Periodontitis and bidirectional relation with systemic diseases

Author

Manakil, Jane

Published

2011

Conference Title

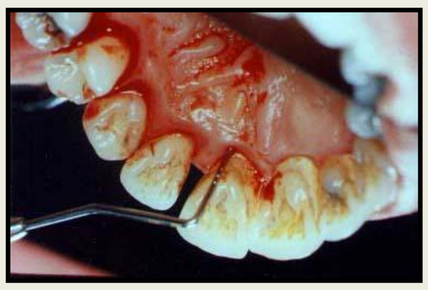
Gold Coast Health and Medical Research Conference

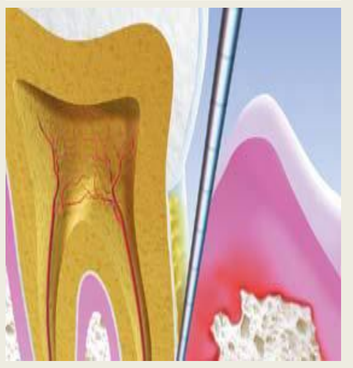
Periodontitis and the bi-directional relation with systemic disease

Periodontitis refers to a number of inflammatory diseases affecting the periodontium , which is the tissues that surround and support the teeth. Periodontitis involves progressive loss of the alveolar bone around the teeth, and in susceptible individuals if left untreated, can lead to teeth loss and adverse systemic impact. Etio-pathogenesis of Periodontitis is a complex result of pathogens that surround the cervical teeth structure and invade into the connective tissue, along with an overly aggressive or compromised immune response against these microorganism influenced by the genetic factors. A diagnosis of periodontitis is established by inspecting the gingiva by clinical examination of the tissue around the teeth with a probe and x-ray by visual analysis, to determine the amount of bone presence(amount lost) around the teeth.









The 1999 AAP classification system for periodontal diseases and conditions listed seven major categories of destructive periodontal diseases. The seven categories are as follows:

1. Chronic periodontitis
2. Localised aggressive periodontitis
3. Generalised aggressive periodontitis
4. Periodontitis as a manifestation of systemic disease and /or associated with genetic disorders
5. Necrotising ulcerative gingivitis/ periodontitis
6. Abscess of Gingiva / Periodontium
7. Combined periodontic- endodontic lesions

Intra –oral Signs & symptoms

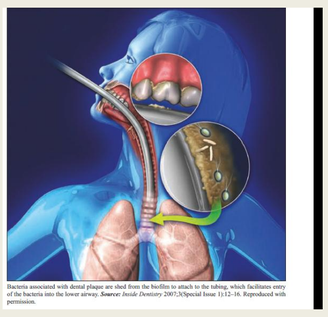
In the early stages, periodontal disease (PD) the symptoms in many individuals cause minimal discomfort , these delays the patient seeking any treatment,
until disease has progressed significantly in susceptible individuals.
Common symptoms of inflammation
1.Redness or bleeding while brushing from the gingiva, or using dental floss or biting into hard food
2. Swelling of gingiva
3. excess bleeding with sensitive gingiva as disease progresses.
4. Oral Malodor, or bad breath, and a persistent metallic taste in the mouth.
5. Gingival recession, resulting in apparent lengthening of teeth.
6.Deep pockets between the teeth, sites where the attachment has been gradually destroyed by collagen-destroying enzymes & bone loss
7. Loose teeth, in the later stages

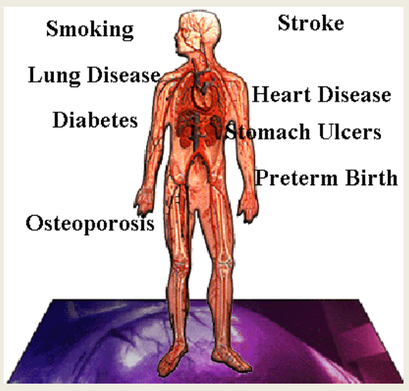
Chief pathogens in Periodontitis are:
P. Gingivalis, Tanerrella forsythia, Aggregatibacter actinomycetecomitans, Treponema denticola, F.nucleatum, Prevotella intermedia.
Recent studies concluded that specific pathogen-host response is influenced by differential regulation of gene or protein expression. While all perio- pathogens induce a common core of differentially regulated gene for an inflammatory response, the major cellular response is regulated by the genetic profile of a specific pathogen and susceptibility of the host. There is considerable ongoing efforts to understand the aetiology and pathogenesis of PDs, both individually and related to systemic disease. Therapeutic approaches which can offer early intervention and prevention are still an ongoing effort while some investigation into safe host-modulation appears promising.

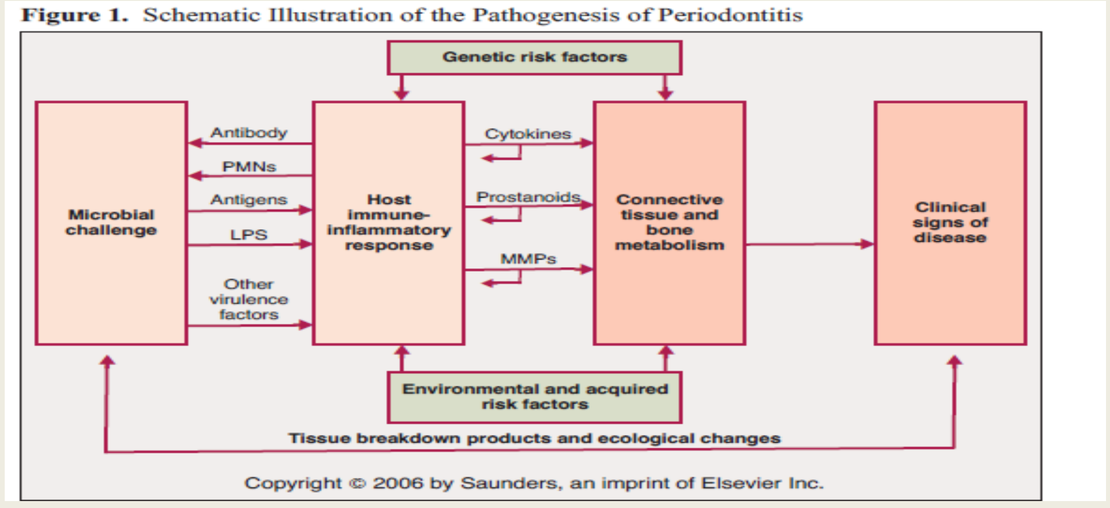
Systemic bidirectional effect of Periodontal disease

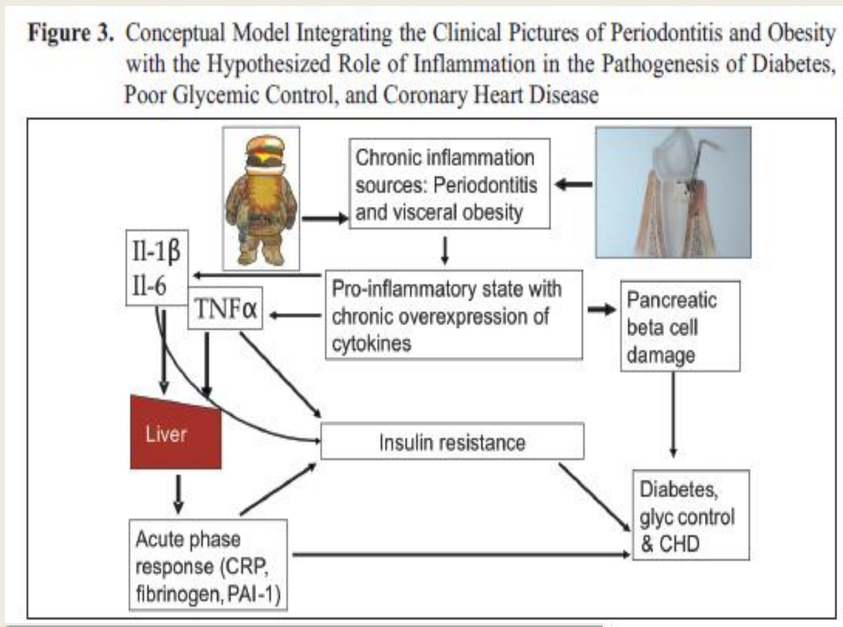
Periodontitis has been linked to increased inflammation in the body such as indicated by raised levels of C-reactive protein, other chemokines and cytokines. It is through this Host modulation Periodontitis is implicated as having a bidirectional effect on

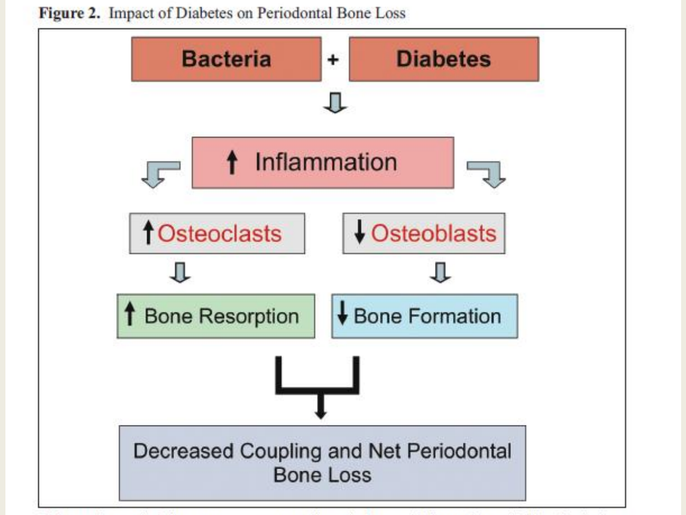
1. cardiovascular diseases,
2. diabetes mellitus,
3. osteoporosis,
4. hematologic disorder,
5. immune system disorders,
6. gastrointestinal disorders,
7. rheumatoid arthritis,
8. pulmonary diseases
9. adverse pregnancy outcomes.


Bacteria associated with dental plaque are shed from the biofilm to attach to the tubing, which facilitates entry of the bacteria into the lower airway. *Source: Inside Dentistry* 2007;3(Special Issue 1):12–16. Reproduced with permission.

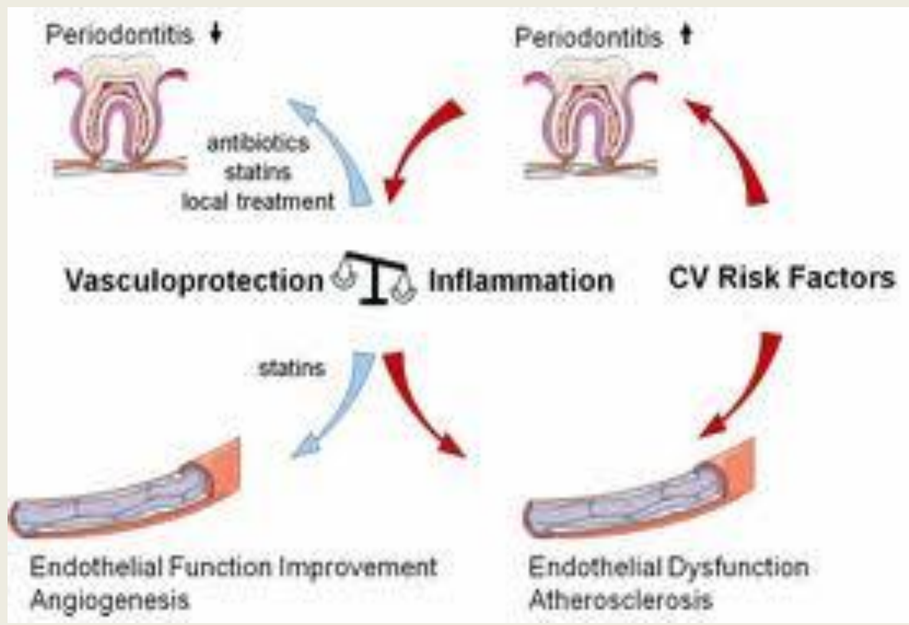








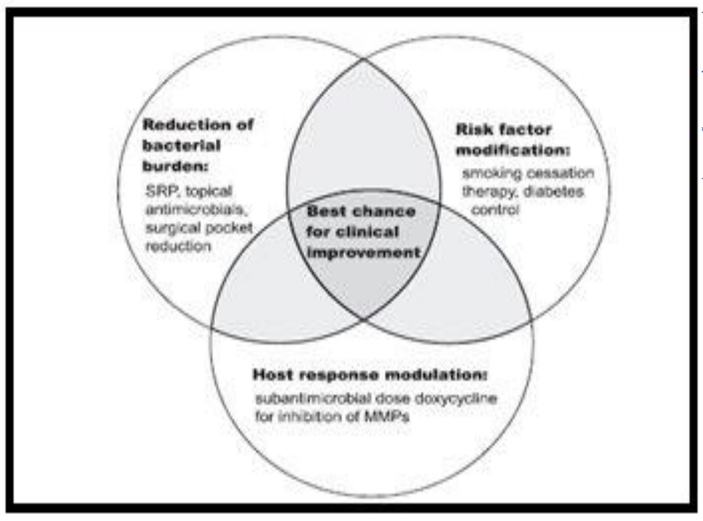
Diabetes enhances the inflammatory response to oral bacteria. Increased inflammation could affect alveolar bone by increasing resorption as well as inhibiting bone formation, resulting in uncoupling and greater net bone loss. One of the mechanisms of diminished bone formation is through reduced numbers of osteoblasts caused by the impact of inflammation on apoptosis, proliferation, or differentiation of bone-lining cells.



Comparative disease activity

Periodontitis and rheumatoid arthritis

Well maintained Can be contained with maintenance.	Self Limiting RA Does not progress
Downhill Periodontitis Controlled with a combination of simple & complex treatment.	Easily controlled RA Once treatment started with first line medication, progression controlled
Extreme downhill Progress further in spite of various treatment. Poor Prognosis	Progressive RA Progress with significant joint damage. Advanced treatment does not stop progression



Key Message: Health *Practioners & dentists should work together here*

Emphasise the need for an healthy life style

Reinforce periodical oral & systemic exams

Maintain control of any pre-disposing factors

Explain and educate multi-factorial risk factors that can progress, if left unattended

Practioners should concentrate on a multi-disciplinary approach in the care of any systemically susceptible patients.

when informing patients *Be Patient* in giving information, reinforcing on the key issues.

Have pamphlets in the office that emphasise the need for oral examination and oral care

Dr. Jane Manakil MDS, PHD, MRACDS. School of Dentistry, Faculty of Health
Gold Coast campus, GRIFFITH UNIVERSITY QLD 4222