Reviewing dental treatment for the pregnant patient

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Dentists are sometimes uncomfortable or uncertain on how to treat pregnant patients. The guidelines dentists learned years ago about treating pregnant patients may or may not be relevant today.

Dental care has been proven to be safe and effective during pregnancy, and it promotes sound oral health.

The Wisconsin Dental Association Editorial Advisory Board recently reviewed an excellent and comprehensive article from the Florida Dental Association entitled "Dental Treatment of the Pregnant Patient – Literature Review and Guidelines for the Practicing Clinician".

The following article is a summary drafted by **Dr. Gene Shoemaker** (Waukesha), an EAB member.

The objective of the article is to offer the scientific foundations that lead to the current practice guidelines for treating pregnant patients.

Overview

Pregnancy is divided into three trimesters based on a 42-week gestation, or three months (14 weeks) for each trimester. Since the standard of care for dental maintenance and recall is regular, six-month, comprehensive oral evaluations, every pregnant patient is expected to seek dental treatment at some point during pregnancy.

While some may recommend that all treatment be completed only after consultation with the patient's physician, this is not necessary for most dental procedures.

The following items, however, should be addressed by obtaining a medical consultation:

- Treatment of any pre-existing past medical conditions (aside from pregnancy)
- Clarification of all medications being provided to the patient during pregnancy
- Elucidation of medical complications that may be the result of pregnancy
- Any special treatment recommendations that may improve individualized care for the pregnant patient

Pregnancy by itself is not a reason to defer routine dental care or necessary dental treatment. However, prudence may dictate that elective treatment is deferred until after delivery. It is important to remember that there are actually two patients to be considered, and all clinical decisions should be made to minimize risks to both the mother and baby.

Treatment by trimester

It is important to remember that emergency dental procedures can be performed during any trimester when delay in treatment could result in significant risk to the mother and indirect risk to the fetus.

First trimester (First day of the last menstrual period until 13 weeks and six days gestation)

Diagnostic, oral prophylaxis and treatment, including necessary dental X-rays, can be safely performed during the first trimester in order to diagnose disease. Important information to consider:

- Dental care during pregnancy has not been reported to increase the rate of malformation or pregnancy loss.
- Morning sickness usually resolves after the first trimester, so women may be more comfortable receiving non-emergency care at that time.

Second trimester (14-20 weeks gestation)

It is generally accepted that the safest time to perform elective dental procedures is early in the second trimester.

Third trimester (28 weeks until birth)

In the third trimester, when the pregnant patient is in a supine position, they might experience Supine Hypotension Syndrome or SHS.

Proper patient positioning is therefore very important. Having a patient lean on her left side or placing a small pillow under the patient's right hip are effective ways to help avoid SHS.

Medications

The Food and Drug Administration has classified the safety profile of medications for use during pregnancy. Tables 1 and 2 are helpful guides illustrating this classification scheme. Clinicians should be mindful that when treating pregnant patients, all medications should be for the lowest effective dose and for the shortest duration possible.

Local anesthetics

The use of local anesthetics is necessary and acceptable during pregnancy. The clinician should be aware that local anesthetic agents may exhibit a more rapid onset and longer duration of action during pregnancy.

Local anesthetics freely cross the placenta and the potential for fetal toxicity is also a concern.

Judicious use of vasoconstrictors is permissible.

Clinicians may consider using carpules with 1:200,000 concentration of epinephrine as an alternative.

Table 2 contains a list of acceptable and unacceptable drugs for pregnant women.

Analgesics

Acetaminophen is the analgesic of choice in the pregnant patient. Nonsteroidal anti-inflammatory drugs such as ibuprofen and naproxen must be administered with particular care.

These drugs are both classified as category B for the first and second trimesters but are considered category D in the third trimester.

These drugs have been shown to cause renal damage.

Codeine should be considered as a first choice narcotic when indicated. It has been proven safe by evidence–based studies.

While all narcotics should be used judiciously, it is reasonable to use adequate analgesia to control maternal pain symptoms.

Antibiotics

Dental infections must be treated in pregnant patients. Treatment of these infections often necessitates the administration of antibiotics.

Fortunately, most of the commonly used antibiotics in dentistry are classified as category B drugs.

These include penicillin, amoxicillin, cephalexin, clindamycin and azithromycin.

Importantly, antibiotics such as sulfamethoxazole/trimethoprim and ciprofloxacin are classified as category C and their use should be avoided if possible.

Tetracycline and its derivatives are contraindicated throughout pregnancy. They can impair enamel formation and cause tooth discoloration.

Also, it is important to keep in mind that because of increased maternal blood flow, often times conventional doses of antibiotics may prove ineffective in pregnant patients.

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Infections must be monitored closely and those that show poor response should be referred to an oral and maxillofacial surgeon for inpatient hospital management when applicable.

Please refer to tables 2 and 3.

Nitrous oxide

The use of nitrous oxide during the treatment of pregnant patients is an area of great controversy. Most providers agree that N2O should only be used when local anesthetics are inadequate and after consultation with the patient's prenatal care provider.

Anecdotal dental practitioners have suggested that long-term exposure to N2O may be associated with spontaneous abortion and birth defects, but there is a lack of concrete evidence to validate these assertions.

It is recommended that N2O be avoided during the first trimester.

One important consideration for pregnant patients is to avoid hypoxia. N2O should be used judiciously and shouldn't exceed a 50 percent mixture of N2O to oxygen if used.

At present, no direct evidence exists of any casual relationship between chronic, low-level exposure to N2O and potential biologic effects.

The use of evacuation scavenger systems remains the standard of care when administering N2O.

Please refer to table 1 for suggested office protocol for N2O use.

Table 1

Suggested office protocol for N_2O use	
1	Possess appropriate delivery system with scavenging capabilities, accurate flowmeter, adequate vacuum and variety of sizes of masks.
2	Assess the adequacy of ventilation system. • Vent exhaust to outside. • Provide fresh-air exchange whenever possible.
3	Assess the adequacy of suction system. • Ensure vacuum at 45L/min. Select appropriate size of mask. • Establish appropriate tidal volume. • Discourage patient talking.
4	Assess ambient air for trace gas levels at baseline and periodically thereafter. Periodic personal sampling of personnel should be conducted as well.
5	Assess cylinder attachments, lines, hosing and reservoir bag for leaks. Use IR spectrophotometer and soap-and-water tests.
6	Calibrate flowmeter(s) every two years.

Radiology

Dental radiographs are both safe and effective and necessary for the treatment of pregnant patients.

None of the conventionally employed radiographic modalities will generate a significant dose of ionizing radiation that may threaten the well-being of the developing embryo and fetus.

Regardless, collimated beams, high-speed film (or digital systems), a lead apron and a thyroid collar are protective measures that should always be used.

Certainly, avoiding radiation exposure throughout the first trimester is paramount and should be limited to only emergency situations.

The fundamental principal that should be maintained at all times is that the patient should be exposed to the lowest dose imaging modality possible while still achieving the necessary diagnostic data.

Conclusion

The dental health provider should feel comfortable in knowing that the treatment of pregnant patients is not only permitted, but actually is necessary in order to promote sound oral health.

These recommendations highlight the major treatment considerations that one may encounter over the course of routine practice.

If these guidelines are applied in good judgment, then pregnant patients can be treated in both a safe and effective manner.

Table 2

United States FDA pharmaceutical pregnancy classifications http://1.usa.gov/1soMMg4	
Pregnancy Category	
A	Safety established using human studies
B	Presumed safety based on animal studies
C	Uncertain safety. No adverse effect demonstrated in human and animal studies.
D	Unsafe. Evidence of risk that may in certain clinical circumstances be justifiable.
X	Highly unsafe. Risk of use outweighs any possible benefit.

Table 3

Acceptable and Unacceptable Drugs for Pregnant Women				
	Acceptable Drugs for Use During Pregnancy	**Food and Drug Administration Category**	**Unacceptable Drugs for Use During Pregnancy**	**Food and Drug Administration Category**
Antibiotics	Penicillin Amoxicillin Cephalosporins Clindamycin Erythromycin (except for estolate form)	B B B B B	Tetracyclines Erythromycin (estolate form) Quinolones Clarithromycin	D B C C
Analgesics	Acetaminophen Acetaminophen with codeine Codeine Oxycodone Hydrocodone Meperidine Morphine *After first trimester and for 24-72 hours only:* Ibuprofen Naprosyn	B C C B C B B B B	Aspirin	C
Local anesthetics	Lidocaine Mepivicaine Bupivicaine	C C C		
Adrenergic Agent	Epinephrine	C		
Inhalational Agent	Nitrous Oxide	Controversial teratogenicity in first two trimesters.		
Sedatives/ hypnotics	Diazepam Midazolam Methohexital Lorazepam	D D B D		
Antimicrobials	Chlorhexidine	B		

Adapted from Kumar J, Samelson R. Oral Health During Pregnancy Recommendations for Oral Health Professionals. NYSDJ. 29-33, November 2009, Lawrence DR, Whitley BD, et al. Considerations in the Management of Maxillofacial Infections in the Pregnant Patient. J Oral Maxillofac Surg 54: 474-483, 1996.11