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RESEARCH ARTICLER

ORAL CARESUPPORT DURING THE PREGNANCY PERIOD BY NURSING STAFF

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ABSTRACT

Background: Since the release of the study that the periodontal disease is one of the abortive risk factors in 1996. It becomes spread throughout the world that the importance of prevention activity from an earlier stage to the health care including the oral cavity of pregnant women. However, it is not enough the consciousness of the necessity of oral care in pregnancy period in the maternal ward staff and oral hygiene management currently positively. **Objectives:** I clarified the consciousness for the oral hygiene of the nursing staff and pregnant women. **Methods:** This is the literature examination. I searched an original article without proceeding and documents. Furthermore, I searched it in a similar keyword in overseas document retrieval site PubMed. I arranged contents of the literature every item of the "importance of the oral hygiene in the gestation period" "consciousness for the oral hygiene in the gestation period of the nursing profession person" "consciousness for the oral hygiene of the pregnant woman". **Results:** When I crossed "pregnant woman" "dentistry" "oral care" as a keyword in Japan Medical Abstracts Society web site, Medical online and Pub Med. I analyzed 12 cases in total. **Conclusion:** It is obvious that periodontal disease is related premature birth and low birth weight infant delivery deeply, but recognition of the nursing staff and the pregnant women in not enough. It is important to cooperate with nursing and dental staff.

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INTRODUCTION

There are many researches has going on a research between pregnancy and periodontal disease since the release of the study that the periodontal disease is one of the abortive risk factors in 1996. As well as life-style related diseases, gingival perception is obtunded by quantity of the progesterone which is female sex hormone increasing for the gestation period, and, in the women, even a little plaque is easy to cause inflammatory reaction (Shimura, 2004. Also, morning sickness causes negligent for oral care in the early pregnancy. In other words, the oral cavity changes by pregnancy. The intraoral environment of the gestation period is easy to develop periodontal disease physiologically, and it is important to preserve the intraoral cleanliness of the pregnant woman. In the early pregnancy, the risk of gingivitis gravid arum increases by onset of the morning sickness. For the gestation period, estrogen and the progesterone act as growth factors of periodontal pathogens, and saliva declines because of vomiting due to the morning sickness in the acidity, and viscosity and dental plaque increases. The periodontal disease-causing bacteria shifts to fetuses in system placenta through maternal blood.

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In the period of early pregnancy when the tooth germ of fetuses' is formed, and that is connected in to prevent propagation of the dental caries bacteria to the infant who have been laid to decrease Streptococcus mutans which is a carious causative organism of mother (Shimura, 2004; Narita, 2011; Narita *et al*, 2011; Matsumoto, 1997; Sakamoto, *et al*. 2016). The association between periodontal disease and premature birth and premature baby birth mechanism is not clear. But Prostaglandin E2 increases by having periodontal disease and to lead the premature birth by shrink the uterus of the pregnant women (shimura, 2004). Thus, health education for the oral hygiene of the women included the pregnant women in the early stage is important. However, there are no consciousness of the necessity of oral care in pregnancy period not only the maternity ward staff but also the pregnant women. Therefore, we predict that there are few institutions conducting health education about the oral hygiene from early pregnancy. So, I determine the recognition of the oral hygiene of obstetrics staff and pregnant women.

METHODS

This is literature examination. I used the database of Japan Medical Abstracts Society and medical online in the domestic document retrieval site. I crossed the keywords of "pregnant woman" "dentistry" "oral care" and I didn't specify the

generation. I searched an original article without proceeding and documents. Furthermore, I searched it in a similar keyword in overseas document retrieval site PubMed. We arranged contents of the literature every item of the "importance of the oral hygiene in the gestation period" "consciousness for the oral hygiene in the gestation period of the nursing profession person" "consciousness for the oral hygiene of the pregnant woman".

RESULTS

When I crossed "pregnant woman" "dentistry" "oral care" as a keyword in Japan Medical Abstracts Society web site. And I searched 60 literatures. The original article of those was 17 cases. I exclude the one article because that is related with child health case study. I searched it with Medical online in the same keywords. I searched 67 articles by Medical online web site, but 66 articles were proceeding. So, I picked up only one original article. In PubMed, I was able to search 4,289 cases in the keywords of "oral" "care" "pregnancy". I focused on 1,164 cases in latest five years, and 508 original articles searched by free full text. I added the keyword of "low birth weight infant" and I was able to search 21 cases but narrowed down the oral environment. I analyzed 12 cases in total.

DISCUSSION

Importance of the oral hygiene in the gestation period. The change of hormone's environment due to pregnancy, especially arise from increase of steroid hormone occurs a gingivitis originated from pregnancy (Shimura, 2004). Narita *et al*. described that the time when gingivitis is a precedent lesion of periodontal disease, the risk of periodontal disease increases during pregnancy (Narita, 2011). Shimura (2004) stating that gingival vessels to increase the secretion of gingival crevicular fluid, alters capillary endothelial cells that increases inflammatory response. Also, as the mount of progesterone increases, the perception of the gingiva becomes hypersensitive, and a small amount of plaque tends to cause an inflammatory reaction. It is known to increase of estrogen, and the Prevotella intermedia (following Pi) which is one of the causative organisms of gingivitis increases to 5 times particularly in early pregnancy (Shimura, 2004). Periodontal disease is caused by a colony of Gram-negative anaerobic bacteria called periodontal disease bacteria in oral plaque (Narita, 2011). Furthermore, it has been shown that periodontal disease bacteria in the oral cavity or their toxins can flow into the maternal blood and migrate to the fetus through the placenta (Narita, 2011).

Offenbacher *et al.*(1996) determined that a premature baby was born with a risk of 7 times when it was not a pregnant woman was infected with periodontal disease in the article of "Periodontal Infection as a Possible Risk Factor for Preterm Low Birth Weight" in 1996.The periodontal disease is related to a premature birth and birth of a low birth weight infant. After that, similar investigation is accomplished in Japan. And they said that the risk of periodontal disease for maternal period is much higher the influence of alcohol or a cigarette. From this time on, the adverse effects of periodontal disease become spread all over the world. The research of premature birth related with periodontal disease is continued in Europe and America in particular (Sakamoto *et al,* 2016). Even in Japan, the importance of oral hygiene of pregnant women was recognized by dentists and dental hygienists. However, in recent years, midwives and nurses in maternity ward also understand the importance of oral hygiene of pregnant women, and conduct research on actual condition survey and importance of the health guidance (Sakamoto *et al.,* 2016). Narita *et al.* (2011) are often detectedfrom severe chronical inflammatory lesions especially related with porphyromous gingivalis (following Pg) bacteria said to be red complex（Narita, 2011）. And theysearched Treponema denticola (following Td) bacteria, Tannerella forsythensis (following Tf) bacteria, those are associated with periodontal disease in deeply. Furthermore, they added the 2 bacteria those was known asa growth factor, the one isthe Prevotella intermedla (following Pi) bacteria which is the representative bacteria as a growth factor of female sex hormone and is promoted by pregnancy.

And, Aggregatibacter actinomycetemcomitans (following Aa) bacteria is easy to be detected in a lesion having high activity as pathogens of invasive gingivitis. They examined these 4 bacteria. They (Narita *et al*, 2011), investigated the distribution of 4 bacteria which causes periodontal disease and examines the presence of the relations with a correlation between the bacteria and pregnant woman by correlation analysis of Spearman. As a result, they (Narita *et al*, 2011) identified the major periodontitis bacteria in saliva of the pregnant woman in early pregnancyperiod, and it is shown oral clinical manifestations, BMI, to be associated with a lifestyle. Furthermore, they conducted saliva test and the questionnaire survey of periodontal disease related conditions for pregnancy 10-13 weeks and pregnancy 30-35 weeks. By the presence or absence of periodontal disease related conditions in pregnancy 10-13 weeks and pregnancy 30-35 weeks, it passed whether it was significantly different in the anti-total bacterial count ratio of this periodontal disease-causing 4 bacteria. As the result of this examination, it is clear to found the periodontal disease in the saliva of the pregnant women. As for the PI bacteria and the PG bacteria are the association with periodontal disease related conditions is deeper than other bacteria. Furthermore, the oral medical examination that is necessary because it is not disappear the bacteria from the inside of mouth by normal mouth care. Kugahara *et al*. (2009) determines early pregnancy and the periodontal disease affection. Indicating analyzing the intraoral symptom, mouth care of the pregnant women who merger the periodontal disease. They analyzed the intraoral symptom, mouth care and characteristic of the eating and drinking habit of the periodontal disease merger pregnant women. In the preliminary research, they said that the 66~98% of the pregnant women have periodontal disease. Kugahara *et al*, (2009) reported the same thing. However, the pregnant woman complicated with periodontal disease can recognize the need of the treatment of periodontal disease, but they do not to conduct mouth care.

Also, Sakamoto *et al*.（2016）investigated the association between paradental condition and premature baby of the pregnant women. And they reported that 10.6% of them were premature babies. And they stated that it is important to promote the consultation of the oral examination so that it is shown that we had CPI3 as the associated factor of the low weight infants' delivery and an intraoral symptom to be worried about. There is a mention in a mother and child health handbook revised in 2012 saying "let's be careful because periodontal disease may cause the premature birth". It is important that we tie to an oral examination and pregnant

women health examination. There is the following report about the association between periodontal disease and premature birth, low birth weight infants delivery. Offenbacher *et al*. (1996) conducted an epidemiological survey about periodontal disease and premature birth and the low weight infants' delivery. The result of this research, there are more 7 times than the pregnant women who did not have periodontal disease in the pregnant women with periodontal disease. Lopez *et al*. (2002) researched by 553 pregnant women in an early stage. They stated that 2.14% of those was the low birth weight infants' delivery and 1.42% of those was received periodontal treatment, and in premature birth was 1.42%, low weight infants' delivery 0.71%. And in 283 people who did not receive periodontal treatment, 6.71% was the low birth weight infants 'delivery and 5/65% of those was in premature birth, low weight infants' delivery was 1.15%.

On the other hand, Eversolera *et al*. (2009) reported that there were not related with periodontal disease and premature delivery and low birth weight infants delivery. Gazolla *et al*. (2007) stated that the treatment such as brushing or the scaling inhabits the expression of periodontal disease-causing bacteria. Madianos *et al*. (2001) states that the IgM antibody for the periodontal disease-causing bacteria detected from all over the umbilical blood of abortive fetuses was clearly higher than the fetuses of the full-term pregnancy. As above, the relation between periodontal disease and premature birth, low birth weight infants delivery is not clear but inflammation become easy to occur in gingiva by a change of the hormone environment due to the pregnancy. Shimura (2004) states that we must not regard apart with the periodontal disease and a systemic health. It is found that the progesterone acts on a gingival blood vessel, and it is increasing a secretion of the gingival crevicularfluid. And to change capillary endothelial cells, and to enlarge inflammatory reaction. It is already known that the Pi. bacteria which is one of the causative organisms of gingivitis is increase of estrogen. The mechanism of periodontal disease caused premature birth has not yet been elucidated, but prostagl and in E2 increases by periodontal disease and shrinks with the uterus of the pregnant woman. Based upon the foregoing, we find how management of periodontal disease for the pregnant woman is important. Even if health education for dentistry is provided in the mothers' class, it is effective to improve the knowledge for dentistry, but do not come to change recognition for the oral hygiene of the pregnant woman. It is important to give a totally medical care for the pregnant women with obstetricians, midwives, nurses, dentists and dental hygienists (Shimura, 2004).

Though the knowledge of the relation with pregnancy and periodontal disease are important, as for the reason for lack of recognition is that we do not consider women in terms of human resource (Shimura, 2004). A consciousness of nurse and midwives in the maternity ward for the oral hygiene in the gestation period. There are only 5 articles which researched about a consciousness of nurses working in maternity ward by Japan Medical Abstract Society web site. The one article of those explained that nurses was reluctant the consciousness of oral care to the pregnant women, but it was increased after the lecture by dentists and dental hygienist (Saito *et al*, 2011). In this report, the contents of this lecture are training instruction and the brushing for periodontal disease. Triggered by this, an active attitude and consciousness to master the correct tooth brushing acquisition and mouth care of the pregnant woman was so high. Yamamoto (2010) states that the gargling and use the mouthwash is so effective when pregnant women in morning sickness. Also, Yamamoto (2010) recommended to use the small toothbrush because of avoid vomiting, and to use the toothpaste fluorinates for prevent the periodontal disease. Katagiri *et al.* (2012) conducted inventory survey in a maternity ward for midwifes, there are 63% was conscious of mouth care for the pregnant woman. Yamamoto (2010) reported that it was only 27% that perform the health guidance about dentistry, the oral cavity to a pregnant woman. They reported that 37.5% of midwives instruct to pregnant women was "only oral explanation", 43.8% of those was "less than five minutes", "from five minutes to ten minutes (Kasuya *et al*, 2012). Suetaka (2019) describes that, though many obstetric staffs recognize the importance of the dental health checkups but they do not perform health guidance. Katagiri *et al*.（2012） investigates the consciousness of the midwife for the oral hygiene of the pregnant woman, and a midwife feeling that dental health guidance is necessary or not. They reported that midwives understood the importance of the cooperation with nurse and the dentistry practitioner.

In late years there are rumors about the relation with periodontal disease and pregnancy. Particularly, the obstetrician, midwife concerned with a medical examination and health guidance for the pregnant woman pay more attention to the dental checkup column of the mother and child health handbook and give explanation and recommend dental checkup. And it is necessary to make a system to receive explanation and the instruction from a dentist and a dental hygienist. Also, it is important to cooperate with not only a dentist and a dental hygienist like a dentistry staff, but also the obstetric staff. Kasuya *et al*. (2012) conducts the individual oral hygiene instruction class by the dental hygienist and performs inventory survey for a pregnant woman. The consciousness of importance of dental health checkups increases, and we understand an important of the mouth care and can connect to the utilization behavior in health care (Suetaka, 2010). There are few opportunities to obtain information about dentistry for the maternity ward staff (Tsutsumi, 2004). Therefore, that it is necessary to raise the recognition of the obstetric staff cooperating with a dentistry staff, and to make it a practice by oral health behavior from the past for a gestation period (Kodama, 2017). Obstetrics staff prepared for many educational program for pregnant women such as mothers' class or the parents' classes and the families. To using it, both of the obstetric staff and the dental staff need to conduct oral hygiene education is important.

The consciousness of pregnant woman for the oral hygiene

Shimano *et al*. (2012) investigates the attitude survey for the oral care of the pregnant woman of each pregnancy phase. Approximately 90% was performed without a problem including tooth brushing and the gargling. And in the investigation for pregnant women in early pregnancy, as for the dentist whom we could talk with at the time of anything, "there is it" was a result of approximately 70%.The symptom such as the morning sickness still continued in the pregnant women of the pregnancy 16 weeks later and had an influence on tooth brushing and the physical condition as for a lot of pregnant women who were poor physical condition and the mental imbalance by the hormone balance (Yamamoto, 2010). Also, Kugahara *et al.* (2009) reported 69% pregnant women were merged with periodontal disease, and the 66~68% of pregnant

women were merged with periodontal disease in preliminary research. In this study, they suggested that all pregnant women are more likely to contract a periodontal disease without the presence or absence of periodontal disease being found in the association between a numbers, a parturient career in age, the week of gestation of the pregnant woman (Kugahara, 2009). In the study of Sakamoto *et al.* (2016), the pregnant woman whom answered, "we know that it was easy to suffer from periodontal disease when we became pregnant" was 86.9%, but the pregnant woman whom answered, "we are doing something for periodontal disease prevention" was only 5.9%.Nozawa *et al*. (2016) examined consciousness for the oral hygiene of a pregnant woman and the healthcare worker and the way of the health guidance. They analyzed 18 literature, approximately half of pregnant women was unconcerned about an intraoral state, and the pregnant woman who received dental checkup regularly stayed below for 20%. Also, stating that it is important we report that an obstetric staff undergoing health guidance remains in 30% and raise awareness of the obstetrics staff, and to promote health behavior from the past for a gestation period (Katagiri, 2012). From these investigations, the obstetric staff cooperate with dentistry staff at the mothers' class or the health guidance and the health checkups. Obstetrics staff have to become a bridge to tie both.

Conclusion

It is obvious that periodontal disease is related premature birth and low birth weight infant delivery deeply, but recognition of the obstetrics staff and the pregnant women in not enough. There is no opportunity to get the information about the importance of oral care in the gestation period for the obstetrics staff. It is important to cooperate with obstetrics staff and dental staff.

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