

Review

Oral care in pregnancy

Yenen and Ataçağ. Oral care in pregnancy

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DOI: 10.4274/jtgga.2018.0139

Abstract

Pregnant women are susceptible to a wide range of oral health conditions that could be harmful to their own health and the future of their baby. There are lots of myths about the safety of dental care during pregnancy. As a result pregnant women receive less dental care than when they are pregnant. In our review we tried to emphasise the importance and safety of routine dental care for pregnant women.

Keywords: Pregnancy, oral care, dental health

Introduction

To sustain oral and dental health for life time, effective and adequate care is essential. In women, mouth dental care is much more important during pregnancy, breastfeeding and menopausal periods.

Pregnancy is not a disease state but instead it is a sign of being healthy. A healthy person is not expected to lose their teeth without any reason. The same rules are valid for pregnant women. If they take some simple precautions they will not have any teeth loss or other dental problems. Despite all these, mothers are known to face tooth decay and gingival problems during pregnancy. Due to bad oral health in pregnancy, pregnant women can face; premature delivery, low birth weight baby, pre-eclampsia, gingival tissue ulcerations, pregnancy granuloma, gingivitis, pregnancy tumors (epulis gravidarum), tooth swing, mouth dryness and dental erosions. The changing hormone levels in pregnancy directly affect gum problems and indirectly tooth decay (1-6).

Changes seen in the teeth gums:

Pregnant ladies undergo hormonal balance changes during pregnancy. As the placenta produces higher levels of estrogen and progesterone during pregnancy many tissues undergo certain changes. In this period, excessive sensitivity to irritations occurs in the gingiva. In pregnancy gingivitis or epulis gravidarum, commonly known pregnancy tumors can be seen very often. Pregnancy gingivitis usually starts at the second month of gestation and reaches the highest level at the eighth month and heals spontaneously after birth. They originate from pyogenic granuloma and disappear after 1-2 months. Surgical removal is recommended if they do not vanish spontaneously. Surgical excision can be done by conventional methods or laser. Since the pyogenic granuloma has tendency to bleed, laser application may give more comfortable results to the patient. Infact if they do not disturb the patient and if they do not bleed excessively there is no need to treat them during pregnancy. Silk et al. reported that gingivitis was found in 40% of the pregnancies (3- 7).

However, it is argued that healthy gingiva is unaffected by pregnancy, which is only a reaction caused by increased plaque and gingivitis (8). The gum papillae may look like red swollen strawberry. On the edges of the gingiva and on the papillae fissures can occur. Bleeding, even pain can be seen. In the ones that are in hyperplastic character gingiva is dull, light pink, and the surface is rough and dry. Sometimes all gums can be in a dark red color. When the growth of the gingiva is localized to one area, then pregnancy tumors may be seen. Generally the underlying reason is an irritant. These gingival changes are named as: Gingivitis Simplex, Gingivitis Ulcerosa, Gingivitis Hypertrophicans and Pregnancy Tumor. The cause of these changes is shown to be the rising level of progesteron hormone in the blood stream that increases the vascular permeability. Another cause of this phenomenon is thought to be the low levels of vitamin C (9). Giving vit C, Ca, P, Fl is thought to be beneficial (10,11). The mothers who have attachment loss have a higher risk of giving birth to low birth weight babies (SGA) when , compared to mothers with healthy periodontians.(12-16) Periodontal diseases are related to many systemic diseases, including gestational complications.

Changes that occur in the teeth:

It is generally known that during pregnancy tooth decay increases. The teeth are painfull and teeth losses can be seen. There is no scientific basis for the belief that fetal need for calcium required for intrauterine growth is obtained from the mother's teeth and that every pregnancy has a tooth loss. This phenomenon can be explained

by dentists as follows: Nausea and vomiting are seen in 70% of pregnancies. Vomiting can affect oral hygiene negatively or may cause erosion on the maternal enamel layer. During pregnancy a decrease in Ca concentration occurs. However, in the amount of ionized Ca; there is no difference compared to pre-pregnancy levels, although bone turnover is doubled during pregnancy. Increasing oral hygiene habits during pregnancy will help to prevent this problem.

The deterioration of oral and dental health during pregnancy depends on the following factors:

*During the first months of pregnancy some mothers may have extreme interest to some foods, especially carbohydrates, and tooth brushing can be neglected after they eat those kind of food.

*By the effect of pregnancy hormones (estrogen, progesterone) on the gums, they will bleed faster. Therefore the mother will avoid tooth brushing. As a result the bacterial plaque will increase. Therefore in pregnancy mouth needs more care.

*Vomitings, especially during the first months of pregnancy, increases the acidic environment in the mouth.

After vomiting, in the first few months, the mother may not pay enough attention to oral care. If the teeth are not brushed sufficiently, acidic environment will form in the mouth.

*Saliva flow will decrease. For these reasons, the formation of caries increases during this period.

*The mothers can neglect their own oral and dental health care while they are dealing with the health of the baby. And this causes deterioration of oral health.

For these reasons, it is necessary to pay more attention to dental health care during this period (1-9).

The Importance of Nutrition on Dental Health During Pregnancy:

Adequate intake of energy and nutrients constitutes positive health effects, while inadequate intake affects mother and baby health negatively. During this period, it is necessary for the mother to take 1200-1500 mg daily calcium for herself and her babies bones to be healthy. During pregnancy, mothers should meet their calcium requirements by taking calcium-rich foods such as milk and dairy products and green leafy vegetables. With a good diet and adequate oral health care, there will be no different tooth problems during pregnancy. Nutrition during pregnancy is very important for general health and oral health for both the mother and the baby. Baby's tooth development during pregnancy starts at the 5th and 6th weeks. The purpose of the nutrients taken in pregnancy, is to balance the body's nutritional requirements and to provide the necessary energy and nutrients for normal growth of the fetus. It has been shown that due to pregnancy Ca and Mg values are increased in the molar teeth, whereas there is no change in Zn value. It is thought that the increasing values of placental lactogen and insulin like growth factor- I (IGF-1) during pregnancy is responsible for the increase in Ca (17).

During the whole pregnancy period In terms of oral and dental health:

- Fruits, vegetables, cereal, milk, dairy products, meat, fish and eggs that are rich for A, C, D vitamins, calcium and phosphorus must be taken in a balanced diet.

- Especially between meals, sugar should not be taken as much as possible

- Dried fruit and toffees should be avoided.

- Nutrition during this period affects the health of the mother, as well as the baby, that is going to be born. The effect of vitamins A and D on enamel formation is known. There is no clear evidence that prenatal fluoride use can prevent decay (18).

Nicotine and alcohol consumption during pregnancy:

Smoking negatively affects oral health, especially the gums. In smoking patients periodontal inflammation and destruction increases. With the increasing number of filiform and fungiform papillae on the surface of the tongue, a so-called "smooth tongue" can be seen and therefore oral hygiene becomes difficult to control. Due to the anemic effect of smoking, wounds in the mouth may recover slowly and spontaneous bleeding can be seen (16). The oral health changes of the mother affects the baby also indirectly. There are around 4000 different chemicals in the cigarette smoke. Acids, aldehydes, ketones, cyanide, carbon monoxide that are among these, have direct toxic effects. Carbon monoxide, which is present in 4% of cigarette smoke, is known to prevent transport of oxygen by binding to hemoglobin in red blood cells. The hemoglobin oxygen transport capacity of smokers is reduced by 2.5% to 15%. As a result, the oxygenation of the fetus decreases, like the organs. The possibility of abortion or stillbirth increases among smokers. Also, when the baby is born alive, the birth weight is less than normal. Among smoking mothers' babies early or late neonatal deaths are seen much more (19,20). Overuse of alcohol consumption is teratogenic in babies and can cause fetal alcohol syndrome. Epithelial Growth Factor receptors (EGF-Rs) are responsible for dental proliferation and differentiation. Changes in these receptors due to alcohol consumption, can lead to dental anomalies. Farfan et al. encountered findings that when pregnant rats were given alcohol at certain doses, in young rats small teeth, structural deterioration of the enamel and delayed tooth eruption were seen. Because it can cause hepatic and oral pathologies in the mother and it can indirectly affect the baby's condition (3, 21-23).

Oral Care Recommendations During Pregnancy:

The combination of personal and professional treatment performed during pregnancy is very important. Plays a major role in improving oral health. Zanata et al. found a correlation between preventive maintenance procedures performed during pregnancy and plaque accumulation and caries prevalence (24,25).

*Daily oral and dental care should be continued non-stop

* A full oral examination must be done before gestation to achieve optimal oral hygiene and gain the habit of maintaining it. Because there is a direct relationship between hormonal changes during pregnancy and plaque accumulation and gingival diseases. The hormone increase during pregnancy makes the mouth mucosa more sensitive to external factors, especially against bacterial plaques.

* Effective dental care should be obtained by using toothbrushes and dental floss at least twice a day.

*Gargling with mouthwashes or warm salty water must be done. Especially warm salty water relaxes gums and reduces gum sensitivity.

Treatments that can be done during pregnancy:

Many dentists think that if there is approval from the doctor of the pregnant woman they can do uncomplicated treatments. However, most of the procedures to be performed in dentistry are important in the first three months and the last three months, in terms of the stresses the mother and the baby will be exposed to. Effective dental treatment in the first trimester should be avoided. This period is a very sensitive period since it is the stage of organogenesis. Unnecessary interventions can lead to abortions. However, in cases when there is pain or if not interfered will cause more harm, the teeth must be urgently treated. Under these circumstances tooth extraction, canal treatment can be done. Second trimester, is the most appropriate period for making many treatments, for the ones when postponed until the end of pregnancy is going to be dangerous, such as tooth extraction, filling, canal treatment. In the third trimester, it is not easy for the mother to take the necessary positions for the dental treatment. She might get disturbed. The baby is grown considerably in the womb and the delivery is close. It should also be remembered that if a pregnant women, in the last trimester, sits too long in the dental chair, it may cause Vena Cava Inferior Syndrome (supine hypotensive syndrome). In this situation turning the mother to the left side in a semi-sloping manner will help to relieve the venous circulation (1,26). Just as in the first trimester, the intervention of the dentist is not recommended except emergency treatments.

Although some pregnant women hesitated receiving antenatal oral care, recent publications indicated that many dental treatment can be done safely during pregnancy, like, extractions, local anaesthetic, root canal treatment, scaling and root planning. (4,5)

In emergency cases such as tooth and gingival inflammation, existing infections can affect the baby's health much more adversely than the side effects of the dental treatment. Therefore the dental treatment must be done according to the advices of an obstetrician.

In order to decide on the procedures to be performed, the amount of ionized radiation in a single radiograph that is taken can be reduced with the lead gowns, fast films, well-calibrated instruments and collimator and will not cause damage to the fetus. The National Radiation Protection Committee (NCRP) has reported that the cumulative amount of radiation should not exceed 0.20 Gy, higher doses may cause microcephaly and mental retardation (27-30). Nitrous oxide used for anesthesia is known to cause abortion and congenital anomalies in pregnancy (27,31). The use of local anesthetics during pregnancy for tooth extraction or any intervention, the manufacturer's recommendations must be taken into account. If there is no special warning there is no inconvenience. Local anesthetics such as Lidocaine, Prilocain, and Articaine can be safely used during pregnancy in the context of the Food and Drug Administration (FDA) recommendation (1,30).

While the mercury gases released during dental treatment, are unlikely to produce teratogenic effects, they should be avoided that the patient or workers do not inhale the intensified mercury gases.

In addition, it has been suggested that during the pre-pregnancy period $\geq 1 \mu\text{g}$ / day of mercury exposure, is associated with attention deficit, hyperactivity disorder in infants (32,33).

Ideal dental controls in the 1st trimester are twice, in the second and third trimester is once. After a good evaluation at the first control, it should be checked whether or not oral hygiene is provided in the 2nd trimester and the planned treatment should be done in this period (tooth extraction, filling etc.)

When medication is necessary, penicillin, erythromycin, cephalosporins are safe antibiotics to use during pregnancy. However, use of Tetracycline (coloring in teeth), Vancomycin (ototoxic / nephrotoxic), Streptomycin (ototoxic) have side effects and are inconvenient to use during pregnancy. In addition, according to ADA, Ciprofloxacin, Benzodiazepines, Barbiturates are drugs that should be avoided absolutely. Prenatal vitamin supplement is recommended.

The pain originating from the teeth can be the reason for the contractions to start, by putting the patient under stress. Therefore, it is recommended to prescribe pain reliever with consultation.

As narcotic analgesics can depress the central nervous system and non-steroidal anti-inflammatory drugs can cause patent ductus arteriosus, they should be avoided to be used during pregnancy. Acetaminophen can be preferred in every period of the pregnancy. Pain relieve medications that can be used in pregnancy, in line with FDA recommendations, are given in Table 1 (32-33).

Result

During pregnancy, oral and dental care requires special attention. Oral health is a part of general health, and it is of even greater importance during this period as it concerns both the mother and the fetus.

It should also be kept in mind that neglecting oral and dental health during pregnancy does not cause problems such as tooth decay and tooth loss only, but may also lead to problems such as premature birth, low birth weight infant, pre-eclampsia. Pregnancy is a period in which the mother must obey certain rules in order to protect her health and her baby's health. In this period, the mothers can protect their oral health by taking the necessary precautions and then they can prevent dental problems which may be irreversible.

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Table 1. The first letter in the B / D or C / D listing indicates analgesic availability for first two trimester, second letter third trimester

Pain killer type	FDA Category for Use in Pregnancy	Usage in Pregnancy
Acetaminophen	B	Can be used
ASA	C/Db	3 rd . trimester cannot be used
Diflunisal	C/D	3 rd . trimester cannot be used
Flurbiprofen	B/D	3 rd . trimester cannot be used
Ibuprofen	B/D	3 rd . trimester cannot be used
Ketorolac	B/D	3 rd . trimester cannot be used
Ketoprofen	B/D	3 rd . trimester cannot be used
Naproxen	B/D	3 rd . trimester cannot be used
Codeine	C	Can be used low dose, short term.
Oxycodone	B	Can be used low dose, short term.
Hydromorphone	B	Can be used low dose, short term.
Meperidine	B	Can be used low dose, short term.
Pentazocine	B	Can be used low dose, short term.