

Review Article

Pregnancy and Oral Health : Forgotten Territory Revisited !

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Pregnancy and early childhood are particularly important times to access oral health care because the consequences of poor oral health can have a lifelong impact (1). Improving the oral health of pregnant women prevents complications of dental diseases during pregnancy, has the potential to decrease early childhood caries and may reduce preterm and low birth weight deliveries. Evidence suggests that most young children acquire caries-causing bacteria from mothers. Cariogenic or decay-causing bacteria are typically transmitted from mother or caregiver to child by behaviours that directly pass saliva, such as sharing a spoon when tasting baby food.

The earlier those cariogenic bacteria occupy ecological niches in the child's mouth, the greater the percentage of the child's plaque that will be comprised of these bacteria. As the child grows older, cariogenic bacteria become less able to colonize within a child's mouth, as the available ecological niches are filled with other organisms. For this reason, mothers who themselves have experienced extensive past or current caries have a particularly strong need for counselling on how to avoid

early transmission of cariogenic bacteria to their offspring.

Appropriate dental care and prevention during pregnancy may reduce poor prenatal outcomes and decrease infant caries as pregnancy is a "teachable moment" when women are motivated to change behaviours. Deferring appropriate treatment may cause unforeseen harm to the woman and possibly to the foetus for several reasons. First, women may self-medicate with over the counter medications like acetaminophen to control pain. Second, untreated cavities in mothers may increase the risk of caries in children. Finally, untreated oral infection may become a systemic problem during pregnancy and may contribute to preterm and/or low birth weight deliveries.

Recently, the American Academy of Periodontology urged oral health professionals to provide preventive services as early in pregnancy as possible and to provide treatment for acute infection or sources of sepsis irrespective of the stage of pregnancy⁽²⁾. Several national organizations in the United States of America have provided recommendations for improving oral health during pregnancy and early childhood. However, the need is felt in the developing parts of the world which need to emphasize on the public health aspect of mother and child welfare. Increasing population, rapid urbanization and unemployment are burning issues in developing countries like India.

Over the last decade the public health aspects suffered

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at the cost of the booming private healthcare industry. Primary prevention is emerging as the most important aspect in medical and dental health care. Concerted efforts are therefore required by health care professionals to provide holistic treatment to patients and their effective management.

Effect of Pregnancy on Oral Health

It is well known that hormonal changes during pregnancy are associated with oral mucosal changes most of which are reversible clinically⁽³⁻⁶⁾. The reasons for these changes are not well established. Of all the changes the ones most well written about is pregnancy gingivitis and pregnancy epulis (alternate names - pregnancy tumour, epulis gravidarum, pregnancy granuloma)⁽³⁻⁶⁾. Other changes associated with pregnancy include chloasma, facial telangiectasia, sialorrhea, tooth surface loss usually related to vomiting when severe



Fig 1: Chronic marginal gingivitis

(hyperemesis gravidarum) increased mobility of teeth, changes in the severity of oral apathies (5). Other observations are less specific and may be part of the general state of health. These include mucosal changes seen with anaemia e.g. pallor. Severe mucosal/gingival bleeding, which may or may not be associated with Disseminated Intravascular Coagulation (DIC) may occur⁽⁷⁾

According to the American Academy of Periodontology, about 50% of women experience pregnancy gingivitis which, characterized by bleeding gums, is a reversible process. Pregnancy gingivitis is the swelling/inflammation of the gums that many pregnant women suffer, especially early on in their pregnancy. It is caused by a bacterial film that grows on the teeth, resulting in plaque accumulation. The hormonal changes during pregnancy change the body's natural response



Fig 2 :Chronic Periapical Abscesses with intra oral sinus

to dental plaque, and thus exaggerate the way the gum tissues react to the bacteria in plaque, thus resulting in a higher chance of pregnant women getting gingivitis. The prevalence of periodontal disease is closely associated with the level of oral hygiene; most often, periodontal disease is a preventable condition⁽⁸⁾. Periodontal disease is caused by gram-negative anaerobic bacteria, which are capable of producing a variety of chemical inflammatory mediators such as prostaglandins, interleukins and tumour necrosis factor that can directly affect the pregnant woman.

Studies have suggested that periodontal infection may contribute to the birth of preterm/low birth weight babies⁽⁹⁻¹²⁾. In a recent systematic review of periodontal disease and adverse pregnancy outcomes by Xiong et al., 25 studies were identified⁽¹³⁾. Adverse pregnancy outcomes included not only preterm/low birth weight but also miscarriage and preeclampsia. Eighteen studies suggested an association between periodontal disease and increased risk of adverse pregnancy outcomes (OR 1.1 - 20.0) and 7 studies found no evidence of an association (OR 0.78 - 2.54). A study by Boggess et al., also determined the relationship between maternal periodontal disease, maternal systemic inflammation, and the development of pre-eclampsia. The authors found that maternal periodontal disease with systemic inflammation (as measured by C-reactive protein) is associated with an increased risk for pre-eclampsia⁽¹⁴⁾.

Dental problems such as caries, erosion, loose teeth, and ill-fitting crowns, bridges, and dentures (prostheses) may have special significance during pregnancy especially during labour. Tooth decay is the result of repeated acid attacks on the tooth enamel. Any increase in tooth decay during pregnancy may be due to changes in diet and oral hygiene. Nausea and vomiting in preg-

nancy can cause extensive erosion.

Temporomandibular Joint (TMJ) symptoms are rarely reported during pregnancy and may be severe during the immediate postpartum period as part of the postpartum blues syndrome⁽¹⁵⁾. This is not unusual as these symptoms are associated with stressful situations. Worried patients need to be reassured and managed accordingly.

Teeth mobility has been associated with the presence of a hormone called relaxin which helps during parturition. This may also cause relaxation of the periodontal fibres, which hold teeth in position. This is more likely to be seen towards the end of the pregnancy⁽¹⁶⁾. Aphthous ulceration (single or multiple ulcers on the non-keratinised mucosa that tend to recur) has been noted to reduce in incidence during pregnancy. Though the mechanism of this ulceration is not known to be due to any one particular factor, diet and cellular immune response (Type IV) may have an influence⁽¹⁷⁾.

Hypersalivation, which was associated with pregnancy

in classic literature⁽¹⁶⁾, has not been noted in recent literature⁽¹⁷⁾. The gagging seen commonly in pregnancy may be more related to the nauseous sensation more than an increase in the flow of saliva⁽¹⁶⁾.

Pyogenic granuloma (PG) is an exuberant overgrowth of neo-capillaries (due to extensive endothelial proliferation) and fibrous connective tissue caused by minor mechanical or plaque irritation. These growths are apparently prone to occur in the gingiva and in tooth sockets, during pregnancy or during puberty in patients taking oral contraceptives simulating PG generally manifests as a rapidly growing, painless, ulcerated, red, polypoid mass with a broad base, usually located on the marginal gingiva, but can also be found on the lips, tongue, buccal mucosa, palate, vestibule and even the alveolar mucosa of edentulous patients. This maturation process is particularly marked postpartum in "pregnancy tumours" and many lesions will regress and the affected area will return to normal after birth. The preferred site of occurrence is the interdental papilla. Surgical excision is the treatment of choice. In the highly vascular stage PG is prone to recur with an alarmingly



Fig 3: Chronic generalised periodontitis with gingival recession



Fig 5: Pyogenic granuloma



Fig 4: Aphthous ulcer



Fig 6: Gingival enlargement

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rapid growth. Markedly fibrous PG is less likely to recur. Pregnancy tumours that persist should be excised after delivery. Plaque and tartar control is indicated in all cases.

It is important to notify the oral health care professional if any bleeding gums, gingivitis, periodontitis, mobile teeth, halitosis, pigmentation, hypersalivation, pregnancy tumour, tooth erosions and gingivitis enlargements are noted by the patients.

Parental Dental Counselling:

The prenatal care team can be very influential in encouraging women to maintain a high level of oral hygiene, to visit an oral health professional, and to promote completion of all needed treatment during the pregnancy. Years of experience has shown that the best way to prevent dental pain and expense is to prevent the problem in the first place brushing and flossing. At least half a dozen studies have shown that people with poor oral health tend to be at risk for coronary disease. All health care professionals should educate pregnant women about care that will improve their oral health like brushing teeth twice daily with fluoride toothpaste and flossing daily. Brushing twice a day is not enough to remove plaque interdentally, so it is very important to floss. They should be told to limit foods containing sugar to mealtimes only. These women should choose water or low-fat milk as a beverage and avoid carbonated beverages during pregnancy. Pregnant women should prefer fruit rather than fruit juice to meet the recommended daily fruit intake. They should also assist pregnant women in dealing with nausea and vomiting by advising them to eat small amounts of nutritious yet non-cariogenic foods throughout the day along with chewing sugarless or xylitol-containing gum after eating. They can use a teaspoon of baking soda (sodium bicarbonate) in a cup of water as a rinse after vomiting to neutralize acid and can use gentle tooth brushing and fluoride toothpaste to prevent damage to demineralised tooth surfaces.

It is imperative also to instruct the mother that the following actions may reduce the risk of caries in children:

- Wipe an infant's teeth after feeding, especially along the gum line, with a soft cloth or soft bristled toothbrush.
- Supervise children's brushing and use a small amount of toothpaste.

- Avoid putting the child to bed with a bottle or sippy cup containing anything other than water.
- Limit foods containing sugar to mealtimes only.
- Avoid saliva-sharing behaviours, such as sharing a spoon when tasting baby food, cleaning a dropped pacifier by mouth or wiping the baby's mouth with saliva.
- Avoid saliva-sharing behaviours between children via their toys, pacifiers, etc.
- Visit an oral health professional with child between six and 12 months of age.

Future Challenges

While some studies have shown that interventions to treat periodontal disease will improve pregnancy outcomes, conclusive clinical interventional trials are not yet available to confirm the preliminary results. No comprehensive guidelines exist that address the oral health needs of pregnant women. Oral health screening and referral should however be, routinely included in prenatal care, and oral health professionals should not be hesitant to treat pregnant women as improving the oral health of a pregnant woman not only improves her quality of life but also reduces the risk of childhood caries. Obstetricians and gynaecologists recognize the importance of good oral health during pregnancy but largely do not address it⁽¹⁸⁾. Only improved training in the importance of oral health, recognizing oral health problems, and knowledge of procedure safety during pregnancy, will make doctors more comfortable with assessing oral health and more likely to address it with patients.

Appropriate dental care and prevention during pregnancy may reduce poor prenatal outcomes and decrease infant caries. Prenatal care providers can play a crucial role in breaking down barriers to access and raising awareness about the importance of oral health. Furthermore, they can dispel misconceptions, such as the belief that bleeding in the mouth is "normal" during pregnancy, pain during dental procedures is unavoidable, X - rays during pregnancy are harmful to the foetus and postponing treatment until after pregnancy is safer for the foetus and mother. Normally it is better to perform minor dental surgical procedures in the second trimester of pregnancy.

Comprehensive guidelines, that address the oral health needs of pregnant women, are, therefore, needed to assist health care professionals, both prenatal care

providers and oral health care providers, in improving clinical practice and to promoting better oral health in pregnant women and children.

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