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AWARENESS AMONG GYNECOLOGISTS IN JAMNAGAR DISTRICT ABOUT PERIODONTAL HEALTH AND ITS CORRELATION TO ADVERSE PREGNANCY OUTCOMES - A CROSS –SECTIONAL QUESTIONNAIRE SURVEY.

Dental Science

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ABSTRACT

Introduction: Periodontitis is an inflammatory disease of the soft and hard support tissues of tooth in response to the supra and subgingival microorganisms. In women with periodontitis, the infected periodontal tissues may act as reservoirs of bacteria and their products that can disseminate to the foetus-placental unit causing adverse pregnancy outcomes like preterm birth. **Aim:** This is a cross sectional survey carried out to access the level of knowledge, attitude, practice and awareness of Gynecologists in Jamnagar district regarding periodontal health and its correlation with adverse pregnancy outcomes. **Materials and method:** An online structured questionnaire had been made and was distributed through social media, responses were collected for a period of 3 months and the collected data were then subjected to statistical analysis. **Result:** Out of 64 participants, 44.88% of the gynecologists answered that regular screening of pregnant patients for periodontal disease is needed and 43.75% agree that dental treatment during pregnancy can reduce pregnancy complications. Only 65.63% were aware of the association between APO (adverse pregnancy outcomes) and periodontal disease. **Conclusion:** Collaborative treatment by gynaecologists and dentists help to improve the maternal oral health, reduce the postnatal complications and increases awareness among pregnant women regarding oral hygiene and regular dental check-up during pregnancy.

KEYWORDS

Adverse pregnancy outcome, Periodontitis, Postnatal complications, Periodontal disease.

INTRODUCTION:

Oral health is the key to overall health and well-being. Pregnancy is a unique period during a woman's life, when the body is subject to hormonal changes leading to several physical changes in the oral cavity during pregnancy. Some of these changes may cause tooth decay, erosion and periodontal health change. Prenatal care improves pregnancy outcomes [1]. Proper dental care during pregnancy and recommended dental interventions are important to maintain health and wellbeing of expecting mother and developing foetus [1]. Dental treatment may be limited depending on gestational age and performed following gynecologist recommendations. Pregnancy is divided into three trimesters of approximately three months each. Ideally, dental procedures should be scheduled during the second trimester of pregnancy when organogenesis is complete [19]. In the ideal childbirth labor begins on its own when a woman is "at term". Babies born before 37 weeks are "preterm". Babies born between weeks 37 and 39 are considered "early term" while those born between weeks 39 and 41 are considered "full term".

Periodontitis is an inflammatory disease of the soft and hard support tissues of tooth in response to the supra and subgingival microorganisms. In women with periodontitis, the infected periodontal tissues may act as reservoirs of bacteria and their products that can disseminate to the foetus-placental unit causing adverse pregnancy outcomes like preterm birth (Offenbacher et al. 1996). Several studies have investigated the occurrence of periodontal disease during pregnancy, yielding a wide variation in prevalence (11% to 100%)[2,3]. Pregnant women with periodontal disease have been reported to be at increased risk of APO (adverse pregnancy outcomes) [4,15], including

1. Preterm delivery [7,8]
2. Low birth weight (LBW)[9,10]
3. Preeclampsia [5,6]

In the systematic review by X Xiong et al.(2005)[16] they found that periodontal disease may be associated with an increased risk of adverse pregnancy outcome. However, many other studies failed to confirm these associations [11-13]. In the systematic review by Daalderop et al.(2018) concluded that the association between periodontal disease and various common and severe adverse pregnancy outcomes had been now sufficiently established for the field to start moving beyond conducting additional primary epidemiologic studies and systematic reviews.

AIM:

To access the level of knowledge, attitude, practice and awareness of Gynecologists in Jamnagar district regarding periodontal health and its correlation with adverse pregnancy outcomes

OBJECTIVES:

1. To increase the awareness among gynecologists on periodontal health during pregnancy
2. To reinforce gynecologists to advice the pregnant patient to undergo prenatal dental care during pregnancy.

MATERIAL AND METHOD:

This was a cross sectional survey conducted in Jamnagar district, Gujarat, India. An online structured questionnaire had been made using https://docs.google.com/forms, accessing the knowledge, attitude and practice of gynecologists towards periodontal health and its association to adverse pregnancy outcome. The questionnaire was structured explaining the introduction, participation information and consent sheet followed by demographic details and questions related to knowledge, attitude and practice (total 20 questions).

Data Collection

The online questionnaire was distributed through social media, responses were collected for a period of 3 months and the collected data were then subjected to statistical analysis.

Statistical Analysis

The data were entered into an Excel spreadsheet and analysed.

Descriptive analysis was undertaken to present an overview of the findings from this sample.

RESULT

In this cross sectional survey 64 responses out of 75 were collected. Questionnaire contained 20 questions to evaluate knowledge, attitude, practice and awareness of Gynecologists in Jamnagar district regarding periodontal health and its correlation with adverse pregnancy outcomes.

Out of 64 participants, 44.88% of the gynecologists answered that regular screening of pregnant patients for periodontal disease is needed, 39.06% answered screening may be required. 82.81% in this survey agree that having gum problem during pregnancy is not safe. 61% answered that pregnant women need additional periodontal health care during their gestational period to prevent adverse pregnancy outcome, 6% answered that additional care is not needed during pregnancy ,33% answered it may be required . All agreed that dental treatment can be carried out during pregnancy and 43.75% agree that dental treatment during pregnancy can reduce pregnancy complications, 50% answered dental treatment may reduce pregnancy complication, 6.25% answered that dental treatment doesn't reduce pregnancy complications. 81.25% of the gynecologists were aware of the association between hormonal change and oral microbiota & periodontal disease. 65.63% were aware of the association between APO (adverse pregnancy outcomes) and periodontal disease. Only 14% of them examine the oral cavity of the patient as a general physical examination. 20.6% of the pregnant women complaints of having gum problem. 56.25% of them prescribe medication for the same. All refer their patients for dental treatment if needed.

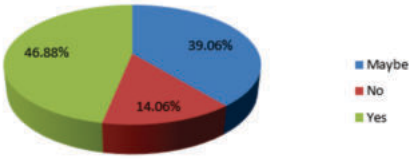
Attitude	Yes	No	May be
Q1. Is regular screening of pregnant patients for periodontal disease necessary?	44.88 %	14.06 %	39.06 %
Q2. Do you think having gum problem during pregnancy is safe?	7.81%	82.81 %	9.38 %
Q3. Do pregnant women need additional periodontal health care during their gestational period to prevent adverse pregnancy outcome?	61%	6%	33%
Q4. Can dental treatment be carried out during pregnancy?	100%	0%	-
Q5. Do you think dental care during pregnancy can reduce pregnancy complications?	43.75 %	6.25 %	50%

Knowledge	Yes	No	May be
Q6. Are you aware of hormonal changes and its association between gingival tissue changes?	81.25 %	9.38 %	9.38 %
Q7. Are you aware of the hormonal influence on the oral microbial flora?	81.25 %	9.38 %	9.38 %
Q8. Are you aware of the association between gum disease and adverse pregnancy outcome?	65.63 %	14.03 %	20.31 %
Q9. Are you aware that gum disease is a risk factor for Pre-term Low Birth Weight delivery?	57.81 %	21.88 %	20.38 %
Q10. Are you aware that gum disease is a risk factor for Pre-eclampsia?	59.38 %	28.13 %	12.50 %
Q11. Are you aware that gum disease during pregnancy can increase the risk of Gestational Diabetes?	51.56 %	21.88 %	26.56 %
Q12. Have you come across any article supporting the association between periodontal disease and adverse pregnancy outcomes?	54.69 %	45.31 %	-

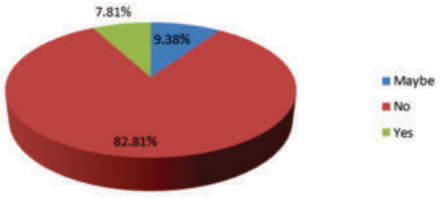
Practice	Yes	No	Maybe /Not often
Q13. Do you examine oral cavity as a part of your routine physical examination of the patient?	14.0%	62.50%	23.50%
Q14. Do you insist maintenance of proper oral hygiene in pregnant women?	42.19%	29.69%	28.13%
Q15. Do you insist pregnant women or women planning to be pregnant for oral health check-up?	31.25%	39.06%	29.69%
Q16. Do pregnant patients complaint about bleeding gums, swollen gums?	20.63%	7.94%	71.43%
Q17. If yes, do you think observed gingival changes needs treatment?	59.38%	9.38%	31.25%
Q18. Do you prescribe any medication for the same?	56.25%	43.75 %	-
Q20. Do you refer patients with c/o of gum disease to a dentist /periodontist?	100%	0%	-

Q19. Do you prescribe any medication for the same? If yes,	Mouthwash 37.50%	Antibiotic and analgesics 12.50%	Vitamin 43.75%	Others 6.25%

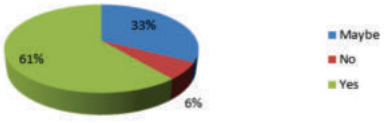
1.Is regular screening of pregnant patient for periodontal disease is necessary?



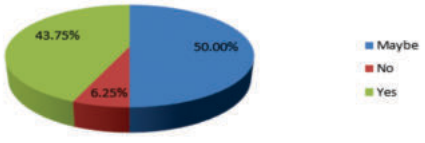
2.Do you think having gum problem during pregnancy is safe?



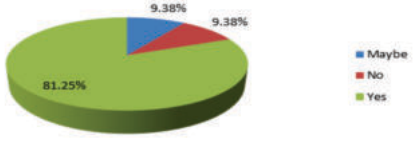
3.Do pregnant women need additional periodontal health care during their gestational period to prevent adverse pregnancy outcome?



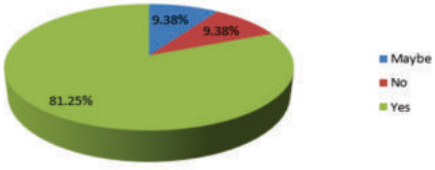
5. Do you think dental care during pregnancy can reduce pregnancy complications?



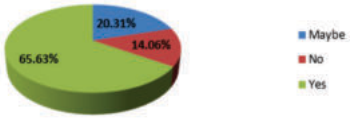
6. Are you aware of hormonal changes and its association between gingival tissue changes?



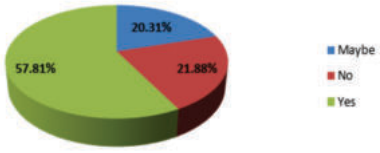
7. Are you aware of the hormonal influence on the oral microbial flora?



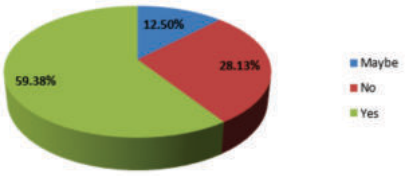
8. Are you aware of the association between gum disease and adverse pregnancy outcome?



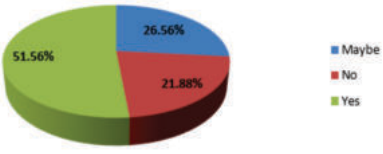
9. Are you aware that gum disease is a risk factor for Pre-term Low Birth Weight delivery



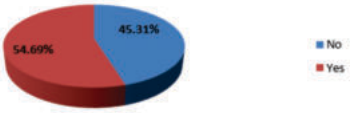
10. Are you aware that gum disease is a risk factor for Pre-eclampsia?



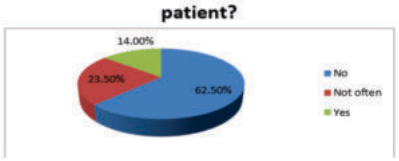
11. Are you aware that gum disease during pregnancy can increase the risk of Gestational Diabetes?



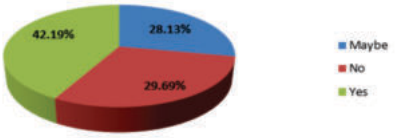
12. Have you come across any article supporting the association between periodontal disease and adverse pregnancy outcomes?



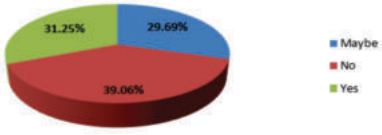
13. Do you examine oral cavity as a part of your routine physical examination of the patient?



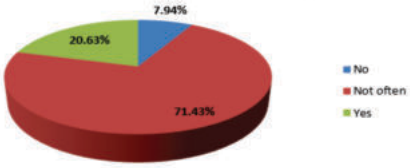
14. Do you insist maintenance of proper oral hygiene in pregnant women?



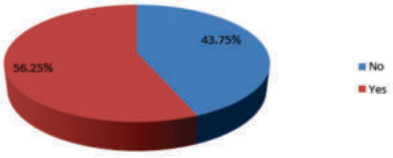
15. Do you insist pregnant women or women planning to be pregnant for oral health check-up?



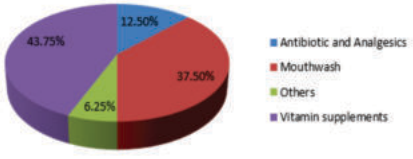
16. Do pregnant patients complaint about bleeding gums, swollen gums



18.Do you prescribe any medication for the same?



19. Medication prescribed, if any



DISCUSSION

This study reflects the awareness and knowledge of gynecologists practicing in the city. Adverse pregnancy outcomes present a major health concern in developing and also in developed countries. The pathological mechanisms by which chronic periodontitis may cause, or exaggerate, an inflammatory response resulting in premature termination of a pregnancy remains unclear. The following bacterial species (Periodontal pathogens) have been more strongly associated with adverse pregnancy outcomes: *Fusobacterium nucleatum, Campylobacter rectus, Porphyromonas gingivalis* and *Bergeyella sp*[18]. Pro-inflammatory mediators like cytokines and chemokines (e.g. tumor necrosis factor (TNF)-α, interleukin (IL)-1, IL-6 and IL-8) are involved in periodontitis and alsoin preterm labor (Hitti et al. 2001) .

Two major pathways proposed
(1) Direct pathway
Oral microorganisms and/or their components reaching foetal–placental unit
a. via Haematogenous dissemination
b. via genitourinary tract.

(2) Indirect pathway
a. Inflammatory mediators locally produced in periodontal tissues, for example, PGE2, TNF-α, circulate and impact the foetal–placental unit,
b. Inflammatory mediators and/or microbial components circulate to the liver, enhancing cytokine production (e.g. IL-6) and acute phase protein responses (e.g. CRP), which then impact the foetal–placental unit.

Confounding Factors:
Identifiable potential confounders, which may influence the association between periodontitis and adverse pregnancy outcomes includes:
(a) Socio-economic status,
(b) Race and ethnicity,

(c) Smoking and use of recreational drugs.

Several other exposures may also have a role, although these have not been confirmed, and these may include:
(a) Maternal age and weight, and weight gain during pregnancy,
(b) Behavioural and lifestyle factors including alcohol use, nutritional status, exercise and stress,
(c) Other medical conditions including obesity, metabolic syndrome and diabetes.

It has been postulated that periodontal infection may cause bacteraemia and the circulation of endotoxins that might trigger a host immune response which exaggerates the effects of low-grade inflammation in other organs. Any infection that may cause chorioamnionitis resulting in elevated cytokine and PG levels in the amnionic fluid including high levels of IL-6 may induce premature rupture and the initiation of birth (Yoon et al. 1998, Lewis et al. 2001, Keelan et al. 2003). During pregnancy, the incidence of gingivitis and periodontitis is increased and many pregnant women suffer from bleeding and swollen gums. An increased hormone levels during pregnancy, coupled with lack of oral hygiene, account for most of the gingival changes. About 50-70% of pregnant women develop "pregnancy gingivitis". Raber-Durlacher et al. in 1994 conducted an experimental gingivitis study on pregnant women and found that there is an increase in total bacterial load during pregnancy.

Intervention studies, however, have suggested that non-surgical periodontal therapy in pregnant women with periodontitis may reduce the risk for preterm delivery and low-birth-weight births (Lopez et al. 2002, Jeffcoat et al. 2003)[17]. However, available evidence does not provide clinical, microbiological or immunological parameters (or combinations of the above) that define patient subgroups whose pregnancy outcomes would be improved with periodontal treatment. Patil et al demonstrated gynecolo-gists practicing at medical colleges and hospitals had significantly greater health awareness than doctors practicing in private hospitals[20]. Shah et al conducted a survey and concluded that gynaecologists have limited training regarding the oral health, and they demonstrated that occasional training programs or seminars should be conducted to maintain a symbiotic relationship between gynecologists and dentists to prevent complications [21].

CONCLUSION

The strength of associations observed based on clinical parameters is modest and seems to vary according to the population studied. Although periodontal therapy has been shown to be safe and leads to improved periodontal conditions in pregnant women, scaling and root surface debridement, with or without adjunctive care including systemic antibiotics, does not reduce overall rates of pre-term birth and low birthweight. Interactive workshops might be useful in creating awareness on oral and systemic health among gynaecologists as well as general practitioners. Collaborative treatment by gynaecologists and dentists help to improve the maternal oral health, reduce the postnatal complications and increases awareness among pregnant women regarding oral hygiene and regular dental check-up during pregnancy. Therefore, additional research is needed to better understand the pathophysiology and risk profile that underlie these associations, to develop the most appropriate treatment modalities with respect to type, time and intensity, as well as to identify subpopulations of pregnant women, who will benefit most from these interventions.

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