During the 2-year follow-up period, 31 of the 77 subjects (40%) with total calcium intake of at least 1000 mg per day lost one or more teeth compared with 40 of the 68 subjects (59%) who consumed less (OR = 0.5; 95% CI: 0.2 to 0.9).

These findings suggest that intake levels of calcium and vitamin D aimed at preventing osteoporosis have a beneficial effect on tooth retention.

<http://www.ncbi.nlm.nih.gov/pubmed/11690570>

Geraadpleegd op 14-11-2016

11. Vervroegde mortaliteit

Titel publicatie: [The association of dental plaque with cancer mortality in Sweden.](#)

Söder, B., Yakob, M., Meurman, J.H., Andersson, L.C. & Söder, P. (2012). The association of dental plaque with cancer mortality in Sweden. A longitudinal study. *BMJ Open*, 2, 1-5.

Abstract

To study whether the amount of dental plaque, which indicates poor oral hygiene and is potential source of oral infections, associates with premature death from cancer.

Prospective cohort study.

1390 randomly selected healthy young Swedes followed up from 1985 to 2009. All subjects underwent oral clinical examination and answered a questionnaire assessing background variables such as socioeconomic status and smoking.

Causes of death were recorded from national statistics and classified according to the WHO International Classification of Diseases. Unpaired t test, χ^2 tests and multiple logistic regressions were used.

Of the 1390 participants, 4.2% had died during the follow-up. Women had died at a mean age of 61.0 (± 2.6 SD) years and men at the age of 60.2 (± 2.9 SD) years. The amount of dental plaque between those who had died versus survived was statistically significant ($p < 0.001$). In multiple logistic regression analysis, dental plaque appeared to be a significant independent predictor associated with 1.79 times the OR of death ($p < 0.05$). Age increased the risk with an OR of 1.98 ($p < 0.05$) and gender (men) with an OR of 1.91 ($p < 0.05$). The malignancies were more widely scattered in men, while breast cancer was the most frequent cause of death in women.

This study hypothesis was confirmed by showing that poor oral hygiene, as reflected in the amount of dental plaque, was associated with increased cancer mortality.

Full tekst vrij beschikbaar op:

<http://bmjopen.bmj.com/content/2/3/e001083.full.pdf+html>

Geraadpleegd op 14-11-2016

12. Overige mogelijke relaties:

Titel publicatie: [Relatie tussen parodontale gezondheid en algemene gezondheid 2. Vroeggeboorte, diabetes en auto-immuunziekten.](#)

Nesse, W., Spijkervet, F.K.L., Abbas, F. & Vissink, A. (2006). Relatie tussen parodontale gezondheid en algemene gezondheid 2. Vroeggeboorte, diabetes en auto-immuunziekten. *Nederlands tijdschrift voor Tandheelkunde*, 113, 191-196.

Abstract

The condition of the periodontium may effect people's general health. There is evidence of a correlation between periodontal disease and preterm birth or low birth weight. In pregnant women with periodontal disease, scaling and root planing seems to reduce the risk of preterm birth or low birth weight. Furthermore, periodontal disease appears to have an adverse effect on glycemic control in diabetics. However, periodontal treatment as a means to glycemic control is restricted unless it includes the use of systemic antibiotics. Slowly, a possible correlation between periodontal disease and autoimmune diseases is emerging. Further research into the correlations between periodontal disease and systemic health is desirable and might well result in new therapeutic options.

Full tekst vrij beschikbaar op:

<http://parsprototo.info/docs/Preterm%20birth,%20Diabetes%20and%20Auto-immune%20Diseases.pdf>

Geraadpleegd op 14-11-2016

13. Risico's voor ouderen

Titel publicatie: [Aging, frailty and age-related diseases.](#)

Fulop, T., Larbi, A., Witkowski, J.M., McElhane, J., Loeb, M., Mitniski, A. & Pawelec, G. (2010) Aging, frailty and age-related diseases. *Biogerontology*. 11, 547-563.

Abstract

The concept of frailty as a medically distinct syndrome has evolved based on the clinical experience of geriatricians and is clinically well recognizable. Frailty is a nonspecific state of vulnerability, which reflects multisystem physiological change. These changes underlying frailty do not always achieve disease status, so some people, usually very elderly, are frail without a specific life threatening illness. Current thinking is that not only physical but also psychological, cognitive and social factors contribute to this syndrome and need to be taken into account in its definition and treatment. Together, these signs and symptoms seem to reflect a reduced functional reserve and consequent decrease in adaptation (resilience) to any sort of stressor and perhaps even in the absence of extrinsic stressors. The overall consequence is that frail elderly are at higher risk for accelerated physical and cognitive decline, disability and death. All these characteristics associated with frailty can easily be applied to the definition and characterization of the aging process per se and there is little consensus in the literature concerning the physiological/biological pathways associated with or determining frailty. It is probably true to say that a consensus view would implicate heightened chronic systemic inflammation as a major contributor to frailty. This review will focus on the relationship between aging, frailty and age-related diseases, and will highlight possible interventions to reduce the occurrence and effects of frailty in elderly people.

Full tekst vrij beschikbaar op:

<http://link.springer.com/article/10.1007%2Fs10522-010-9287-2>

Geraadpleegd op 14-11-2016

Friedman, P.K., Lamster, I.B. (2016) Tooth loss as a predictor of shortened longevity: exploring the hypothesis. *Periodontology 2000*. 72, 142-152.

Abstract

Many factors contribute to human tooth loss, including oral hygiene practices, trauma, smoking, health status, socio-economic status and individual preferences. Loss of teeth impairs quality-of-life measures, including the eating of most foods that require full masticatory function. A recent study of centenarians found that at age 65–74 years, those who lived to be 100 had a lower rate of edentulism than did younger members of their birth cohort at ages 65–74 years. Oral health was consistent with compression of morbidity toward the end of life. This article explores the hypothesis that factors associated with oral disease and noncommunicable diseases may increase the risk of tooth loss and lead to diminished longevity as a result of multifactorial interactions. It specifically addresses two critical questions. The first is: ‘Can we conclude that the number of teeth in aging humans can affect longevity and life expectancy?’ The answer is yes. The second is: ‘Is tooth loss a predictor of shortened longevity?’ Again, the answer is yes. Edentulism and partial edentulism are discussed as a disability, and how the philosophy/belief systems of dental providers and patients toward retaining teeth influences the outcome of tooth loss is also examined. Osteoporosis and cognitive impairment provide examples of modifying risk factors.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/prd.12128/epdf>

Geraadpleegd op 14-11-2016

Putten, G. van der, Baat, C. de, Visschere, L. de & Schols, J. (2014). Poor oral health, a potential new geriatric syndrome. *Gerodontology*, 31, 17-24.

Abstract

This article presents a brief introduction to the medical aspects of ageing and age-related diseases, and to some geriatric syndromes, followed by a discussion on their impact on general and oral healthcare provision to community-dwelling older people. Recent investigations suggest that inflammation constitutes a biological foundation of ageing and the onset of age-related diseases. Multimorbidity and polypharmacy, together with alterations in pharmacokinetics and pharmacodynamics, make older people at risk of adverse medication reactions. A side effect of several medications is causing xerostomia and hyposalivation, and both the type and number of medications used are relevant. New options of general healthcare provision to community-dwelling older people are the use of mobility aids and assistive technology devices, domiciliary health care, respite care and telecare. Their oral health status may be jeopardised by frailty, disability, care dependency and limited access to professional oral health care. Recommendations for improvement are the following: better integrating oral health care into general health care, developing and implementing an oral healthcare guideline, providing customised oral hygiene care aids, domiciliary oral healthcare provision, visiting dental hygienists and/or nurses, oral hygiene telecare, easily and safely accessible dental offices, transforming dentistry into medical oral health care and upgrading dentists to oral physicians. In case oral healthcare providers do not take the responsibility of persuading society of the importance of adequate oral health, weakened oral health of community-dwelling older people will become a potential new geriatric syndrome.

Full tekst vrij beschikbaar op:

<http://onlinelibrary.wiley.com/doi/10.1111/ger.12086/epdf>

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