

History of Cavities-Overview

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Editorial

Dental Caries commonly known as tooth decay is damage or erosion of tooth's surface or enamel by tooth decaying bacteria producing acids as their metabolic by product during the breakdown of sugars thus resulting in cavity development. This can lead to complication from pain to infection and even end up in tooth loss. In the year of 1926, GV Black gave us a prediction that with advancement in understanding of dental caries and its histopathology, Doctors would one day be able to, treat it before it could cause any serious damage to the tooth. Yet 95 years later even today, despite of all advancements we made in the understanding of dental caries, cases of dental caries are still increasing at alarming rate globally. Rate of dental carries development is increasing day by day among young children at an alarming rate due to improper maintenance of oral hygiene, at the same time medication-induced xerostomia is affecting the golden agers. Currently the mode of treatment administered is through dental drills alongside fluoride therapies, but this solution is proven not to be adequate enough as fluoride therapy does not improve the remineralization results and increasing the level and frequency of fluoride therapy isn't effective in reduction of tooth decay. Therefore, it high time that we change our approach towards the disease and ensure to make necessary changes to our mode of treatment all together, shifting the focus from symptomatic treatment to roots of factors causing dental caries itself.

Streptococci and Lactobacillus are the transmissible pathogenic mutant bacteria that were primarily causing tooth decay, but each year identification of more pathogens are noted, and more than 30 different bacteria have proven to be causing or aggravating this infection by causing demineralization, cavitation and subsequently tooth loss therefore now dental caries is regarded as a biofilm disease. Understanding of normal flora of oral cavity and its function suggest that dental caries is a result of pH dysfunction and prolonged exposure to low pH is responsible for demineralization and net mineral loss in teeth. The acidophilic and aciduric bacteria flourish in these conditions and become carcinogenic. The factor that dental caries is an biofilm infection makes it difficult to deal with as they are resistant to antibiotics antibodies and other antimicrobial agents and complete biofilm destruction is not

ideal as a healthy biofilm are essential for overall oral health. The development of right probiotic or magic elixir or a silver bullet is not possible and probable effective way of treatment of it is by restoration of healthy biofilm back in the oral cavity.

Dr Bob Barkley in the year of 1972 addressed the behavioral component of development of the disease and introduced a method for prevention of dental carries by educating the subjects towards maintenance of overall oral hygiene through regular brushing and flossing approach of removal of plaque and noted that this approach led to improvement in over oral health and wellness instead of surgical approach of drilling and fluoride therapy in milder cases. His approach was to solve the general causes like increased bacterial load in oral cavity due to poor or irregular oral hygiene practices or presence of hidden sugars on the tooth surfaces and tooth interproximal after consumption of high sugar content or absence or enough saliva for adequate buffering or saliva being induces with xerostomia leading to dental carries in a population. The above mentioned method had quiet effective but limited results and did not necessarily improve the content or behavior of bio film.

Personalized examination assessment and identification of individual risk factors possibly leading to dental carries and focusing on effective strategies to be employed specified to those risk factors in patients is a new approach known as CAMBRA (Caries Management by Risk Assessment) developed by Dr. John Featherstone and his team in UCSF. This is an approach that helps in the identification the individual's specific risks, and subsequently the dental professionals can give appropriate recommendations targeted specifically to that patient's exhibited risk factors for effective management of the disease. The problem with that of previous approaches was that treatment without consideration behavioral changes led to recurrence of tooth decay. And furthermore, only employment of behavioral change without sustainability has also proven to be a waste of time.

So now with our enhanced and advanced understanding of oral normal flora/ biofilm and pH dysfunctionality factors along with proper understanding of individual behavioral components of this disease, it is time that we can safely take on a bold new approach and achieve G.V. Black's dream of a truly prevention oriented approach towards cavities. Taking inspiration from Bob Barkley's approach and convert surgical centers to education centers patients are taught about personalized ways to prevent this menace. By the use of John Featherstone's risk assessment-based care in effective treatment dental caries to provide a positive forgone conclusion in the treatment outcomes.

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