



Odonto-Stomatological Approach in Pregnant Women: Why and How?

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ABSTRACT

Pregnancy makes the future mother body subject to a series of hormonal changes affecting also oral health. Particular attention should be paid to the apprehension surrounding the care of pregnant women in the dental office to avoid the impact of therapeutic abstention not only on pregnant women but also on the fetus. The purpose of this article is to raise the ambiguity surrounding the odonto-stomatological approach of pregnant women through a review of the literature.

Keywords: Pregnancy, Oral health care

INTRODUCTION

Pregnancy is a physiological condition characterized by a great endocrine upheaval, as well as a circulatory over-activation. This leads to vascular changes in the oral mucosa, the alveolo dental ligament, and the dental organ [1].

The physiological particularities during each of the three gestation trimesters encourage us to remove any ambiguity concerning the taking of an X-Ray, the use of anesthetic products and obturation materials, the prescription of several drugs, as well as the acts authorized according to the stage of the pregnancy [2].

LITERATURE REVIEW

Pregnancy is a physiological condition characterized by hormonal changes with oral or dental repercussions [3].

Pregnant women are at higher risk of infection; certain hormones associated with pregnancy (as progesterone) have immunosuppressive properties. Polymorphonuclear chemotaxis, phagocytosis, and antibody response are affected by the high level of sex hormones [4].

The salivary flow increases during the first three months, this hypersialorrhea decreases over the months. The salivary pH evolves towards a slight acidity; it goes from 6.7 to 6.2, which leads to a reduction in the buffering capacity [5].

The stage of pregnancy development conditions the odonto-stomatological approach in the dental office [6].

The first trimester is characterized by high teratogenic and abortion risks as well as hypersialorrhea, nausea, and irritability. Emergency therapies will be carried out (endodontic treatments and extractions), to avoid the harmful consequences which may be greater than those caused by treatment, namely stress, pain (release of algogenic substances), and the risk of infection (release of toxins). According to the patient's condition, the sessions should be short-lived [7].

The second trimester is the most favorable period for oral care because organogenesis is complete and the expectant mother is in better condition.

Consequently, infectious, painful, progressive, or potentially pathological pathologies can be managed. However, multiple care or requiring follow-up must be postponed after delivery [8].

During the last two months of pregnancy, the risk of childbirth increases, and the pregnant woman becomes more embarrassed. Therefore, oral care should be limited to emergency procedures and should be done in a semi-seated position [9].

The apprehension and ambiguity surrounding the care of a pregnant woman in the dental office delay or limits the care required. However, abstaining from treatment can have repercussions for both the pregnant woman and the fetus [10].

There is no contraindication to performing dental care. However, certain precautions should be taken: before starting any therapeutic act, the dental surgeon must calm the future mother, by informing her about the harmlessness of the dental procedures for the fetus. This makes it possible to establish a patient-practitioner relationship of trust to reduce the anxiety that can arise during treatment sessions [11].

During clinical examination, exposure to ionizing radiation for dental diagnosis doesn't pose any risk to the normal development of the embryo or fetus [12]. For a retro alveolar image, the delivered dose (50 mg rays) would be 500 times slower than the limit dose and the dose for panoramic radiography would be 50 times lower [13].

However, we must recommend wearing a lead apron, reduce the number of shots to the strict minimum, so during the first trimester, radiographic images should not be taken unless there is an imperative indication (acute pulpitis, acute apical periodontitis beginner, installed, abscessed, cellulitis) [14].

If the use of anesthesia is mandatory, no technique is prohibited, however, the toxicity of the products used is accentuated by the fall of the protidemia in pregnant women [12]. It is, therefore, necessary to choose the least toxic molecule, the least fat-soluble, and the most bound to proteins. Indeed, the liposolubility of the analgesic substance increases its fixation on the fetus, and the greater the binding to proteins, the more the passage of the placental barrier becomes possible.

Therefore, it is necessary to privilege the Articain[®], however Lidocaine[®], Bupivacaine[®], Spartocaine[®], Mèpivacaine[®], and Prilocaine[®] are to be avoided [15].

Articaine[®] is the molecule of choice, the least toxic to the fetus, due to its low rate of placental crossing (less than 25%) [14].

For Lidocaine[®], clinical studies have shown no malformation or fetotoxic effects. Nevertheless, it should be used with caution due to the rate of placental crossing around 55%. Bupivacaine[®] poses a risk of cardiac toxicity to the fetus. Likewise, Spartocaine[®] (a combination of Lidocaine[®] and Sparteine[®]) is associated with a risk of preterm delivery [15].

Regarding Mepivacaine[®], studies have shown a risk of cyanosis and a transient drop in neurobehavioral responses at birth. Prilocaine[®] is associated with a risk of fetal and maternal methemoglobinemia [12].

The use of vasoconstrictors (adrenaline or noradrenaline) slows the passage of the anesthetic in the general circulation. They don't cause fetal tachycardia, since they are not metabolized into active molecules in the placenta, provided that low concentrations are used 1/100000. The benefit of vasoconstrictors, therefore, justifies their use during pregnancy [16,17].

Hormonal changes mainly and cognitive behavior secondarily lead to oral repercussions in pregnant women. Epulis is a benign hyperplastic tumor that can occur during pregnancy and disappears after childbirth. In the presence of such lesion, the dental surgeon must establish a motivation for oral hygiene; surgical excision will only be considered if the epulis interferes with chewing or has been traumatized by a bite [18].

Besides this, pregnancy gingivitis constitutes an inflammatory response frequently observed during pregnancy, aggravated by the presence of bacterial plaque. In this case, motivation for oral hygiene, followed by scaling and a prescription of mouthwashes is essential.

Oral rinses with Chlorhexidine[®] 0.12% without alcohol can be carried out on the condition that they are used only for short periods and that the indications are strictly observed.

In the case of periodontitis, the periodontal therapy itself should be postponed after delivery. Only basic treatment such as hygiene education and scaling can be performed [19].

Since 1955, the authors have confirmed that the appearance or activation of carious lesions in pregnant women is due not only to a defect in hygiene but also to changes in sex hormones, and salivary pH [20].

Such complaints may be limited by the application of fluorinated varnish or the use of fluorinated gutters. The eating behavior of pregnant women, often rich in carbohydrates, becomes particularly cariogenic, hence the interest in dietary advice as well as cognitive-behavioral management [21].

Even in the absence of a carious lesion, the pregnant woman sometimes complains of diffuse pain, due to circulatory intra-pulp changes resulting in compression of the nerve nets against the inextensible wall of the pulp chamber. This pain usually goes away after a week or two if the teeth are healthy.

In the presence of non-waterproof restorations, the practitioner must carry out a prophylactic cleaning, waterproofing of the joints by glass ionomer cement or fluid composite, or even the application of Chlorhexidine® varnish on the dental surfaces to avoid recurrence of caries under fillings.

In the presence of a carious lesion, composites, glass ionomers, and zinc oxide eugenol can be used as filling materials because of the impossibility of trans-placental crossing of the components of these products and the absence of cytotoxic effect on the fetus. However, amalgam is to be avoided and if its removal is necessary, it must be carried out under a dike to minimize the risk of toxicity linked to mercury [22].

If endodontic treatment is necessary, the canal filling must be done with calcium hydroxide, filling with a definitive material such as gutta percha® can only be considered during the second trimester or after childbirth.

Dentin hypersensitivity is a reason for frequent consultation in pregnant women, hence the interest in the application of fluoride varnish or the creation of fluorination trays.

Following repeated vomiting during pregnancy, dental erosions may appear on the collars of the palatal surfaces of the anteriosuperior group and disappear after childbirth. These non-carious cervical lesions are at the origin of the brief pains occurring after the meal, thus rinsing with a solution based on sodium bicarbonate just after the vomiting promotes the rise of the oral pH, and however, brushing is to be avoided at this time to reduce the risk of damage to the demineralized enamel. Also, the toothbrush prescribed during this period should preferably be flexible [23].

The creation of a fluorination tray in pregnant women in the presence of erosive lesions does not affect the maturation of the dental tissue of the future child [24].

Oral care can be supplemented in the event of pain or infection by a drug prescription. But certain antibiotics, anti-inflammatories, or analgesics are to be avoided at certain periods or even throughout pregnancy.

Paracetamol has no toxic or teratogenic effect; it can be administered to pregnant women to relieve the pain, which is the most frequent reason for consultation in odonto-stomatology. However, high dosages should not be administered for long periods to avoid the risk of liver damage to the fetus [25].

Acetylsalicylic acid, commonly known as aspirin®, is responsible for the risk increase in cleft palate, intrauterine death, and growth retardation in the fetus. If a general indication is required, this acid can only be administered during the first six months. During the last trimester, this exposes the fetus to cardiopulmonary toxicity, and the expectant mother will have a prolonged risk of bleeding [26].

Dextropropoxyphene cannot be indicated in pregnant women due to the risk of neonatal respiratory depression. Codeine derivatives should be rejected due to risks of cardiac abnormalities, cleft palates, and respiratory distress that they can cause in newborns.

The occurrence of bacterial infection in pregnant women exposes them to a high risk of fetal malformations, regardless of the stage of development. Therefore, antibiotic treatment should be prescribed.

To reach effective plasma levels of antibiotics, their intake should not be under-dosed, especially since the pregnant woman has an increase of 40% to 55% in blood volume.

Beta-lactams can be administered during pregnancy; penicillin (or ampicillin) is the antibiotic of choice for the majority of dental infections. The addition of clavulanic acid should only be considered during pregnancy if the indication is necessary; in fact, the monitoring of pregnancies exposed to this association is insufficient to exclude any risk. Furthermore, clavulanic acid can cause nausea and vomiting in the expectant mother [27].

First-generation cephalosporins and erythromycin have no toxic or teratogenic effects. Prescribing clindamycin can only be done in the event of infections by anaerobic germs, due to the side effects of this antibiotic in the mother: nausea and vomiting.

Due to the mutagenic effects described *in vitro*, following the use of metronidazole, its indication during pregnancy is controversial. Tetracyclines should not be prescribed, as they cause cataracts, birth defects, and dental dyschromia in the fetus. In pregnant women, this intake can lead to acute pancreatitis and fatty liver [28].

Taking corticosteroids by pregnant women is responsible for retarded fetal growth, accelerated maturation of the lungs and certain parts of the brain. Taking corticosteroids is only necessary in case of anaphylactic shock.

Non-steroidal anti-inflammatory drugs such as diclofenac, ibuprofen, and indomethacin cause premature closure of the arterial canal that causes cardiac distress in newborns [26].

Benzodiazepines should not be administered during pregnancy due to the reported teratogenic risks. As for Hydroxyzine, it should be avoided at least during the first three months of pregnancy, due to the lack of information concerning the risks involved [29].

CONCLUSION

The ambiguity surrounding the care of a pregnant woman in the dental office delays or limits the care required, this may affect the integrity of the overall health of the future mother or the fetus. However, it is enough to consider the physiological and psychological state to respect the authorized procedures according to the stage of pregnancy, the recommended materials, and the appropriate medication.

Except for emergency cases, any intervention during the first trimester will be postponed. The operating steps of conservative or endodontic care are the same except radiographs are reserved for cases of imperative indication.

The second trimester is the most favorable period for oral care. During the third trimester, only emergency treatment is provided.

What is known about this subject?

- Pregnancy causes many physiological changes that may affect oral health
- The harmful consequences of a bad oral state of the future mother on the fetus.
- An ambiguity surrounds the odonto-stomatologic approach in pregnant women.

What is new in our paper?

- Systematize an oral examination during pregnancy to avoid possible repercussions on the fetus or the future mother.
- Sensitize young practitioners to avoid any abstention from treatment concerning oral pathologies that could affect the integrity of the overall health of the mother-to-be or the fetus

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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