JMSCR Vol||04||Issue||11||Page 13780-13784||November 2016

www.jmscr.igmpublication.org
Impact Factor 5.244
Index Copernicus Value: 83.27
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v4i11.45

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

A study on Effect of Oral Hygiene Measures during Pregnancy

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Abstract
Introduction: *The assessment of potential effect of intensive oral hygiene regimens and periodontal therapy during pregnancy on oral health is not done routinely.*
Aims and Objectives: *To assess the effects of a preventive program on dental and oral health of pregnant female.*
Materials and methods: *A clinical study was conducted on 100 pregnant women aged 18 to 36 years, at 16 to 24 weeks of gestation. Each participant presented with clinical evidence of various common periodonatal problems and odontogenic infections. Oral hygiene products were provided, together with instructions for an intensive daily regimen of hygiene practices. Non-surgical therapy was provided at baseline. Oral examinations were completed at baseline and again at 3 and 6 weeks.*
Results: *Preventive programs starting during pregnancy may improve health behavior. Caries, periodontitis, and dietary complications in mother and child can be avoided by improving maternal oral health and by a tooth-friendly diet. The rate of preterm births (<37 weeks of gestation) was 6.7% (P = 0.113) and low birth weight (<2,500 g) was 10.2% (P = 1.00).*
Conclusion: *An oral health care promotion starting during pregnancy may cause a sustained and long-term improvement of the oral health of pregnant females.*
Keywords: *Early oral health care,Caries, gingivitis, inflammation, oral hygiene, pregnancy.*

Introduction

There are many epidemiologic, microbial, and intervention studies to suggests an association between maternal periodontal inflammation and adverse pregnancy outcomes that include preterm birth (PTB), defined as gestational age (GA) <37 weeks, and low birth weight (LBW) of <2,500 g.[1-4] Oral health care in pregnancy is often neglected and misunderstood by physicians, dentists, and patients. Research suggests that some prenatal oral conditions may have adverse consequences for the child. The oral lesions, such

as gingivitis and pregnancy tumors, are benign and require only reassurance and monitoring. Periodontitis is associated with preterm birth and low birth weight, and high levels of cariogenic bacteria in mothers can lead to increased dental caries in the infant. Every pregnant woman should be screened for oral risks, counseled on proper oral hygiene, and referred for dental treatment when necessary. Dental procedures such as diagnostic radiography, periodontal treatment, restorations, and extractions are safe and are best performed during the second trimester. Chlorhexidine may be used as adjuvant therapy for high-risk mothers in the early postpartum period to reduce transmission of cariogenic bacteria to their infants. Appropriate dental care and prevention during pregnancy may reduce poor prenatal outcomes and decrease infant caries. Comprehensive prenatal health care should include an assessment of oral health, but this is often overlooked This problem is compounded by a lack of national clinical guidelines for the management of common oral conditions in pregnancy. Only 22 to 34 percent of women in the United States consult a dentist during pregnancy. Even when an oral problem occurs, only one half of pregnant women attend to it. The American Dental Association and the American College of Obstetricians and Gynecologists provide only advisory brochures on oral health for pregnant patients. In the absence of practice guidelines, fear of medicolegal action based on negligent or substandard treatment of oral conditions during pregnancy abounds, but it is largely unfounded.[3] Pregnancy is a time when women may be more motivated to make healthy changes.[3]Physicians can address maternal oral issues, potentially reducing the risk of preterm birth and childhood caries through oral disease prevention, diagnosis, early management, and dental referral. In addition to a lack of practice standards, barriers to dental care during pregnancy include inadequate dental insurance, persistent myths about the effects of pregnancy on dental health, and concerns for fetal safety during dental treatment.[5] Patients, physicians, and dentists are cautious, often avoiding treatment of oral health issues during pregnancy.

Materials and Methods

A clinical study was conducted on 100 pregnant women aged 18 to 36year at 16 to 24 weeks of gestation. Each participant presented with clinical evidence of generalized periodontitis, moderate-to-severe gingivitis, odontogenic infections. Oral hygiene products were provided, together with instructions for an intensive daily regimen of hygiene practices. Non-surgical therapy was provided at baseline. Oral examinations were completed at baseline and again at 3 and 6 weeks. The visits in study were scheduled with monthly obstetric visits. At the firstvisit the participant's demographic data and initial oral hygiene habits and oral hygiene knowledge were collected. In an effort to capture postintervention oral hygiene knowledge, beliefs, and behavior, participants were examined again and were provided with a supply of dental care products.

Results

The preventive programs started during pregnancy may improve health behavior. Caries, periodontitis, and dietary complications in mother and child can be avoided by improving maternal oral health and by a tooth-friendly diet. The rate of preterm births (<37 weeks of gestation) was 6.7% (P = 0.113) and low birth weight (<2,500 g) was 10.2% (P = 1.00).

Common Oral Ailments Observed In Pregnant Females

Acute Dental Conditions

The possible compromise of oral health during pregnancy is well known, however severe odontogenic infections are rarely considered in the literature. The commonest odontogenic infections are periapical abscess, pericoronitis and periodontal abscess[6-7]. Facial spaces are potential spaces divided into primary and secondary on the basis of direct and indirect involvement from the

original focus. Common complaints associated with severe infections like ludwigs angina are swelling (Figure 1), pain, pus discharge, limitation of mouth opening, dysphagia and fever.[8]

Pregnancy Oral Tumor

Pregnancy oral tumor (Figure 2) is caused by increased progesterone in combination with local irritants and bacteria. It occurs in up to 5 percent of pregnancies and is indistinguishable from pyogenic granuloma. These vascular lesion are typically erythematous, smooth, and lobulated, located primarily on the gingiva. The tongue, palate, or buccal mucosa may also be involved. Pregnancy tumors are most common after the first trimester, grow rapidly, and typically recede after delivery. Management is usually observational unless the tumors bleed, interfere with mastication, or do not resolve after delivery. Lesions surgically removed during pregnancy are likely to recur.[9]

Gingivitis

Gingivitis (Figure 3) with a prevalence of 60 to 75 percent is the most common oral disease in pregnancy. Approximately one half of women with preexisting gingivitis have significant exacerbation during pregnancy.[10] During pregnancy, gingivitis is aggravated by fluctuations in estrogen and progesterone levels in combination with changes in oral flora and a decreased immune response. So thorough oral hygiene measures, including tooth brushing and flossing, are recommended. Patients with severe gingivitis may require professional cleaning and need to use mouth rinses.

Periodontitis

Periodontitis is a destructive inflammation of the periodontium (Figure 4) affecting approximately 30 percent of women of child-bearing age.[3] Toxins produced by the bacteria stimulate a chronic inflammatory response and the periodontium is broken down and destroyed, creating pockets that become infected eventually the teeth loosen.[11] In one study, researchers found minimal oral bacteria in the amniotic fluid and placenta of women with preterm labor and periodontitis.[12] It seems probable that this inflammatory cascade alone prematurely initiates labor. The mechanism is thought to be similar for low birth weight; the release of PGE_2 restricts placental blood flow and causes placental necrosis and resultant intrauterine growth restriction.[13]

Poor Pregnancy Outcomes and Periodontitis

Periodontitis has been associated with several poor pregnancy outcomes, although the mechanism by which this occurs remains unclear and controversy exists. Preterm birth is the leading cause of neonatal morbidity in the United States, costing approximately $26.2 billion per year.[14] Studying the direct effect of any risk factor on the outcomes of preterm birth and low birth weight is extremely difficult because of the many confounding variables that may affect the same outcome. In a large, U.S. based study it was found that no association is between periodontitis and preterm birth and low birth weight.[15]

Figure 1; Acute Dental Conditions (Cellulitis)

Figure 2; Gingivitis

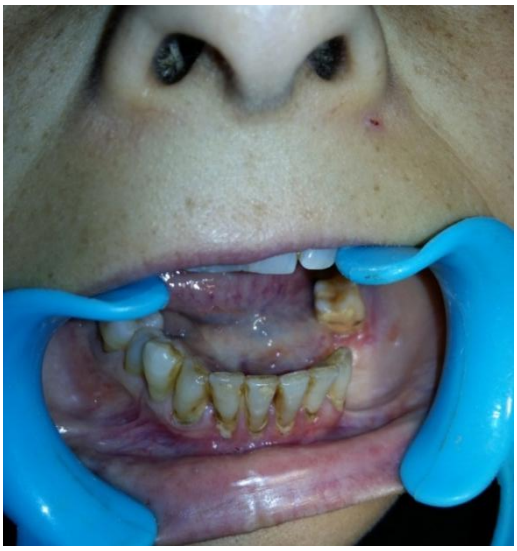

Figure 3; Moderately severe periodontitis.

Figure 4; Pregnancy oral tumor (pyogenic granuloma).

Discussion

Previous interventional studies focusing on the effect of periodontal treatment to reduce the risk of adverse pregnancy outcomes have been unable to consistently demonstrate a decrease in PTB/LBW rate.[16-17] Whereas those studies focused on the treatment of mild-to-moderate periodontitis, few investigations have assessed the effect of intervention on PTB in pregnant women diagnosed with gingivitis.[18] This study evaluates the effect of o oral health measures, education and counselling with use of audiovisual aids and nonsurgical therapy on gingival and systemic inflammation in pregnant women diagnosed with pregnancy-associated gingivitis. It is established that vaginal and other distant infections by Gram-negative bacteria may activate a cell-mediated immune response resulting in the production of cytokines such as IL-1β, IL-6, TNF-α, and prostaglandins able to precipitate preterm labor.[19-20] This study emphasised on oral health education and patient self-care for improved health of pregnant women.

Conclusions

An oral health care promotion starting during pregnancy may cause a sustained and long-term improvement of the oral health of pregnant females. An economical and low-morbidity oral hygiene intervention may be beneficial and cost effective in overall improvement of maternal oral and systemic health and reduce adverse pregnancy outcome in high-risk populations.

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