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Relationship between Periodontal Disease Index and Low Birth Weight Babies in Pregnant Women with Periodontitis

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Abstract

Objective: To identify the relationship between periodontitis in pregnant women through the periodontal disease index (PDI) and low birth weight babies.

Methods: A case-control study was conducted to determine the relationship between periodontitis in pregnant women through the periodontal disease index (PDI) and the low birth weight babies (LBW). The participants were mothers with periodontitis and non-periodontitis mothers aged 20–35 years who gave birth in the Department of Obstetrics and Gynecology-Dr. Hasan Sadikin General Hospital, Bandung in the period of December to January 2005.

Results: Based on the chisquare test results a highly significant relationship between periodontitis and low birth weight (p=0.002) was found. The odd’s ratio showed that the risk of low birth weight in pregnant women with periodontitis was 15.58 times higher compared to those who did not suffer from periodontitis. The periodontal disease index has an accuracy of 88.6% in predicting the incidence of LBW. It strongly influenced the incidence of LBW with a high odd’s ratio of 28.0. Pregnant women who suffer from periodontitis with a PDI > 3.25, have 19.2 times higher risk for delivering babies with LBW compared to the non-periodontitis mothers.

Conclusions: The loss of attachment affects the possibility of delivering LBW babies.

Keywords: Periodontitis, periodontal disease index, low birth weight

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Introduction

Periodontitis is regarded as an infection in the tooth supporting tissues which leads to inflammation, loss of epithelial attachment, and alveolar bone destruction. The common clinical characteristics of chronic periodontitis are supragingival and subgingival plaque, as well as calculus accumulation, gum inflammation, papercall formation, attachment loss and alveolar bone destruction. Thus, this condition can be clinically diagnosed by examining the changes that occur in the gingival margin such as bright red color, swelling, missing stippling, and round or blunt interdental papilla.1

During pregnancy, maternal hormones and cytokines have an important role in regulating the time of delivery, the opening of the cervical, uterine contractions, and labor. Additionally, the strength of the relationship between the periodontal disease and preterm birth incidence increases frequently along with the severity of periodontitis. Huck et al.3 also suggested that women population with a high prevalence of severe periodontitis are at risk for preterm birth. Besides, pregnant women who were involved in the study did not have other major risk factors that led to premature delivery as genitorurinari infection, smokers, and alcohol drinkers.

As a periodontal infection occurs to serve as a bacterial reservoir that may exacerbate systemic diseases. A previous study suggested that the bacteria that cause inflammation in