

Knowledge and Awareness among Gynecologists in Davangere about the Association between Periodontal Disease and Pregnancy Outcomes & Referral Pattern of Pregnant Woman to Periodontists - A Cross Sectional Survey

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ABSTRACT

Background: Existed Scientific Literature showed periodontal diseases are risk factors for adverse pregnancy outcomes. Lack of awareness and attitudes regarding oral health leads to neonatal mortality and preterm low birth weight among infants. Indeed, there is a lack of role of medical professionals in this aspect to deliver appropriate and standardized prenatal oral care to pregnant women. Hence, it is essential to evaluate the knowledge, awareness of medical health professionals about periodontitis and its association with adverse pregnancy outcomes & to evaluate the referral pattern.

Materials and Methods: A cross-sectional survey was conducted among gynecologists practicing in Davangere, Karnataka, India using a questionnaire. The entire questionnaire was individually distributed and answers were collected in the presence of the investigator.

Results: Out of 140 participants 75% were not aware of the branches in dentistry. 73% of the participants agree that a hormonal change affects gingival tissue. 90% agree that dental treatment can be performed during pregnancy. 77.1% refer the pregnant women with gingival changes to dentist and 99% refer them during the 2nd trimester.

Conclusion: Gynecologists play a vital role in providing the primary health care during pregnancy. They act as a bridge between pregnant women and dentists. Bilateral interdisciplinary protocol is very much needed to reduce the various risk factors in pregnancy. Hence Collaborative treatment by gynecologists and dentists will help to improve the maternal oral health and reduce the postnatal complications

Key Words: Gynecologists, oral health, periodontal disease, pregnancy

INTRODUCTION

The mouth serves as a mirror to general health status and also acts as a portal for disease to the rest of the body.¹ Oral health during pregnancy has long been a focus of interest. It involves multiple substantial and hormonal changes that have a momentous impact at the time of pregnancy.² Oral health problems with pregnancy primarily includes gingivitis,

pregnancy granuloma, and periodontitis.³⁻⁵

Pregnant women with periodontitis may be at a higher risk of preterm birth weight/low birth weight infant.^{6, 7} Assessment of oral health care and referral pattern at the time of pregnancy by gynecologists plays an important role in the prevention of adverse outcomes of pregnancy.

Periodontal disease is a chronic inflammatory condition characterized by

destruction of the periodontal tissues and resulting in loss of connective tissue attachment, alveolar bone, and the formation of pathological pockets around the diseased teeth. Some amount of periodontal disease has been found in most of the populations and is responsible for a substantial portion of the tooth loss in with aging. Bacterial plaque has been established as the primary etiologic factor in the initiation of periodontal disease⁸.

The periodontal homeostasis involves intricate multifactorial relationships, in which the endocrine system plays an important role⁹. Puberty, menstrual cycle, pregnancy, and menopause are all phases that specifically influence oral and periodontal health in women. Increased hormonal levels during puberty affect gingival tissues and the subgingival micro flora. Gingival diseases are modified by systemic factors, which are associated with the endocrine system classified as puberty, menstrual cycle and pregnancy associated gingivitis¹⁰. Pregnant women should maintain proper oral hygiene because they are more prone to gingivitis and periodontitis which in turn affects the child's health. Gynecologists treat the women with hormonal problems and pregnancy; it is their responsibility to educate them about the oral hygiene, which is very important for the maintenance of overall health. Medical and dental professionals should work synchronously for overall benefit of the patient. Hence the aim of our present study is to evaluate the knowledge and awareness regarding the association between periodontal disease and pregnancy outcomes among gynecologists and referral pattern to Periodontists in Davangere.

MATERIALS AND METHODOLOGY

A cross sectional survey was conducted on Gynecologists practicing in Davangere, Karnataka, India. The inclusion criterion for the study was gynecologists who are willing to participate in the study. After a brief introduction about the study, a

total of 140 gynecologists were willing to participate in the study. After obtaining informed consent from all participants, the questionnaire was individually distributed and answers were collected in the presence of the investigator. The questionnaire was prepared by taking questions from the previously conducted surveys.^{7,11} The questionnaire was validated with 10 gynecologists before conducting the survey. It consists of 19 questions to evaluate the knowledge and awareness of gynecologist about maternal oral health and their referral pattern to periodontist.

RESULTS

In this cross sectional survey 140 gynecologists participated and completed the questionnaire. Questionnaire contains 19 questions to evaluate the gynecologist's attitude, awareness about the maternal oral health and referral pattern.

Out of 140 participants 75% were not aware of the branches in dentistry. 73% of the participants agree that hormonal changes cause alterations in gingival tissue. 74.3% told that pregnant women don't complain of oral health problems. 48.6% of the practitioners were not aware that pregnant women are more susceptible to bleeding gums. 90% agree that dental treatment can be performed during pregnancy and the most preferred time is 2nd trimester. 83.6% were not aware that pregnant women require additional periodontal care. All the participants advised the proper oral hygiene maintenance during pregnancy. 75.7% agree that gingival changes subside automatically and do not require any treatment. 77.1% refer the pregnant women with gingival changes to dentist and 99% refer them during the 2nd trimester. 68.6% referred only when they find the gingival changes in a pregnant woman. 60% advice pregnant women to maintain good oral hygiene. 77.1% were not aware that periodontal disease is a risk factor in 'Preterm Low Birth Weight' Deliveries only. 40% advice pregnant women to use mouth wash and

antiseptic gel for bleeding gums. 40% prescribed mouthwash, and 35% prescribed vitamin supplements to their patients, which indicated that they were attentive toward a patient's oral health.

DISCUSSION

To the best of our knowledge, till now no study was conducted to assess the knowledge, awareness and referral patterns of gynecologists about maternal oral health and pregnancy outcomes in Davangere city. It reflects the awareness and knowledge of gynecologists practicing in the city. Adverse pregnancy outcomes present a major health concern to the health professionals in developed and developing countries regardless of the high level of public awareness and improvement in prenatal care.¹² Preterm delivery and low birth weight constitute the common causes for neonatal morbidity and mortality. Preterm delivery is associated with risk factors such as smoking, alcohol consumption, race, parity, low maternal weight, older and younger maternal age, short cervical length, stress, low socioeconomic status, poor nutritional status of the mother, genitourinary infections, and other generalized systemic infections. These infections trigger the release of proinflammatory mediators such as interleukin 1(IL-1), tumor necrosis factor alpha (TNF α) and prostaglandin E2 (PGE2), which initiate the preterm labor and low birth weight infant. Periodontitis, a chronic and subclinical disease, is also suspected for providing an inflammatory component in the fetal environment. During pregnancy, the incidence of gingivitis and periodontitis is increased and many pregnant women suffer from bleeding and boggy gums. An increased hormone levels during pregnancy, coupled with lack of oral hygiene, account for most of the gingival changes. Fifty to seventy percent (50%–70%) of all pregnant women develop gingivitis; this condition is called “pregnancy gingivitis” and mostly due to the change in the level of hormones.¹² MinWu et al suggested that sex hormone

(progesterone and estradiol) increase during pregnancy might have an effect on inflammatory status of gingiva, independent of IL-1 β and TNF- α in GCF.¹³

Gynecologists are the primary health care providers for women during pregnancy and have the opportunity to assess the oral health status. They can refer the pregnant women to the periodontist in case of any gingival and periodontal changes or at the initial stage to avoid post natal complications. The results of the present study demonstrate that all the gynecologists were well aware that pregnant women can undergo periodontal therapy during II trimester. But 77.1% were not aware that periodontal disease is a risk factor for ‘Preterm Low Birth weight’ infants. 83.6% were not aware that pregnant women require additional periodontal care if they are suffering.

According to Cohen et al., only 85.8% of Gynecologists are aware of knowledge about periodontitis.¹⁴ Most of the participants (45.5%) gave gingival bleeding are the clinical signs of periodontal disease in this study.

In one more study, the authors Tarannum et al. stated in their study 50% of Gynecologists are aware of periodontal clinical signs during pregnancy.¹¹ Cohen et al.¹⁴ showed 87.4% of them were aware of clinical signs associated with periodontal disease in the general population and pregnant women such as gingival bleeding and gingival overgrowth. Interestingly, tooth loss, caries, and alveolar bone destruction were also identified by Gynecologists as clinical signs associated with periodontal disease. This indicates participants are not aware of the pathogenesis of periodontal disease.

In the present study, 60.7% gynecologists opinioned periodontal disease cause preterm birth in pregnancy and interestingly 15% agreed low birth weight is also one of the risk factors influencing periodontal disease in pregnancy. More alarmingly, only less number of participants (7.1%) optioned periodontal diseases. Rocha

et al. Brazilian Federation of Gynecology and Obstetrics showed 61% of them are aware of the influence of periodontal diseases on pregnancy causes preterm birth and low birth newborn.¹⁵

A study conducted by Shenoy et al¹⁶ concluded that gynecologists' knowledge was high regarding the oral manifestations of periodontal disease but was low regarding periodontal disease as a risk factor in Preterm low birth weight. Another study conducted by Satyanarayana et al¹⁷ showed knowledge of periodontitis is seen more in experienced practitioners with a hospital practice, which concluded clinical behavior regarding oral and periodontal health did not correlate with such knowledge; therefore, specific educational programs should be developed to share knowledge between dentists and gynecologists to develop teamwork. This result was consistent with those reported in other studies.¹⁸⁻²²

However, according to Tarannum et al.¹¹ reported numbers in the study reflect awareness or attitude is not easily discernible. Participant's answers to the question might indicate a lack of awareness of the association or it might reflect their disagreement with the association despite being aware of the evidence. This difficulty in distinction is inherent with survey type studies, so they attempted to frame the question to reflect awareness, i.e., is there an association between periodontal diseases and PLBW infants" rather than attitude, i.e., "Do you believe there is an association between periodontal diseases and PLBW infants," and results were considered more likely to reflect awareness in his study.

This study showed (90.7%) gynecologists' opinioned dental treatment can be carried out in pregnancy. About 68.6% of participants preferred to refer to the dental clinic when they when they are aware of the gingival changes in the pregnant women, hence these results may indicate a strong need for interdisciplinary.

Communication and coordination to declare the provision of sufficient health care to pregnant females. 29.3% of them

considered to give information about their oral health during the consultation if the patient is considered at risk.

The majority of respondents (10.7%) did not interview patients about their oral health and 60% of the participants advised but didn't insist in this study. Cohen et al. found that in his study 97.4% of them showed consideration of dental treatment during pregnancy. 55.8% when they are at risk. 66% of them refer the patient for dental check. Rocha et al.¹⁵ found that in Brazil 58% of them systematically refer the patients to dental care.

According to Strafford et al.¹⁸ in his study the 64% of obstetricians reporting that dental care was important to routine prenatal care, only 49% performed oral health evaluations. Only 40% of them were encouraged to seek dental care by health-care professionals during pregnancy.¹⁸ Some of the other studies showed many patients do not seek and are not advised to seek routine dental care as part of their prenatal care.^{23,24}

Patil et al⁷ demonstrated gynecologists practicing at medical colleges and hospitals had significantly greater health awareness than doctors practicing in private hospitals. A survey conducted by Shah et al²⁵ concluded that gynecologists have limited training regarding the oral health. They conducted a seminar on importance of oral health which improved their knowledge significantly. They demonstrated that occasional training programs or seminars should be conducted to maintain a symbiotic relationship between gynecologists and dentists to prevent complications. The health care of the patients is a reflection of the attitudes of obstetricians towards their oral health. It is also relevant to stress the importance of self-care to each member of the healthcare team, since they are the disseminators of knowledge to those under their care.¹⁵ There is a need for patient motivation as well as guidance to gynecologist about all treatments carried out by Periodontists that will enhance the

treatment outcome as well as help in improving the patient referrals.

CONCLUSION

Gynecologists play a vital role in providing the primary health care during pregnancy. They act as a connecting source between pregnant women and dentists to protect the upcoming generation and make them free of health related complications. In the present survey on gynecologists, it was concluded that they have limited training regarding the importance of maternal oral health. Hence, Seminars, continuing medical education programs and interactive workshops might be useful in creating the awareness for gynecologists in this topic and publication of journals updating the knowledge on perio and maternal health may prove to be useful. Bilateral interdisciplinary protocol can thereby reduce the incidence of maternal and neonatal complications. Collaborative treatment by gynecologists and dentists help to improve the maternal oral health and reduce the postnatal complications

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Questions

Sl.No	Questions	Frequency	Percent
1.	Are you aware of the branches in dentistry?		
	Yes	35	25
	No	105	75
2.	Do you know hormonal changes cause change in gingival tissue?		
	Yes	73	52.1
	No	26	18.6
	Don't know	41	29.3
3.	Do pregnant women complain of problems in their teeth more often than other individuals?		
	Yes	23	16.4
	No	104	74.3
	Don't Know	13	9.3
4.	Are pregnant women more susceptible to bleeding gums?		
	Yes	13	9.3
	No	59	42.1
	Don't Know	68	48.6
5.	Do pregnant women complain of teeth mobility more often than other individuals during gestation period?		
	Yes	43	30.7
	No	47	33.6
	Don't Know	50	35.7
6.	Do pregnant women often complain of swelling/any unusual growth in the gums?		
	Yes	13	9.3
	No	88	62.9
	Don't Know	39	27.9
7.	Can dental treatment be carried out during pregnancy?		
	Yes	127	90.7
	No	9	6.4
	Don't Know	4	2.9
8.	If yes, which trimester is the safest for the dental treatment?		
	2 nd	128	91.4
	Not particular	12	8.6
9.	Do gum infections during pregnancy result in the pre-term low birth weight deliveries?		
	Yes	85	60.7
	No	40	28.6
	Don't Know	15	10.7
10.	Do gum infections during pregnancy result in the Pre-eclampsia?		
	Yes	54	38.6
	No	35	25

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	Don't Know	51	36.4
11.	Do pregnant women need additional periodontal health care during their gestational period to prevent adverse pregnancy outcome?		
	Yes	18	12.9
	No	5	3.6
	Don't Know	117	83.6
12.	Do you insist maintenance of proper oral hygiene in pregnant women?		
	Yes	140	100
13.	Does observed gingival changes need treatment?		
	Yes	18	12.9
	Subside automatically	106	75.7
	Don't Know	16	11.4
14.	If you find a case with gingival changes, you refer it to		
	Dentist	108	77.1
	Don't refer.	32	22.9
15.	During which trimester do you refer patients to dentist?		
	1 st	1	0.7
	2 nd	139	99.3
16.	How frequently do you refer pregnant woman with gingival changes to dentist?		
	Once	96	68.6
	Twice	27	19.3
	More than 3 times.	17	12.1
17.	Do you agree "Periodontal disease is a risk factor in 'Preterm Low Birth Weight' Deliveries"?		
	Yes	21	15
	No	10	7.1
	Don't Know	108	77.1
18.	Do you insist pregnant/planning to be pregnant woman for oral health check-up?		
	Yes	41	29.3
	No	15	10.7
	Advice but don't insist	84	60
19.	What do you prescribe to patients who complain of gingival enlargement/ bleeding Gums?		
	Mouthwash and antiseptic gel	56	40
	Antibiotics & Analgesics	34	24.3
	Vitamin supplements.	50	35.7

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