The role of probiotic on alveolar bone resorption

Abstrak:

Background: Probiotics are microbes derived from the group of lactic acid bacteria that work to maintain the health of hosts. Probiotics can also be used to improve oral health. Periodontal disease is usually marked with gingival inflammation and alveolar bone resorption. Gram negative anaerobic bacteria that play important role in human periodontal disease are Porphyromonas gingivalis. (P. gingivalis). P. gingivalis is a virulent bacteria in vivo or in vitro, and mostly found in subgingival plaque of periodontitis patients. Purpose: This study is aimed to know the role of probiotics to inhibit the resorption of alveolar bone induced with P. gingivalis. Methods: This study used male wistar rats divided into 4 groups. Group I was control group (without treatment); group II was induced with P. gingivalis ATCC 33277 for 5 days; group III was induced with P. gingivalis ATCC 33277 and also injected with probiotics (Lactobacillus casei ATCC 4224) for 5 days simultaneously; and group IV was induced with P. gingivalis ATCC 33277 for 5 days and also injected by probiotics (Lactobacillus casei ATCC 4224) in the next 5 days. After that, the samples were decapitated, taken their alveolar bone, and then were examined by immunohistochemistry to observe osteoclast activity in alveolar bone resorption by using tartrate-resistant acid phosphatase (TRAP) expression. All data were then analyzed statistically. Results: It is known that there were significant differences of TRAP expression among all those treatment groups (p < 0.05). Conclusion: It then can be concluded that probiotics can decrease osteoclast activity in periodontal tissue of wistar rats, so it can inhibit alveolar bone resorption.

Keyword:

Probiotics, Porphyromonas gingivalis, Lactobacillus casei, tartrate-resistant acid phosphatase, osteoclast