Osteoclast Increasing Number in Periapical Inflammation Due to Lipopolisaccharide Porphyromonas Gingivalis Induction

Abstrak:

The pulp chamber is mostly infected by anaerob gram negative bacteria and one of them is Porphyromonas gingivalis. The cell wall of this bacteria containing Lipopolysaccharide (LPS). LPS can penetrate to the periradicular tissue, act as endotoxin in host and cause periradicular inflammation that leading to bone destruction. Bone destruction occur is due to the inflammation process that mediated by immune system. This inflammation is mediated by immune system that can be found the cytokin pro-inflammatory infiltrated in the cell has an important role in bone destruction is known as osteoclast. Osteoclasts are multinucleated, terminally differentiated cells which play an essential role in bone resorption. Binding RANK with RANKL are increasing during the osteoclastogenesis process. The main purpose of this study was to determine the increasing number of osteoclast in periapical tissue that induced by LPS. This study used laboratory experimental with the post test only control group design. A total of 21 male rats were divided into 3 groups. Group A: control group, group B: the teeth were induced by lipopolysaccharide, group C: the teeth only induced by PBS steril. The animals were sacrificed on 3 weeks after and prepared for histological examination of periradicular tissue response. The analysis revealed that the osteoclast increased significantly in group B when lipopolysaccharide was applied in the pulp chamber. The increasing number of osteoclast is a complex process because of the contribution of TLR4, IL-1 IL6 and TNF-α. There was an increasing number of osteoclast in periapical inflammation that induced by lipopolysaccharide.

Keyword:

Lipopolysaccharide, periapical, bone destruction, osteoclast

Daftar Pustaka:

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