

# Dental treatment in pregnant women: integrative review

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## ABSTRACT

**Objective:** identify the scientific knowledge developed about dental care in pregnant women. **Material and Methods:** an integrative review with search of articles, thesis and dissertations in the databases SciELO, LILACS and Pubmed, from 2012 to 2017, being selected 6 studies. **Results:** five studies emphasized how this care should be performed, procedures and materials considered safe. One study brought insights into an insecurity faced by dentists and solutions to it. **Conclusion:** gestation is a period of innumerable changes in the woman's body, so the dentist needs to be up to date and must seek evidence in the literature to perform clinical care safely, since it may contribute to improve the quality of life of these patients.

**Keywords:** Dental care; Pregnant woman; Prenatal care.

## Introduction

Gestation is a period of physical, hormonal and psychological changes, as well as being a unique and valuable phase for a woman.<sup>1</sup> The main oral changes resulting from this period are increased salivation, nausea and changes in the periodontal region. These changes, if associated with modifications in the habits of life can cause or even aggravate oral diseases, such as caries, gingivitis, among others. For this reason, pregnant women need special care, including differential care by dental surgeons.<sup>2</sup>

Due to doubts about the risks that may involve mother and fetus, over the years, some dentists have shown insecurity to treat pregnant patients.<sup>3</sup> The main doubts that arise for these professionals are about the best period of care, the time spent in the appointment, the use of radiation, medication, the appropriate position of the patient during the care, among others. Worryingly, at least one of these questions about this theme was present in 100% of the dentists studied.<sup>4</sup>

Moreover, pregnant women are also unsure of seeing a dentist because they think that dental treatment may cause birth defects, miscarriage, or other problems in the course of pregnancy. However, current scientific evidence shows that any dental procedure can be safely performed during pregnancy, as long as appropriate care is taken, such as choosing the safest agents (anesthetics, medications), limits on treatment time and minimizing dosages.<sup>5</sup>

In view of the above, it is necessary for dental surgeons to seek scientific evidence to break the barriers of insecurity in the care of pregnant women and to perform the procedures correctly. Therefore, this study aims to identify the scientific knowledge developed about dental care for pregnant women.

## Material and Methods

Integrative Revision is a research method that seeks to establish a synthesis of the results obtained in research on a given topic, in a systematic and orderly manner. This method aims to contribute to the knowledge of the subject investigated. This research was carried out through six steps.<sup>6,7</sup> The first one was the definition of the topic and the research question, being the study based on the following question: What scientific knowledge was developed about the dental care of pregnant women?

The second step was the definition of the inclusion and exclusion criteria for the studies. The inclusion criteria were: articles, theses, dissertations, course papers published between 2012 and 2017, with texts available in full and indexed in the PubMed, SciELO and LILACS databases in English, Spanish and Portuguese, containing the following keywords in the title or subject / descriptor: Prenatal Care, Pregnant Women and Prenatal Care (and equivalents in Portuguese and Spanish). Besides, studies that investigated scientific evidence for a reliable dental care of pregnant women, explaining how clinical management with these patients should be performed, were also included. We excluded studies that addressed aspects related to the knowledge of pregnant women or non-dental professionals about oral health care at this stage or studies that did not fit the inclusion criteria.

In the third stage, the information to be extracted from the selected articles was defined. In order to better organize the data, a cataloguing sheet was prepared containing: year of production, title, author (s), journal, country, descriptors and keywords, nature of the research, theoretical reference, article themes, dental care approach to the pregnant women, observing the evidence for a safe practice.

The fourth step was based on performing a critical evaluation of the studies, observing the points in which there was consensus and those that had disagreements. In the fifth stage, consisting of discussion and interpretation of the results, the recommendations were prepared for the dental care of pregnant women in a safe way, based on the guidelines resulting from the articles that made up the review. The sixth stage followed the summary of the most relevant results, which will be presented below.

## Results

By consulting the databases previously described, 327 studies were located. In Scielo database 13 articles were found but none of them met the proposed criteria. At LILACS database, 151 studies were found in total, of which only four met the inclusion criteria for our study: 3 articles and a monograph. At PubMed database 163 titles were found, of which only two passed the established screens and were fully available. Thus, 6 articles passed the inclusion criteria and were selected for the present work (Table 1).

**Table 1.** Systematic summary of main information from the articles of the integrative review

Title	Author	Year	Objective	Database
How do dental and prenatal care practitioners perceive dental care during pregnancy? Current evidence and implications	Ajesh George <i>et al.</i>	2012	To evaluate the current knowledge, attitudes and behaviours of oral and prenatal health professionals about oral health care during pregnancy.	PubMed
Promotion of pregnant women's oral health	Iracema Barbosa Lessa	2013	To deepen knowledge on the subject of oral health promotion of the pregnant woman aiming at a better care of this population.	LILACS
Dental care throughout pregnancy: what a dentist must know	Marina D. Achtari <i>et al.</i>	2012	Review the literature for evidence-based answers on frequent dentists' dilemmas about dental treatment of pregnant women	LILACS
Dentists' knowledge of oral health during pregnancy: a review of the last 10 years' publications	D.R. Pontes Vieira <i>et al.</i>	2015	To gather data from published studies on dentists' knowledge of oral health in pregnant women.	LILACS
Dental considerations in pregnancy-A critical review on the oral care	Hemalatha VT <i>et al.</i>	2013	To analyse physiological changes and oral pathologies associated with pregnancy and how they may affect patient dental care.	LILACS
Oral health and dental care during pregnancy	Barbara J. Steinberg <i>et al.</i>	2013	Provide a summary of the latest evidence-based perinatal oral health guidelines	PubMed

Considering the selected references, a prevalence of studies in English (83.3%) was clear in all the databases used, mainly in PubMed, where there were only results for keywords in English. The remaining portion of the studies (16.7%) was in Portuguese.

In all the studies it was emphasized the importance of dental follow-up during all phases of prenatal care. In 5 studies (83.3%), it was described how dental care should be performed during pregnancy, what procedures are allowed and how they should be performed. A study (16.7%) also sought

to reflect on the insecurity faced by dentists regarding the care of pregnant women and to seek solutions for this issue.

## Discussion

The most recent studies show that the poor oral health of pregnant women can affect in an undesirable way the outcome of pregnancy and, consequently, the baby. They also show that routine dental treatment during pregnancy is safe. Despite this, many dentists still feel insecure about performing care at this stage.<sup>8</sup>

Thus, it is important that dental surgeons have in their training guidelines on how to act safely in the care of pregnant women. This training can come through ongoing education programs with up-to-date information on preventive and curative dental care for pregnant women. In the United States of America, for example, the professionals have guidelines in order to guide dental practices during pregnancy. Similar protocols are needed in other countries as well.<sup>8</sup>

Initially, the dentist should know particular aspects of each gestational trimester, the indications and the care that

should be taken in each of these phases.<sup>9</sup> Dental treatment is usually recommended during the second trimester of pregnancy, since at this stage there is no more risk of teratogenicity (ability to cause birth defects), nausea and vomiting are no longer a problem and the uterus is not yet large enough for the woman to feel uncomfortable while spending much time on the same position. However, urgent care can be performed at any stage because oral health problem may increase the risk of other health problems for the mother and/or the baby.<sup>10,11</sup>

Despite this, another study recommends greater caution,

especially during the first trimester. According to the authors, at this stage as well as in the third quarter, procedures should be avoided. In the dental appointment, the pregnant woman should be informed about the oral changes that occur in this period, receive oral hygiene instructions and only a prophylaxis should be performed. They justify that, during the first trimester, up to one in five pregnancies suffer spontaneous abortion, in addition to the possible exposure to teratogens during the organogenesis phase.<sup>12</sup>

It is important to emphasize the need to consult the doctor responsible for the pregnant woman, usually obstetrician, in cases of comorbidities that may affect the dental care or oral complications of the patient, such as, diabetes, hypertension, pulmonary, cardiac, and blood disorders.<sup>13</sup>

Another point to be questioned is regarding the radiographs used in dental routine. According to most studies, radiographs can be performed at any time during pregnancy, as long as proper precautions are taken, i.e. the use of the lead apron and thyroid protective collar. Even though the American College of Radiology stating that a diagnostic-only radiograph does not involve a dose of radiation that is significant enough to pose a threat to the health and normal development of the fetus, it is more advisable to perform them during the second trimester because the fetus would be less susceptible to radiation at this stage.<sup>10,11</sup> Another study was more cautious and advised to avoid routine radiographs throughout pregnancy and should be used cautiously and only in specific cases.<sup>12</sup>

During the clinical practice, it is common dental surgeons prescribe, mainly, antibiotics for the control of infections and analgesics for the relief of pain. The most appropriate therapeutic choice for pregnant women is usually followed by the guidance of the US Food and Drug Administration (FDA), which classified the drugs for effect on pregnancy in groups from A to D and X.<sup>10,11</sup>

Group A is composed of drugs tested in controlled studies in pregnant women and that did not present risk to the fetus. Group B are drugs that have been subjected to animal research and have not shown fetal risk but have no controlled studies in pregnant women. Group C consists of drugs that have not been tested in animals or pregnant women; or that animal studies have shown a risk to the unborn fetus in pregnant women. Group D includes drugs with evidence of fetal risk, but which may have their use justified according to the benefits for the pregnant woman. Group X is contraindicated for pregnant women because they have evidence of fetal abnormalities in animals and humans.<sup>11</sup>

Paracetamol (FDA group B) is the most recommended analgesic for pregnant and lactating mothers. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as acetylsalicylic acid, ibuprofen, nimesulide, diclofenac, among others, are also widely prescribed by dentists and belong to FDA group

C. They should be used with great caution, especially in the last trimester, and for a very restricted period, as they may cause uterine inertia and/or premature closure of the ductus arteriosus that connects mother to fetus, as well as interfere with platelet aggregation. Among antibiotics, penicillins, cephalosporins and macrolides are considered safe and belong to group B of the FDA. Clindamycin, commonly used for patients allergic to penicillin, and metronidazole can also be used during pregnancy.<sup>10,11</sup> Chlorhexidine, an antimicrobial mouthwash, is recommended to be used in its alcohol-free formulation.<sup>13</sup>

Nonetheless, an antibiotic that deserves special attention from the dental surgeon is tetracycline, which has high affinity for bivalent ions, such as calcium, affecting bone development. If used during the second half of pregnancy causes yellow-brown discolouration in deciduous teeth. It can also cause severe dental changes, such as enamel hypoplasia and dentin pigmentation. It is classified in group D of the FDA and therefore has it is contraindicated during pregnancy.<sup>11,12</sup>

Fluoride, widely used in the prevention of dental caries, can be used in gestation only to promote better oral health for the mother. There is no scientific evidence that the use of prenatal fluoride supplements will bring benefits to the development of baby teeth. In order to reach the function of avoiding caries in children teeth by the fluoride, it must be used as mouth wash or topical gel solution directly on erupted teeth surface, and not in the tooth in formation, since it will act in the process of tooth mineralization, increasing fluorapatite in the enamel.<sup>11</sup>

Regarding the use of local anesthetics, the most traditional ones, with a strong history of low incidence of adverse effects should always be the first choice.<sup>13</sup> In this sense, the most recommended anesthetic solution in the literature is lidocaine 2% associated with the vasoconstrictor epinephrine (1:100,000). Although many dentists prefer to use mepivacaine 3% without vasoconstrictor, this anesthetic is in category C of the FDA, as well as articaine, and should therefore be used with caution, always weighing the risks and benefits involved.<sup>10,11</sup> On the other hand, Prilocaine is completely contraindicated as it hampers placental circulation and can cause methemoglobinemia, a serious disease that affects hemoglobin making it unable to carry oxygen properly.<sup>11</sup>

It is important to highlight that anesthetics must be associated with vasoconstrictors, since they prevent the systemic absorption of the local anesthetic, thus reducing toxicity and increasing the duration and effectiveness. The use of up to two or three tubes of anesthetic with vasoconstrictor per treatment does not cause cardiovascular changes, in addition the endogenous adrenaline released in a situation of pain or anxiety is much larger than the amount present in a local anesthetic tube. Therefore, the use of adequate an-

esthetics and vasoconstrictors is considered safe for pregnant women.<sup>11</sup>

Regarding the positioning of the pregnant woman in the dental chair, the dental surgeon should be aware, especially during the third trimester, because the patient, when she remains in a supine position, the uterus presses the inferior vena cava, which hinders the venous return. This condition can cause postural hypotension syndrome, which occurs in 15-20% of pregnant women, and loss of consciousness. To reduce this risk, a small pillow should be placed under the patient's right hip, and the pregnant woman's head should always be higher than her feet. However, in case of dizziness, chills, or fainting, the patient must be positioned to the left side to relieve pressure on the vein and restore circulation.<sup>10,13</sup>

With respect to the possibility of performing some common procedures of the dental practice, dental surgeons should indicate immediate treatment, when necessary, in a safe manner and with the appropriate materials, considering the general risks associated with a poor oral health condition of the pregnant woman. Data from the Obstetrics and Periodontal Therapy Study showed that pregnant women who underwent procedures such as restorations, extractions or endodontic treatment during the second trimester of pregnancy did not present higher rates of adverse outcomes compared to pregnant women who did not un-

dergo these treatments.<sup>13</sup>

Periodontal treatment is also essential during pregnancy, since the increase in concentration of progesterone in the gingival tissue increases the production of prostaglandins and makes the gingiva more susceptible to plaque formation, which results in gingivitis being the most common oral alteration during the pregnancy. However, many women mistakenly consider normal the fact of their gums are bleeding and do not seek dental care in that period. Therefore, the dentist should inform the patient and advise her how to improve her oral health condition. Procedures such as supra-gingival scaling, topical application of fluoride and oral hygiene guidelines can be done at any time without risk to the baby.<sup>9-11</sup>

## Conclusion

According to the scientific studies consulted, the clinical management of dental care during pregnancy can be safely performed, taking into account the general state of health of the pregnant woman and her pregnancy phase.

Gestation is a period of innumerable changes in the woman's body, so it is of fundamental importance that the dentist is always up to date seeking the most modern references in the literature so that the care provided to these patients can be performed in a safe, correct and science-based way.

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## Mini Curriculum and Author's Contribution

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