

**ORAL CONDITIONS AND ITS MANAGEMENT DURING PREGNANCY: A REVIEW.**<sup>1</sup>Dr. Karanam Apoorva Prakash and <sup>2</sup>Dr. K. Shashikala<sup>1</sup>Lecturer DAPM R. V. Dental College J. P. Nagar, Bangalore.<sup>2</sup>Professor, DAPM RV Dental College, J.P. Nagar, Bangalore.**\*Corresponding Author: Dr. Karanam Apoorva Prakash**

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Article Received on 25/12/2019

Article Revised on 15/01/2020

Article Accepted on 05/02/2020

**ABSTRACT**

Pregnancy brings about various physical, hormonal changes which affects or influences general as well as oral health. Management of the dental conditions is often neglected and ignored due to the lack of awareness among the patients and fear of medicolegal concerns among the medical professionals. This review article provides an insight about the common oral problems that could occur during pregnancy, guidelines for oral health and the management of the oral conditions during pregnancy.

**KEYWORDS:** Pregnancy, Oral Conditions, Dental Treatment safety and protocol.**INTRODUCTION**

A pregnant woman develops various complex physical and hormonal changes in her body. During pregnancy, secretion of female sex hormones such as estrogen and progesterone increases by several folds. This peak hormonal levels brings in various changes in the body.<sup>[1,2]</sup> Systemic changes occurs in cardiovascular system, hematologic, renal, respiratory, gastrointestinal, endocrine and genitourinary systems. Local physical changes occurs in different body parts including the oral cavity.<sup>[1]</sup> During pregnancy any treatment of oral issues are often avoided by the patients, medical and dental fraternity due to lack of clinical guidelines on management of the common dental problems, fear of medicolegal actions and concerns for the foetal safety during management of the oral conditions.<sup>[3]</sup> This review article provides an insight about the common oral problems that could occur during pregnancy, guidelines for oral health and the management of the oral conditions during pregnancy.

**Oral Microflora and the Host Response during Pregnancy**

Cellular proliferation, differentiation and keratinization is regulated by estrogen and when in combination with progesterone there is increased production of prostaglandin which induces osteoclastic activity. The receptors for these hormones are seen in the periodontal tissues and since the hormonal levels are increased during pregnancy, the response in these tissues is also exaggerated. Periodontal disease chiefly comprises of Gram negative anaerobic bacteria like *P.intermedia*, *P.gingivalis*, *T.denticola*, *Actinobacillus actinomycetemcomitans*, *Tannerella forsythensis*.

During the inception of pregnancy these bacteria consumes progesterone as its nutrition which leads to the selective growth of subgingival plaque. Organisms involved in the initiation and progression of dental caries are streptococcus species, Lactobacilli and Actinomyces species. Risk of dental caries can be attributed to the dietary changes which includes craving for the sugary snacks and drinks and can be further convoluted if the pregnant woman is nauseous to the tooth brushing. Changes in the salivary flow, pH, desquamation of oral mucosa due to increase in estrogen levels also plays a vital role in formation or progression of dental caries.<sup>[2]</sup>

**Oral Lesions**

Pregnant women experience morning sickness during early pregnancy and lax oesophageal sphincter and pressure from the gravid uterus in the late pregnancy which may result in the gastric acid exposure in the oral cavity and causes erosion in the palatal surfaces of the maxillary incisors.<sup>[4,1,3]</sup>

Expectant mothers with severe vomiting are educated not to brush their teeth after such episodes, instead they are advised to rinse their mouth with fluoride mouth wash which helps in neutralizing the acids.<sup>[5,6]</sup>

**Dental Caries**

Higher caries risk in pregnant women can be attributed to the acidic pH in the oral cavity due to frequent vomiting, cravings towards sugary snacks and less attention towards dental care. And the sequel of mutans streptococci from the mother who has higher counts of mutans streptococci to the child happens in between 19 and 31 months is termed as Window of infectivity.<sup>[3,7]</sup>

During pregnancy, use of 0.12% chlorhexidine has shown reduced caries rate in both mother's teeth and child's primary dentition.<sup>[8]</sup>

### **Pregnancy Oral Tumor**

Usually seen in upto 5% of pregnant women. The lesion usually has a interdental attachment, seen in maxillary anterior teeth and may bleed easily. Local irritants, bacteria and the raised levels of progesterone may lead to pyogenic granuloma. It is most evidently seen during second trimester and recedes soon after the delivery.<sup>[9]</sup>

### **Gingivitis and Periodontitis**

Gingivitis involves inflammation of the superficial gum tissue whereas periodontitis begins with inflammation and bacterial infiltration into periodontal fibers. Toxins released by the bacteria stimulates the chronic inflammatory response resulting in further destruction and attachment breakdown leading to mobile teeth. The factors that can be attributed to these conditions are the increased hormonal levels, alteration in the flora, decreased immune response. This whole process increases the production of the inflammatory markers like cytokines, prostaglandins and interleukins which can be found in the amniotic fluid of women with periodontitis and in preterm birth as compared with the controls. Studies have shown that increased levels of the inflammatory markers causes early uterine contractions resulting in premature labour. Low birth weight can be attributed to the release of PGE2 which causes decreased placental blood flow thus restricting intra uterine growth.<sup>[4,10]</sup>

According to few studies, after a periodontal therapy during pregnancy, there is a significant reduction in preterm and low birth weight babies. But in contrast to this, recent studies revealed periodontal health is not restored to normal after the treatment and there is no such association of periodontal disease with the mentioned adverse outcomes of pregnancy.<sup>[11]</sup>

### **Dental Management Guidelines During Pregnancy<sup>[1,6]</sup>**

#### **For the first trimester [1-12 weeks]**

The dental procedures may be avoided during this time period for the following reasons-[i] foetus maybe at the greater risk by teratogenesis during organogenesis

In first trimester it is recommended to educate patients about the common oral changes and to provide the oral hygiene instructions. Oral prophylaxis and only emergency dental treatments should be attempted. Dental radiographs should be avoided unless they are considered necessary.

#### **For the second trimester [13-24 weeks]**

Since the organogenesis is complete, the risk to the foetus is low. Proper positioning of the mother for dental treatments becomes essential as the supine positioning procedures could cause a near-syncope episode as the

weight of the gravid uterus may apply enough pressure to impede blood flow through major vessels. In the second trimester oral prophylaxis and any elective dental treatments can be attempted. Dental radiographs should be avoided unless they are considered necessary.

#### **For the third trimester**

Routine dental treatments are avoided from middle of the third trimester for the risk to the upcoming birth process. Oral prophylaxis can be done if required. Any elective dental treatments should be avoided in the second half of third trimester. Dental radiographs should be avoided unless they are considered necessary. Positioning of the woman in supine during third trimester should be avoided as the uterus applies pressure on the inferior vena cava causing hypotensive syndrome leading to unconsciousness. To prevent that, a pillow should be placed under the right hip and the head should always be higher than the feet.<sup>[12]</sup>

### **Dental Treatment Protocol**

#### **Medications**

Understanding the medicines which can be safely prescribed to a pregnant woman is very essential. Drugs which crosses the placental barrier and cause teratogenic effect to the foetus must be avoided. Antibiotics like penicillin, amoxicillin, clindamycin; anti fungals like nystatin and short term use of analgesics like acetaminophen is considered safe. Ciprofloxacin, clarithromycin, levofloxacin, moxifloxacin, tetracycline are to be avoided during pregnancy.<sup>[13]</sup>

#### **Anaesthesia**

Local anaesthetic solutions like lidocaine, xylocaine and prilocaine mixed with epinephrine is considered safe. However, crossing the maximum permissible doses of local anaesthesia should be avoided, as the direct effects are associated with the central nervous system like loss of consciousness and seizures which are associated with negative pregnancy complications.<sup>[14]</sup> Solutions such as benzodiazapines, lorazepam, triazolam are contraindicated and use of nitrous oxide is still controversial.<sup>[3]</sup>

#### **Radiographs**

Depending upon the radiation exposure and the pregnancy stages, any damage to the foetal cells may result in miscarriages, birth defects or mental impairment. The patient may not have knowledge of being pregnant in the initial weeks after conception, which makes it advisable for the lead shield to be used for all the women in the child bearing years. According to the National commission for Radiation protection, foetal radiation exceeding more than 0.20 Gy may cause microcephaly and mental retardation. The CT doses depend on variety of factors like scanner type, technique, exposure settings and number of slices and its thickness. Skin doses from CT may range from 0.4 to 4.7 rads whereas the gonadal doses have lesser range from 0.1 to 0.3 mrad. The doses can be minimized with the use of

lead shields. MRI which provides no ionizing radiations works by using magnetic field assisted nuclear alignment in creating images, may be considered as an alternative to CT. However, the risks of the foetal exposure to the strong magnetic fields are not completely known.<sup>[1]</sup>

According to American Congress of Obstetricians and Gynecologists medical x-ray exposure for diagnostic purposes has no risk to the fetus and also suggests that exposure less than 5 rad does not have not been increase fetal anomalies or cause loss of pregnancy. Single dental exposure is associated with 0.0001 rad and to reach the cumulative 5-rad dose limit it would need 50,000 such exposures.<sup>[15]</sup>

### Periodontal Therapy

For pregnant women, who got the plaque control treatments, scaling, rinsing with 0.12% chlorhexidine, there was a significant reduction of preterm birth or low birth weight children. According to the data collected by Xiong *et al* from the clinical trials, oral prophylaxis resulted in 28% reduction in preterm low birth weights.<sup>[16,17]</sup>

### Restorative dentistry

Amalgam, the most commonly used material can be used however release of mercury vapour have some concerns. Even though there is no clinical association with amalgam exposure and the adverse pregnancy outcomes it has been stated that amalgam placement or removal should be avoided during pregnancy<sup>17</sup>. In pregnant ladies with high caries index, GIC can be preferred because of its anticariogenic activity and composite restorations can be done in anterior teeth.<sup>[3]</sup> In early pregnancy because of severe nausea and vomiting, patients usually experience severe sensitivity secondary to erosion, in such cases fluoride is used to cover the exposed dentin.<sup>[18]</sup>

### Dental extractions and RCT

Gynaecologists and physicians prefer to avoid such radical treatments but the risks associated are:

Persistent pain during pregnancy may lead to stressful conditions, lack of sleep, restlessness which may affect both the mother and the foetus. Another condition where the root canal treatment becomes essential is the infection, if not treated may result in space infections, septicaemia. Dental extractions which are painless these days and less stressful can be considered safe.<sup>[3]</sup>

### Advisable oral hygiene measurements at home<sup>[7]</sup>

Brushing twice daily with the fluoridated tooth paste and use of dental floss to avoid interproximal food accumulation.

To increase consumption of fibrous food.

Use of fluoridated mouth washes.

Minimize sugary snacking habits.

In case of morning sickness, it is advised to the rinse the mouth with 1 teaspoon of baking soda dissolved in a cup

of water to neutralize the acidic pH resulting after vomiting.

Xylitol chewing gums reduces the plaque pH and MS saliva concentration.

Studies showed that 56% of the pregnant women did not undergo any dental treatment during pregnancy and around 50% of the pregnant women ignored any form of dental treatment in spite of facing various dental problems. In such scenario, educating the pregnant ladies about their general and oral health plays a very important role thus preventing the adverse outcomes of pregnancy.<sup>[19]</sup>

### CONCLUSION

Regular dental health checkups, oral prophylaxis, interventional dental treatments do not have any adverse effects on the mother as well as foetus. Alternatively women with poor oral hygiene or any dental treatment not attended during pregnancy may result in birth complications such as preterm birth weight, low birth weight etc. Thorough knowledge of a dental care provider and the guidelines by the physicians or gynaecologists to the pregnant ladies may avoid the risk factors by explaining the preventive measures and the appropriate management of the dental issues at the right time.

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