Community Dentistry

Epidemiology of periodontal disease

Periodontium consist of gingiva, periodontal ligament, cementum and alveolar bone proper.

Periodontal diseases range from gum inflammation (gingivitis) to serious disease (periodontitis).

Gingivitis is a mild form of gum disease that can usually be reversed with daily brushing and flossing, and regular cleaning by a dentist or dental hygienist. This form of gum disease does not include any loss of bone. When gingivitis is not treated, it can advance to ***Periodontitis*** that result in major damage to the soft tissue and bone that support the teeth.

Etiological factors: It is well established that the periodontal disease is initiated by bacterial plaque, but other etiologic factors exist those which predispose to plaque accumulation and those which modify the inflammatory response.

I. Local factors A.

Deposits on teeth:

1. Dental plaque **:** soft, non-mineralized, bacterial deposit which forms on teeth.
2. Dental calculus: Mineralized dental plaque
3. Protein pellicle**:** It is a structure less film of salivary glycoproteins selectively adsorbed to the surface of hydroxyapatite crystals **B. Abnormal Habits:**

1. Unilateral mastication
2. Clenching and bruxism

Clenching: is simply holding the teeth together and tightening the jaw muscles. **Bruxism:** is a condition of grinding of teeth as the jaw moves forcefully either from side to side or back and forth. They occur unconsciously during wake up or sleeping

3. Abnormal biting habits: Habits like thread biting by tailors and holding of nails between teeth by carpenters cause trauma to the periodontium leading to

periodontitis. Miscellaneous habits like pipe smoking, pencil biting, nut biting, finger nail biting produces traumatic injury to periodontium.

C. **Food Impaction:** is the forceful wedging of food against the gingiva between teeth. Where teeth have drifted apart food wedging can take place specially in the presence of an opposing 'plunger cusp'

D. **Non detergent diet:** sticky foods like cakes, breads ,chips soft drinks and candies.

E. **Factors of occlusal function:** (excessive stress on teeth. non occlusion)

F. **Abnormal Anatomy:** tooth form and proximal contact

G- Tooth position (crowding): Gingivitis is more common and more severe around malaligned teeth because predisposes to plaque retention and interferes with proper plaque removal**.**

H-Improper brushing technique: besides resulting in inadequate plaque removal, can also cause gingival recession.

I. **Other irritants** : Iatrogenic (Overhang restoration), mouth breather

II. Systemic factors

- Faulty Nutrition (deficiency of vitamin C and A , Protein , Zinc , Iron, Calcium)
- Debilitating diseases (GI disorder, TB, nephritis)
- Blood dyscrasias(leukemia)
- Endocrine dysfunction(hyperthyroidism and hyperparathyroidism, diabetes) Radiation (dose).

Risk Factors: are variables associated with an increased chance of disease development.

- **Smoking.** Smoking is one of the most significant risk factors associated with the development of gum disease. It decreases blood supply and intake of oxygen by haemoglobin thus reducing the body's ability to fight infection and increases alveolar bone resorption.Additionally, smoking can lower the chances for successful treatment.

- **Hormonal changes in girls/women.** These changes can make gums more sensitive and make it easier for gingivitis to develop. gingivitis is seen at the time of menstruation and pregnancy
- **Oral contraceptive**: studies report increased gingival inflammation and increased periodontal destruction.
- **Other illnesses and their treatments.** Diseases such as AIDS and its treatments can also negatively affect the health of gums, as can treatments for cancer.
- **Medications.** Some drugs, such as dilantin sodium, anti-depressants, and certain heart medicines, can affect periodontal health.
- **Genetic susceptibility.** Some people are more prone to severe gum disease than others.
- **Race**: Blacks had more periodontal disease than Whites.
- **Obesity:** research has shown that obesity may increase the risk of periodontal disease.
- **Socio-economic Status** :High income group have lower periodontal disease rate than the lower income group, probably because they have the means and can afford dental treatment.
- **Restoration** : Bacteria accumulate more readily on filled surface, than on tooth surface. A smooth and highly polished filling is easier to clean than a rough surface and hence there is lesser degree of plaque accumulation.

Epidemiology of periodontal disease:

1. Interproximal areas are the most severely affected by gingivitis followed by buccal and lingual surfaces.

2. Gingivitis is more severe in the upper arch than lower arch for interproximal and buccal areas. For the lingual areas, gingivitis is found to be more sever in the lower arch.

3. The most severely affected teeth by periodontal disease are upper molars and lower incisors whereas the least affected are lower premolars and upper canines.
4. Higher tendency toward gingivitis is on the right half of the area than on the left half. This may be because of difficulty that right-handed person has in brushing the right half of the mouth

5.Gingivitis has been observed in children younger than 5 years of age .In general prevalence and severity of gingivitis increase with the age ,beginning at approximately5 years of age ,reaching their highest point in puberty and then very gradually decreasing but remaining relatively high throughout life.

6-gender: Periodontal disease is more common in males. The reasons for these gender differences are not clear, but it is thought to be related to poorer oral hygiene level, which is usually observed among males

Elements of prevention of periodontal disease:

a) Oral health education for individuals and community
b) Tooth brushing
c) Oral hygiene aids
d) Chemotherapy of dental plaque infection (Chlorhexidin)
e) Dietary factors in plaque control
f) Disease control by professionals