

Theories of Dental caries

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Introduction:

It is an irreversible microbial disease characterized by demineralization of inorganic portion and destruction of organic portion of tooth. It is a complex and dynamic process. The various factors influences progression of disease.

Factors affecting caries prevalence:

1. Race
2. Age
3. Gender
4. Familial

Theories of Dental caries:

Earlier theories

- The legend of worms: “Legend of worms” from 5000 BC
- Endogenous theory: Internal action of acids and corroding humors.
- Chemical theory: Unidentified “chymal agent” was responsible for caries.
- Parasitic theory: German physician Dresden addressed dental caries to “Denticola”

Miller’s Chemico-parasitic theory/ Acidogenic theory:

- Stated by Willoughly D Miller.
- Proposed dental decay in 2 stages
 1. Decalcification of enamel and dentin
 2. Dissolution of softened material

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- The acids required for primary decalcification derived from fermentation of starches and sugar.
- Three factors
 1. Carbohydrates
 2. Acids
 3. Oral microorganisms.

Disadvantages:

- Not able to explain smooth surface caries
- Caries predilection to specific sites
- Caries-free phenomenon
- Knowledge of arrested caries.

The proteolytic theory:

The organic or protein elements of a tooth are the initial pathway of invasion of microorganisms.

Drawbacks:

- No satisfactory evidence
- Caries can occur in the absence of proteolytic organisms.

The proteolytic- Chelation theory:

The simultaneous microbial degradation of the organic components and the dissolution of the minerals of the tooth by a process known as chelation.

Chelation: complexing of metallic ion to a substance (covalent bond).

Current concept: Dental caries occurs due to various multifactorial factors such as host, teeth, microorganisms, substrate and time.

Conclusion :

Dental caries is a complex and dynamic process influenced by various factors.

Author name: Dr. Nivethitha, Senior lecturer

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