PREVENTIVE MEASURES OF CARIES DISEASE SHOWED UP EFFECTIVE IN PREGNANT WOMEN

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ABSTRACT

According to the World Dental Federation (FDI) hypothesized that over 90 % of the world population will have some oral disease in your life. Further, in Tables SB Brazil 2010 can be seen that children 5 years had an average of 2.43 decayed teeth which represents more than 80 % of the index. This study aimed to analyze the functionality of the professional guidance of the techniques of oral hygiene. In methodology, 30 pregnant women who agreed to participate were selected. The patients were selected randomly divided into three groups (Gr): Group 1 (n = 10) - featuring positive control group. Group 2 (n = 10) - Women who received guidance for proper oral hygiene and oral hygiene kits and group 3 (n = 10) - Pregnant women there was chemical-mechanical prophylaxis and salivary decontamination. In results, the Wilcoxon test in Group 2 (Gr2), there was no statistically significant difference between caries incidences observed before and after treatment, $p = 0.22 > 0.01$. However, in Group 3 (Gr3), there was significant statistical difference between the caries incidence before and after treatment, with $p = 0.01$. In group I (control), all showed high bacterial infection. Thus, based on the global studies presented above, it is imperative increased prophylactic action against oral disease before, during and after pregnancy. It was concluded that contamination of the mouth of mothers is a risk factor oral health of the future baby.

Keywords: Caries Disease; Pregnant Women; Prophylactic Action, Antimicrobial Action.

Introduction

According to the World Dental Federation (FDI) hypothesized that over 90 % of the world population will have some oral disease in your life. Added to this, only 60 % of the population has access to oral hygiene. In the United States the prevalence of caries is very low [1, 27]. In adolescence, caries and periodontal disease are the most common diseases worldwide, and Brazil, the decay is the main problem of oral health, since the statistical average of decayed, missing and filled (DMF), as indicated by survey National SB Brazil 2010 is 5.16 in adolescents 19 years [1,2].

Further, in Tables SB Brazil 2010 can be seen that children 5 years had an average of 2.43 decayed teeth which represents more than 80 % of the index. In the permanent dentition of children 12 years the average was 2.07 decayed teeth and this average increases with age [2-4].

In addition, the setting of oral health in the European Union, 27 countries, revealed that was spent approximately EUR 79 million in 2009 and the current scenario continues to EUR 93 million in 2020 [5, 23]. However, the best examples belong to countries such as Norway which has a CPO = 1 in individuals 12 years, when in 1970 presented CPO = 10 or the UK, where the percentages of absence of caries increased from 22 % to 54 % individuals of five years and 7 % to 50 % in twelve years, with a decrease of 5.9 to 2.5 CPO in individuals of fifteen [22].

Thus, it is necessary to more efficient preventive treatments for the control of salivary microbiota, and this can be accomplished with greater empowerment of the family health professionals with current scientific evidence, because there is no work on infection levels in oral cavity of Brazilian pregnant women and salivary control of these can lead to tooth strength of their future babies [5, 6]. In research conducted in Greece, Momai-Homata [5] and Nigeria [26] found the educational level, socioeconomic status and gender as factors associated with the presence of decayed teeth.

In studies to assess the knowledge of pregnant women as the relationship between your oral health and that of their children, and the observation of the presence of Streptococcus mutans incisors and molars, by scraping, it was observed that most of the women had high risk to present caries and they had no knowledge as the seriousness of this problem, they knew define what caries disease, how it

is transmitted and not caring for your baby [5, 10, 14].

The high percentage of these microorganisms in maternal saliva favors the transmission during the eruption of primary teeth in children [7, 8] and the development of caries depends on the moment in time when an infection because the earlier colonization occurs, is associated with the highest prevalence of dental caries. [9,10, 19].

This study aimed to analyze the functionality of the professional guidance of the technique of oral hygiene and monitoring by means of chemical-mechanical control effect in pregnant women during the prenatal period strictly preventive way to caries, to thereby develop a plan of assistance to this group of society effectively. It was hypothesized that there was a reduction of microorganisms in the oral cavity of pregnant women after the increase in accuracy of oral hygiene.

Experimental Design

30 pregnant women who agreed to participate were selected, whose research project was fully appreciated by the Ethics Committee on Clinical Research of São José do Rio Preto Famerp / SP. The ages of the women ranged between 16 and 45, low socioeconomic status, who were early in gestation, ie on 1st quarter. These performed prenatal consultations in the Base hospital outpatient located in Sao Jose do Rio Preto - SP. The patients were selected randomly divided into three groups (Gr): Group 1 (n = 10) - pregnant women who have followed the usual pattern of hygiene, featuring positive control group; only was collected microbiota of the oral cavity for culture. Group 2 (n = 10) - Women who received guidance for proper oral hygiene and oral hygiene kits. As were advised of the importance of

diet control to prevent the proliferation of microorganisms in the oral cavity. Group 3 (n = 10) -

Pregnant women in addition to receiving the guidelines and kits described in group 2, there was

chemical-mechanical prophylaxis and salivary decontamination. The procedures described in the Gr 1,

2 were performed in the days of the consultation of pregnant women in the HB clinic. The Gr 3 was

conducted in the dental clinic of the University Center North Paulista UNORP. The results were

statistically analyzed by the nonparametric Wilcoxon method. The collection of salivary microbiota

was the same for all groups, according reproducibility criteria and performed with a swab and placed

in culture media containing agar, taking will in greenhouse temperature of approximately 37 ° C for 48

hours. After growth of the colonies, were removed from samples isolated with a metal handle. To make

the slides was used saline (1.0 %) for fixing bacteria and Gram stain method. The slides were covered

with Crystal Violet solution and kept to stand for thirty seconds. As fixator was used Lugol Alcohol

and Acetone-like remover. The slides were covered with fuchsin for 60 seconds. The slides were

observed in light microscopy to identify the bacterial arrangements, without identification of the

species.

Results

Bacterial growth was recorded in all samples of the groups that make up the research in his first

collection in the period "before". The Wilcoxon test in Group 2 (Gr2), there was no statistically

significant difference between caries incidences observed before and after treatment, $p = 0.22 > 0.01$.

However, in Group 3 (Gr3), there was significant statistical difference between the caries incidence

before and after treatment, with p = 0.01. In group I (control), all showed high bacterial infection. After the treatments in Gr2 and Gr3, there was a significant difference for second collection which was held three months after first being that the Gr1 and Gr2 compared to after, there was no significant difference p> 0.01, and the comparison between Gr1 and Gr3 after, was statistically Significant, with p <0.01 (Figure).

The prevalence of contamination in the Gr1 persisted for all collections, totaling 3 collections. In Gr2 and Gr3 the difference existed with the considerable reduction of cariogenic microorganisms in both groups, however the Gr3 that associated periodic visit to the dentist during pregnancy provided a healthier mouth pregnant women. This demonstrates the importance of awareness and enlightenment of pregnant women about the risk of disease transmission decay to your son, for pregnant women who received guidance on how to prevent this disease had better oral health.

Napimoga et al. (2005) [19], reiterates that the early acquisition of bacteria of children occurs mainly through the maternal saliva, but probably also by other sources of infection. Pimenta et al. (2005) [20] indicate a high prevalence of intrafamilial transmission cariogenic bacteria. In a study by Kulkarni et al. (1989) [18], analysis of bacterial strain at different families of individuals has always heterogeneous, however, analysis among members of the same family, showed frequent infections by common lines. This was also confirmed by Hamada et al. (1980) [13].

Habits individual, family, as well as oral hygiene can regulate the establishment and development of the cariogenic potential of the bacteria [16, 24]. Thus, the identification of bacteria transmission

sources is essential to the development of caries prevention strategies, as this Control cannot affect the teeth, thus not establishing itself as tooth decay [24].

Discussion

The oral microbiota is the most complex of all our body, according Socransky and Haffajee [3] only of bacteria there are over 30 different genres, covering more than 500 different species, the authors showed that, in the mouth, there are close to 350 species bacterial been developed and 200 were distinguished by genetic studies [4, 5]. Being dental caries a multifactorial disease is essential the presence of microorganisms for their development. The main evidenced etiologic agents are the species Streptococcus mutans and Streptococcus sobrinus, noting that Lactobacilli play great potential role in the progression of it, but not in the etiology of this disease [11, 12].

To confirm the treatments in order to reduce the incidence of caries in pregnant women and their children in countries with low human development index, there was a cross-sectional study of 381 pregnant women in South India. Most respondents were under 30 years of age (91.6 %) used a provision of public health care system (57.2 %), with only one child (63 %), had a pre-universtiy diploma (64.8 %) and were in the third quarter (63 %). Thus, in general, lack of knowledge was expressed in 12% to 37% of women. The mean ($\pm$ SD) DT (decayed teeth), MT (missing teeth), FT (filled teeth) and DMF (decayed, missing and filled teeth) were 3.08 ($\pm$ 2.6), 0.93 ($\pm$ 2.23) 0.39 ($\pm$ 1.14) and 4.4 ($\pm$ 3.56) respectively. There were no significant differences in responses to the decay of knowledge in relation to

age and quarter. Educational level, providing health care system and parity had a significant association with the decay of knowledge [30].

Another cross-sectional study referred to the pregnant women attending a prenatal interview routine in the maternity hospital of Montpellier, assessing socioeconomic status. In this study, we determined: the private group (D), and the non-private group (ND). The oral examination revealed that 93 % of women suffer from at least one oral disease, 74 % had a periodontal disease (periodontitis had 9 %), and 74 % had at least a carious tooth [29].

Moreover, the average score was 30.5 epices and the average number of decayed teeth was significantly higher in group D (3,4) than in ND group (2.35) (p = 0.02). After stratification of the degree of dental hygiene knowledge, it was found that knowledge about proper dental hygiene and specific preventive measures regarding pregnancy can reduce the gap between the oral health status of the two socioeconomic groups [29].

Another example involved 166 pregnant women with a mean age of 25.4 (+/- 3.0) years, 20-45 years range. Over 80 % of known dietary papers and bacteria in the etiology of dental caries. In addition, 59 % of patients agreed that breast milk and infant formula can be harmful to the teeth and 41.4 % knew that the mother can pass cariogenic bacteria to the child. Thus, the importance of dental assessment in pregnancy and the association between oral diseases in pregnant women and in children was known for 63.3 %. In addition, the importance of age at first visit and frequency of visits to the child of dentists was known for 40.4 % and 54.8 %, respectively. In addition, only 12.7 % of

participants knew that a primary decayed tooth needs to be restored. More than 90 % agreed that they

needed to increase their knowledge of oral health of the child [25].

Yet, by means of systematic reviews and meta-analyzes (PRISMA), the terms " Alaska Native ", "

children " and " oral health " were used to search Medline, Embase, Web of Science , GoogleScholar

and websites Health Foundation (1970-2012) for the relevant clinical trials and evaluation studies.

About 85% were found in Medline, Embase, and Web of Science, and there were 663 visits in

GoogleScholar. The publications show that the reduction of dental caries pediatric occurred through

education of families and communities, providing chemical-mechanical prophylaxis for pregnant

women [28].

To confirm the need for better dental treatment in pregnant women to reduce the incidence of

dental disease, was conducted in France a secondary cross-sectional analysis of data from a multicenter

case-control study. The sample consisted of 1094 women within six hospitals. A dental examination

was performed within 2-4 days postpartum. The result was conclusive, 51.6 % of women had tooth

decay. The average number of decayed teeth in women who have at least one child was 3.1 (SD = 2.8).

After dental caries was statistically associated with younger age, less education and dental plaque. The

number of decayed teeth was associated with the same risk factors and non-French nationality and

inadequate prenatal care [31].

Thus, based on the global studies presented above, it is imperative increased prophylactic action against oral disease before, during and after pregnancy. This study showed the importance of better monitoring and dental treatment of pregnant patients because there was a significant reduction when compared to the control group, the incidence of caries (Figure). Because of the women in question are of low socioeconomic level, this study emphasized that women in this class is greater need attention and monitoring, as well consistent with other studies reported in the world.

Conclusion

It was concluded that contamination of the mouth of mothers is a risk factor oral health of the future baby. Thus, further studies are needed to assess whether the same strains of bacteria in the mouth of mothers are in the oral microbiota of their children and thus discuss new methodologies for the awareness of mothers and between family and even kindergartens and schools, the how important the hygiene and the effect of oral health.

Competing interests

The authors declare that they have no competing interests.

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FIGURE

Figure - 3D bar graph of the results of separating the presence or absence of caries disease among groups 1, 2 and 3, -control group 1, group 2 divided into stages before treatment (BT2) and after treatment (AT2) and divided into three groups before treatment (BT3) and after treatment (AT3).