

VOL 4, NO 1, March (2016)

Daftar Isi

Articles

- [Pattern of Prostate Specific Antigen and Gleason Score in Relation to Immunohistochemistry Features in Prostate Adenocarcinoma Patients in Dr. Hasan Sadikin General Hospital](#)
Azela Glady, Endah Hamidah, Rahmat Budi Prasetyo, Agung Budi Sutiono
[PDF \(ENGLISH\)](#) 1-7
- [Loaded and Unloaded Sit-to-Stand Strengthening Exercises Effect to Gross Motor Function Measure in Spastic Diplegia Cerebral Palsy Patients](#)
Imran Safei, Marina A. Moeliono, Tertianto Prabowo
[PDF \(ENGLISH\)](#) 8-14
- [Relationship between Periodontal Disease Index and Low Birth Weight Babies in Pregnant Women with Periodontitis](#)
Ira Komara, Soertini E Lambri, Ina Hendiani
[PDF \(ENGLISH\)](#) 15-19
- [Relationship between C677T Methylene tetrahydrofolate Reductase Gene Polymorphism and Homocysteine in Cerebral Palsy](#)
Uni Gamayani, M. Hasan Machfoed, Ponpon Idjradinata, Tri Hanggono Achmad
[PDF \(ENGLISH\)](#) 20-5
- [Comparison of the Effectiveness of Phosphorus 32 Application and 10 Mo/Cc Triamcinolone Acetonide Intralesional Injection on Keloid](#)
Hani Indrayati, Jono Hadi Agusni, Asmaja Soedarwoto, Achmad Hussein S. Kartamihardja
[PDF \(ENGLISH\)](#) 26-31
- [Correlations between Muscle Mass, Muscle Strength, Physical Performance, and Muscle Fatigue Resistance in Community-Dwelling Elderly Subjects](#)
Elizabeth Elizabeth, Vitriana Vitriana, Irma Ruslina Defi
[PDF \(ENGLISH\)](#) 32-37
- [Cystic Meningioma in the Inter-Hemispheric Space Location](#)
Muhammad Zafrullah Arifin, Firman Priguna Tjahjono, Agung Budi Sutiono, Ahmad Faried
[PDF \(ENGLISH\)](#) 38-42
- [Fetus inside Brain - Mature Cystic Teratoma in Posterior Fossa](#)
Farid Yudoyono, Mirna Sobarna, Agung Budi Sutiono, Muhammad Zafrullah Arifin
[PDF \(ENGLISH\)](#) 43-46

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.

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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, paperback 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

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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