Original Article

The level of beta defensin-2 in saliva and its expression in parotid gland epithelial cells after probiotic (*Lactobacillus reuteri*) induction to inhibit *Streptococcus mutans* in caries

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ABSTRACT

Objective: The aim of this study was to prove that administrating *L. reuteri* probiotics can increase the level of BD-2 saliva and BD-2 expression in the epithelial parotid glands of Wistar rats. **Materials and Methods:** Experimental design in this study was randomized control group post test only. Twenty-four white male *Rattus norvegicus* Wistar strain rats were divided into four groups. The negative control group included rats not induced by *S. mutans* whereas the positive control group included rats induced by *S. mutans*. The two treatment groups are as follows: treatment 1 (T1), the group that is induced for 14 days by *L. reuteri* and 7 days by *S. mutans* and treatment 2 (T2), the group which is induced simultaneously by *S. mutans* and *L. reuteri* for 14 days. *L. reuteri* culture at a concentration of 108 colony-forming unit/ml and *S. mutans* culture at a concentration of 1010 are induced in the oral cavity of the Wistar rats. The Elisa technique is used to examine the salivary level of BD-2, whereas the immunohistochemical technique is used to examine the BD-2 expression in the epithelial salivary glands. **Results:** The study shows the increasing levels of BD-2 and BD-2 expression in the epithelial parotid glands after the administration of *L. reuteri* probiotics. Besides, there is a relationship between the increasing expression of BD-2 in the epithelial parotid *glands* with the decreasing amount of *S. mutans*. **Conclusion:** Giving *L. reuteri* probiotic scan increases the level of saliva of BD-2 and the expression of BD-2 in the parotid glands.

Key words: Beta defensin-2, caries, *Lactobacillus reuteri* probiotics, *Streptococcus mutans*

INTRODUCTION

Dental caries is a problem that is commonly found in the oral cavity, especially in children. The United States Surgeon General's publication in May 2000 described that dental caries is a chronic disease in childhood.[1] Based on the Basic Health Research (Riskesdas) in 2007 released by the Ministry of Health, 76% of children in East Java experienced dental caries, whereas in the Department of Health (Dinkes) of Surabaya, 4359 students among 61,214 students have oral cavities.[2,3]

Even though the prevention of dental caries has been done, there is no effective way to control it in children. Etiology of dental caries was very multifactorial. The etiology of dental caries was multifactorial.

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