Evaluation of Oral Health Condition among the Pregnant Females at Tertiary Care Hospital of Hyderabad, Sindh

Palwash a*, Yaswant Rai b, Maria Javaid c, Nisar Ahmed Khokhar d and Roohi Nigar e

a Department of Physiology, People’s University of Medical and Health Sciences for Women, Nawabshah, Sindh, Pakistan.
b Department of Public Health, Bhitai College of Nursing and Allied Health Sciences, Mirpurkhas, Sindh, Pakistan.
c WMO in GRD Nara, Tehsil Jand, District Attock, Punjab, Pakistan.
d Department of Medicine, Bilalwal Medical College LUMHS Jamshoro, Pakistan.
e Department of Obstetrics and Gynaecology, Bilalwal Medical College LUMHS Jamshoro, Pakistan.

Authors’ contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i60B34596

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/81082

Received 15 October 2021
Accepted 20 December 2021
Published 21 December 2021

Original Research Article

ABSTRACT

Background: Gestational is special and interesting period for every woman that covers the physiological hormonal changes and leads to the development of new healthy life. Changes in hormones during pregnancy may alter the physiological conditions that impose the bad impact of different body parts including gastric and oral health of the mother. Oral health plays an important role for maintaining normal and healthy life of human being and if any disease or disorder appeared within the oral cavity, it may leads to severity of disease and disturbed normal routine life.

Aims and Objectives: This study aims to evaluate the condition of oral health during gestational period.

Materials and Methods: Descriptive cross sectional study was carried out for the period of six months at Department of Gynecology & Obstetrics ward, Liaquat University of Medical & Health Sciences, Jamshoro and females with positive pregnancy were included in the study and total 146
females were selected, after the signature on informed consent form. Medical history was taken in order to ensure any major disease or medication affecting oral health.

Results: After collection of proper data from all participants, the results were finalized, 19 females were belonging to age group of 18-21 years, and 51 females belong to 26-29 years. 47 females had good OHI-S score, 59 had fair OHI-S score. 31 female had 1st trimester, 81 females had 2nd trimester and 34 had 3rd trimester. 19 females had normal PI index, 94 had simple gingivitis and 33 females had periodontitis.

Conclusion: It was important to maintain good oral hygiene before and during pregnancy, so as to prevent the occurrence of periodontal disease and to avert the irreparable damage that may arise during the period of pregnancy.

Keywords: Pregnancy; oral health index; physiological changes; gingivitis.

1. INTRODUCTION

Oral health plays an important role for maintaining normal and healthy life of human being and if any disease or disorder appeared within the oral cavity, it may leads to severity of disease and disturbed normal routine life. Gestational is special and interesting period for every woman that covers the physiological hormonal changes and leads to the development of new healthy life. Changes in hormones during pregnancy may alter the physiological conditions that impose the bad impact of different body parts including gastric and oral health of the mother [1]. It is observed that during the gestational period the level of hormones increases up to thrice time as compared to normal physiological condition and the effect of these hormones also observed in oral cavity. Estrogen and progesterone have direct effect on gums or oral cavity and both hormones are responsible for developing the condition of gingivitis. Many researches elaborate that the contribution of sexual hormones on the vascular system of oral cavity during pregnancy [2]. According to survey, it is observed that the synthesis of prostaglandin has directly interaction with normal physiological levels of progesterone and estrogen. Various prostaglandin receptors including PG-E1 & PG-E2 worked as prolong mediators of inflammation [3]. Progesterone levels increases during gestational period and its enhanced level increases the vascular dilation of gingival membrane that enhance capillary permeability and leads to exudates the gums secretions [4]. C-reactive protein is considered as marker for systematic inflammation and it is only marker responsible for periodontal diseases [5]. Periodontal diseases are probable risk factors for severe and adverse gestational outcomes such as preterm delivery, low birth weight [6]. Current study was conducted to evaluate the levels of oral hygiene during the period of pregnancy.

2. MATERIALS AND METHODS

Descriptive cross sectional study was carried out for the period of six months at Department of Gynecology & Obstetrics ward, Liaquat University of Medical & Health Sciences, Jamshoro and females with positive pregnancy were included in the study and total 146 females were selected, after the signature on informed consent form. Medical history was taken in order to ensure any major disease or medication affecting oral health, habit of smoking and alcohol consumption was also noted. The oral health condition of study subjects was assured through three different scales including Simplified Oral Hygiene index (OHI-S) that was used to indicate the presence of debris and calculus on the surface of teeth, Estimation of dental caries was measured through Decayed Missing Filled Teeth Index (DMFT) whereas Periodontal Index (PI) was used to evaluate the condition of gingivitis and periodontitis. Data was analyzed by using statistical software SPSS. Version 22.00 [7].

3. RESULTS

Once data was collected properly, then results were assembled. Participants were divided in to various age groups and fetus age.

Table 1. Age wise study group of participants

| Age Group | Number | Percentage |
|-----------|--------|------------|
| 18-21 Years | 19 | 13.01% |
| 22-25 Years | 43 | 29.45% |
| 26-29 Years | 51 | 34.93% |
| 30-33 Years | 33 | 22.60% |
Table 2. Trimester wise groups of study subjects

| Trimester Group | Number | Percentage |
|-----------------|--------|------------|
| 1st Trimester   | 31     | 21.23%     |
| 2nd Trimester   | 81     | 55.47%     |
| 3rd Trimester   | 34     | 34.28%     |

Table 3. Oral hygiene index of study subjects

| Oral Hygiene Index | Number | Percentage |
|--------------------|--------|------------|
| Good               | 47     | 32.19%     |
| Fair               | 49     | 33.56%     |
| Poor               | 40     | 27.39%     |

Table 4. Periodontal Index of study subjects

| Periodontal Index | Number | Percentage |
|-------------------|--------|------------|
| Normal            | 19     | 13.01%     |
| Simple Gingivitis | 94     | 64.38%     |
| Periodontitis     | 33     | 22.60%     |

4. DISCUSSION

The present study was aimed to assess the oral health status during pregnancy using numerous parameters. Current study indicates the gradual increase in different parameters with progression in pregnancy. There was huge difference observed among the control trial group and 2nd and trimester group whereas the difference were not enough among the control and 1st trimester group. Many research supports this study, the main reason for poor oral hygiene condition during the pregnancy among the local population can be due to unawareness about brushing and frequency of cleaning the teeth and low socio economic status. Due to less frequency of cleaning of teeth, it may more prone to the accumulation of plaque among the teeth and leads to periodontal diseases. Kashetty et al., concluded in his study that cases of gingivitis enhanced as trimester is changed from 2nd to 3rd among the pregnant females and also possess significant results of OHI-S score [8]. Gupta et al., conducted study on the oral health condition among the pregnant females and consequently the results were almost similar as of the current study [9]. Number of factors associated with dental caries along with pregnancy such as morning sickness, gastric reflux that leads to dental erosion because they were exposed to stomach acid and develop the caries among the teeth [10], conducted study in 2018 that was having similar consequences as of current study, he included 340 pregnant females in his study with different ranges of DMFT and OHI-S score. Kumar et al. [11] also finalized a research on the presence of caries among the females with third trimester [12]. The major reason for enhancing PI score among the pregnant females was due to sex hormones. Female hormones were responsible for developing gingivitis, especially due to estrogen as it was responsible for inflammation, edematous and sensitive and estrogen possess tendency to bleed quickly and if there was existing gingivitis that leads to worsen the condition [13]. Soroye et al. [14] conducted a research in 2016 on 445 study subjects, from them 86% study subjects had pregnancy induced gingivitis [15]. In order to evaluate the role of female reproductive hormones on the periodontal disease a research was carried out by Tilakaratne et al. [16] in 2000. According to results it was concluded that females who use to take contraceptive medicines had higher tendency to the gingival inflammation as compared to non consumer of contraceptives [17].

5. CONCLUSION

The results of the present study showed occurrence of the dental problems and worsening of the disease, if already present, during the pregnancy. It definitely proves that there are significant oral changes that are faced during pregnancy which must be taken care of to avoid effects on general health as well as to avert adverse pregnancy outcomes. Thus, we conclude that to prevent occurrence of periodontal diseases in pregnancy, good oral hygiene should be maintained before and during full term of pregnancy.

CONSENT

As per international standard or university standard, patients’ written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.
REFERENCES

1. Hemalatha VT, Manigandan T, Sarumathi T, Nisha VA, Amudhan A. Dental considerations in pregnancy: a critical review on the oral care. J Clin Diagn Res. 2013;7:948-53.
2. Vittek J, Rappaport SC, Gordon GG, Hagedoorn J, Southren AL. Metabolism of androgens by human periodontal ligament. J Dent Res. 1982;61:1153-7.
3. Vane J. Prostaglandins as mediators of inflammation. Adv Prostaglandin Thromboxane Res. 1976;2:791-801.
4. Vittek J, Gordon GG, Rappaport SC, Southren AL. Cellular regulation of the metabolism of androgens in rat oral mucosa. J Dent Res. 1979;58:638-41.
5. Madianos PN, Bobetsis YA, Offenbacher S. Adverse pregnancy outcomes (APOs) and periodontal disease: Pathogenic mechanisms. J Periodontol. 2013;84:S170-80.
6. Soroye M, Ayanbadejo P, Savage K, Oluwole A. Association between periodontal disease and pregnancy outcomes. Odontostomatol Trop. 2015;38:5-16.
7. Munro GL, Grap MJ, Jablonski R, Boyle A. Oral health measurement in nursing research: State of the science. Biol Res Nurs. 2006;8:35-42.
8. Kashetty M, Kumbhar S, Patil S, Patil P. Oral hygiene status, gingival status, periodontal status, and treatment needs among pregnant and nonpregnant women: A comparative study. J Indian Soc Peridontol. 2018;22:164-70.
9. Gupta R, Acharya AK. Oral health status and treatment needs among pregnant women of Raichur district, India: A population based cross-sectional study. Scientifica (Cairo). 2016;2016:9860387.
10. Chadwick RG. Dental Erosion. 3rd ed. London: Quintessence Publishing. 2006;165-97.
11. Bakhtiar K, Gharouni K, Gharouni B, Bastami F, Almasian M, Hosseintalai M. DMFT and OHIS indexes in pregnant mothers: An explanation based on the health belief model. J Community Health Res. 2018;7:1-10.
12. Alanazi MM, Alasanie SA, Alotaibi N, Alenezi AK, Abaradie W, M. Alhussain BS, Ansari SH. Perception of Dental Aesthetics among Dental Students: a Cross-sectional Study in Riyadh, Kingdom of Saudi Arabia. JPRI. 2021;33(51A):200-9.
13. Kumar S, Tadakamadla J, Tibdewal H, Duraiswamy P, Kulkarni S. Factors influencing caries status and treatment needs among pregnant women attending a maternity hospital in Udaipur city, India. J Clin Exp Dent. 2013;5:e72-6.
14. Hugoson A. Gingivitis in pregnant women. A longitudinal clinical study. Odontol Revy. 1971;22:65-84.
15. Tilakaratne A, Soory M, Ranasinghe AW, Corea SM, Ekanayake SL, de Silva M. Effects of hormonal contraceptives on the periodontium, in a population of rural Sri-Lankan women. J Clin Periodontol. 2000;27:753-7.
16. Soroye MO, Ayanbadejo PO. Prevalence of gingivitis and perception of gingival colour among pregnant women attending the antenatal clinic of Lagos University Teaching Hospital, Ido- Araba. J Orofac Sci. 2016;8:53-8.

© 2021 Palwasha et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/81082