"Tooth Decay" - Predictor of Pre Term birth: Novel Concept

Review Article

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Abstract

Tooth decay (Dental caries) is an infectious microbial disease resulting in the destruction of inorganic and organic substance of the teeth. As we are all aware, since many decades, this condition is influenced by several factors. But what is surprising to every researcher is, its presence on the contrary can influence various systemic health conditions. One such condition which is of importance in medical fraternity is "Pregnancy – Preterm labor". This article sheds light on the possible pathogenesis between dental caries and preterm labor in the public and medical professionals, so as to bring the importance of including routine dental care as a part of antenatal checkup during pregnancy. With this background information, dental and medical professionals may conduct more evidence based studies to add a section of element to enhance better health in pregnancy and reduce the plausible adverse outcome of preterm labor in future.

Keywords: Dental Caries; Pregnancy; Preterm Labor; Tooth Decay.

Introduction

Dental caries is a microbial infectious disease characterized by destruction of inorganic and organic portions of teeth. Tooth caries is associated with interaction between several biological, behavioral and socio-economic factors [1]. Although, this condition in the mouth is localized to the teeth, its causation has large impact on systemic complications like diabetes, cardiovascular diseases and most unexplored field of pregnancy outcomes. Streptococcus mutans (S.Mutans) have been implicated to be the primary etiological agent in dental caries among pregnant women.

Pregnancy is an alteration of physiological state, characterized by hormonal and metabolic changes. "Pre-term labor" - adverse pregnancy outcome is the major cause of perinatal mortality and morbidity in the developed countries with an estimated incidence of 5%-13% [2]. Pregnant women are more susceptible to develop dental caries as compared to non-pregnant counterparts. Despite the increase of carious lesions, their severity in pregnant women has not been clearly elucidated. Research has shown tooth decay to have an increased association with pre-term labor, preeclampsia and low birth weight infants. Early Childhood Caries (ECC) in children has become a global concern with economic and social implications. Evidence from research has proven that mothers play a major role in transmissibility of dental caries to their children.

Discussion

Pathogenesis reveals high levels of colonization of S.Mutans that may be attributed to several factors like dietary sugar intake, hormonal changes, elevated gastro-esophageal reflux and previous caries experience in pregnant women. A gradual increase in S.Mutans level from second trimester of pregnancy could be due to increased plaque accumulation, deficient oral hygiene, drug induced altered salivary composition (qualitative and quantitative) and increased frequency of fermentable carbohydrate intake. Although pre-term labor has been implicated to occur due to several factors like genital infections, dental caries and periodontal infections, proposed mechanism is attributed to inflammation and inflammatory process of oral infections, hematagenous spread of bacteria from mouth to the placenta [3]. Pregnancy itself may not cause the occurrence of new carious lesions; they can only exacerbate the pre-existing condition and may increase in the amount of pro-inflammatory cytokines that induce pre-term labour. Microbiological studies (gold standard) have shown the effective

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growth in S.Mutans in decay process. Recently, chair side simple and effective caries assessment tool - software based analysis "CARIOGRAM" could be used in women throughout pregnancy to evaluate caries risk factors. Cariogram analyses the caries experience, diet contents and frequency, plaque amount, S. mutans count, fluoride program, saliva secretion and buffer capacity [4].

An appropriate treatment in pregnant women based on individual risk factors identified via Cariogram analysis will support health promotion and education activities and provide the opportunity for a better maternal and child dental health throughout his life. Interventional and preventive management of maternal oral health care in pre-pregnancy and inter-pregnancy will demonstrate a promising outcome by reducing the risk of pre-term labor and hence early childhood caries in children subsequently. Women planning for pregnancy or is pregnant require regular dental check-ups and treatments for dental caries without any fear of dental treatment to reduce labor complications [5].

Conclusion

In future, we should focus on collaborative work between dental surgeon and gynecologist to assess the tooth caries as a part of routine pregnancy health check-ups and implement this in routine ante natal screening for reducing risks in pre-term labor. This enlightens us to conduct more evidence based research to check the association of molecular cytokines due to tooth decay and their role in pre-term labor.

Refereces

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