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KNOWLEDGE ABOUT ASSOCIATION OF PERIODONTAL DISEASESWITH ADVERSE PREGNANCY OUTCOMES AMONG DENTAL PRACTITIONERS, MEDICAL PRACTITIONERS AND GYNECOLOGISTS

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CONFLICT OF INTEREST

No funding was received for this research study and there are no conflicts of interest related to this study.

ABSTRACT

Objective: The objective of this study was to assess the awareness of association between periodontal disease and adverse pregnancy outcomes among dental practitioners, medical practitioners and gynecologists.

Methods: In this cross-sectional study, an anonymous, structured and self-administered questionnaire with eight close ended items was administered to 199 subjects comprised of dental practitioners (n=52), medical practitioners (n= 64) and gynecologists (n=83). The knowledge scores were compared between the three groups of health care providers and also influence of gender and educational qualification was assessed.

Results: The total knowledge score among all the health care providers was 64.25%.The knowledge scores were significantly higher in dental practitioners (5.80±1.31), followed by gynecologists (5.43±1.76) and medical practitioners (4.21±1.88) at p=0.00. There was no statistically significant difference among male and female knowledge score though it was comparatively higher in females (5.37±1.77) than males (4.92±1.85) at p=0.688. The knowledge scores were higher among subjects with doctoral degree (5.51±1.59) followed by master degree (5.43±1.82) and bachelor degree (4.78±1.83) at p=0.032.

Conclusion: Findings of this study showed lesser degree of knowledge of association between pregnancy outcomes among health care providers especially among medical practitioners.Our study recommends the incorporation of topic related to this association in dental and medical curriculum and publishing the related researches in medical journals to enhance the knowledge and awareness of this association.

Keywords: Adverse pregnancy outcomes, Periodontitis, Preterm birth low birth weight, eclampsia

INTRODUCTION

Adverse pregnancy outcomes such as preterm birth are major medical, social, and economic problem that accounts for a large proportion of maternal, and especially neonatal mortality, acute morbidity, and long-term sequelae.[1]Pregnancy outcomes vary from pregnancy to pregnancy which includes; normal live birth, low birth weight, prematurity in the baby, stillbirth, intrauterine foetal death, early neonatal death and late neonatal death and adverse pregnancy outcomes are those pregnancy outcomes otherthan normal live birth which majorly includes preterm birth, stillbirth and low birth weight.[2]Every year millions of preterm babies are born which

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may lead many complications such as cardiovascular disorders, respiratory syndromes, neurological problems etc. The relationship between pregnancy outcome and maternal colonization with a wide variety of bacterial, fungal, protozoan, and viral organisms has been studied for many years and adverse pregnancy outcomes can follow direct placental, foetal, or neonatal infection, or preterm birth associated with vaginal, cervical, intrauterine, or even nonpelvic infections.[3]

Periodontitis is a pathogen-induced chronic inflammatory destruction of tooth-supporting structures characterized by an intricate interplay between host genome and periodontal polymicrobiota.[4] Periodontitis severity and progression is influenced by many systemic diseases and there is growing evidence that suggests the association between adverse pregnancy outcomes and periodontitis.[5-9]A systematic review of two decades of clinical research on periodontal diseases and adverse pregnancy outcomes in various countries provides the evidence for significant link between periodontal diseases and some complications of pregnancy.[10]Periodontal bacteria originating in the gingival biofilm directly affect the foeto-placental unit subsequent to bacteraemiaand/or inflammatory mediators secreted by the subgingival inflammatory site are carried to the foeto-placental unit, where they then cause an inflammatory response.[11]American Academy of Periodontology has recommended that pregnant women or women planning pregnancy undergo periodontal examination and receive appropriate treatment if indicated because of the likelihood of its positive effects on pregnancy outcomes.[12].

As the health care providers form the integral part of delivering health care to the public, knowledge about this association among them is vital for the prevention of these adverse pregnancy outcomes. In this study, attempt was made to assess the knowledge and awareness of association between adverse pregnancy outcomes and periodontitis among general dentists, medical practitioners and gynaecologists.

METHODS

This cross-sectional study consists of questionnaire survey, where subjects were requested to complete an anonymous, structured and self-administered questionnaire. Study protocol was in ethical compliance and institutional ethical clearance was obtained. The questionnaire in this survey is a close ended questionnaire with responses presented as yes/no/don't know choices. Questionnaire included the details on age, gender, qualification, specialization and 8 questions that assessed the knowledge of the subjects regarding association between PLBW and periodontal disease. Study involved the data from total of 199 subjects, of which 52 were practicing dentistry, 64 medicine and 83 gynaecology. Among these subjects, 103 were males and 96 were females. The data collected was analysed statistically and compared between various groups for the awareness of association between adverse pregnancy outcomes and periodontal disease. Descriptive statistics was carried out for collected data using student t test, chi-square test and ANOVA analysis with $p<0.05$ as significant.

RESULTS

Among the study subjects, 51.8% (n=103) were males and 48.2% (n=96) were females. 199 study subjects, 47.7% (n=95) were having bachelor degree, 34.7% (n=69) were having master degree and 17.6% (n=35) were having doctoral degree. 26.1% (n=52) of subjects were practicing dentistry, 32.2% (n=64) medicine and 41.7% (n=83) gynaecology.

The total knowledge score among all the health care providers was 64.25%. Comparison between the mean knowledge scores among dental practitioners, medical practitioners and gynaecologists is presented in table-1. The mean knowledge scores were significantly higher in dental practitioners, followed by gynaecologists and medical practitioners at p=0.000. The responses of the various health care providers to the questions assessing the knowledge about the association is shown in table.2. The percentage of knowledge scores were higher in dental practitioners (72.59%), followed by gynaecologists (59.78%) and medical practitioners (52.73%). Table-3 shows Comparison of knowledge score with gender and educational qualifications. There was no statistically significant difference among male and female knowledge score though it was comparatively higher in females (67.1%) than males (61.5%). The knowledge scores were higher among subjects with doctoral degree (69%) followed by master degree (67%) and bachelor degree (59.8%) at p=0.032.

DISCUSSION

Awareness of association between adverse pregnancy outcomes and periodontitis among health care providers plays a crucial role in recognizing the risk of predisposition to adverse pregnancy outcomes and its prevention. Thus, our study was undertaken to evaluate the awareness of association between periodontal diseases and adverse pregnancy outcomes among the dental practitioners, medical practitioners and gynaecologists.

The awareness of association between adverse pregnancy outcomes and periodontal disease was higher in dental practitioners than the gynecologists and medical practitioners which might be due to the frequent discussions on this association in dental conference and seminars but not in the medical field. Our finding in this study was in accordance with the study by Fouzia et al. that showed the higher total knowledge score of association between

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PLBW and periodontal disease among the general dental practitioners in comparison to general medical practitioners and gynecologists.[13]However, our study finding is in contradiction to the finding of Hashim et al., who reported that the gynecologists have a relatively high degree of knowledge with respect to the relationship of periodontal disease to pregnancy outcome.[14] Another study by Cohen et al., also reported satisfactory knowledge of the French obstetricians and/or gynaecologists surveyed.[15]

Our study also showed that only 64% of the health care providers were aware of this association between adverse pregnancy outcomes and periodontal disease. This finding indicates the demand for incorporation of this topic in dental and medical curriculum. So that the health care providers recognize the risk factors such as periodontal disease that predisposes to the adverse pregnancy outcomes which is one of the leading causes for child mortality.

Our study also evaluated the associated influencing characteristics such as gender and qualification. The knowledge about this association was comparatively higher among female health care providers than the male but the difference was not significant. But we observed the influence of qualification on understanding this association. Higher the degree of qualification, higher were the knowledge score. Subjects with doctoral degree showed the greater knowledge about this association than the subjects with master and bachelor degrees. This finding may be due to the detailed knowledge gained about the etiopathogenesis of various diseases during the higher study process indicating the need of specialization and further higher education in the medical studies in this topic. However, smaller sample size is the limitation of this study. Hence, further studies with larger sample size are needed.

CONCLUSION

Findings of this study showedlesser degree of knowledge of association between pregnancy outcomes among health care providers especially among medical practitioners. In the view of gradual rise in the incidences of adverse pregnancy outcomes such as PLBW, eclampsia etc. and their association with periodontal diseases, there is need for the health care providers to recognize the risk factors such as periodontal diseases and employ appropriate preventive measures. Our study recommends the incorporation of such topic in dental and medical curriculum, organizing the seminars and interactive workshops, publishing the research related to this in medical journals to enhance the knowledge and awareness of this association especially among medical practitioners and gynecologists.

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Table-1: Comparison of mean knowledge scores among dental practitioners (D), medical practitioners (M) and gynecologists (G)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		P value
					Lower Bound	Upper Bound	
D	52	5.8077	1.31415	.18224	5.4418	6.1736	.000
G	83	5.4337	1.76823	.19409	5.0476	5.8198	
M	64	4.2188	1.88956	.23619	3.7468	4.6907	
Total	199	5.1407	1.81751	.12884	4.8866	5.3948	

Table-2: Response of the subjects to the questions regarding the association between PLBW and periodontal disease

Questions	Response	Dental Practitioners (n=52)	Medical Practitioners (n=64)	Gynecologists (n=83)	p-value
Does periodontal diseases affect systemic health of an individual?	Yes No Don't Know	52 (100%) 0 0	59 (92.2%) 4 (6.3%) 1 (1.6%)	76 (91.6%) 5 (6.0%) 2 (2.4%)	0.320
Are you aware of any link between periodontitis and adverse pregnancy outcomes?	Yes No Don't Know	50 (96.2%) 2 (3.8%) 0	29 (46.0%) 22 (34.9%) 12 (19.0%)	52 (62.7%) 27 (32.5%) 4 (4.8%)	0.000
Can periodontal infection induce systemic inflammatory response which in turn can influence pregnancy outcomes?	Yes No Don't Know	48 (92.4%) 4 (7.7%) 0	26 (40.6%) 24 (37.5%) 14 (21.9%)	51 (61.4%) 25 (30.1%) 7 (8.4%)	0.000
Have you come across any literature regarding this topic?	Yes No Don't Know	19 (36.5%) 31 (59.6%) 2 (3.8%)	23 (35.9%) 23 (35.9%) 18 (28.1%)	43 (51.8%) 32 (38.6%) 8 (9.6%)	0.000
Do you know about American Academy of Periodontology's recommendation of periodontal examination and treatment to pregnant women or women planning pregnancy?	Yes No Don't Know	50 (96.2%) 2 (3.8%) 0	43 (67.2%) 10 (15.6%) 11 (17.2%)	68 (81.9%) 10 (12.0%) 5 (6.0%)	0.000
Do you think it is necessary to screen pregnancy women for periodontitis?	Yes No Don't Know	50 (96.2%) 0 2 (3.8%)	34 (53.1%) 12 (18.8%) 18 (28.1%)	58 (69.9%) 11 (13.3%) 14 (16.9%)	0.000
Does periodontitis should be considered as risk factor for adverse pregnancy outcomes?	Yes No Don't Know	16 (30.8%) 21 (40.4%) 15 (28.8%)	22 (34.4%) 13 (20.3%) 29 (45.3%)	43 (51.8%) 33 (39.8%) 7 (8.4%)	0.000
Does periodontal treatment of pregnant women reduce the risk of adverse	Yes No	17 (32.7%) 24 (46.2%)	34 (53.1%) 15 (23.4%)	60 (72.3%) 16 (19.3%)	0.000

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pregnancy outcomes?	Don't Know	11 (21.2%)	15 (23.4%)	7 (8.4%)	

Table-3: Comparison of knowledge score with gender (male-M and Female-F) and educational qualifications (Bachelor degree-B, Master degree-M, Doctoral degree-D)

	N	Mean	Std. Deviation	Std. Error	P value
M	103	4.9223	1.85075	.18236	0.688
F	96	5.3750	1.76068	.17970	
B	95	4.7895	1.83868	.18864	0.032
M	69	5.4348	1.82691	.21993	
D	35	5.5143	1.59727	.26999	