Analisis Interaksi Sel Bone Marrow-Derived Macrophages dengan Bakteri Aggregatibacter actinomycetemcomitans = Interaction Analysis of Bone Marrow-Derived Macrophages Cells and Aggregatibacter actinomycetemcomitans

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Abstrak

Latar belakang: Periodontitis merupakan penyakit inflamasi kronis dan dikenal dalam berbagai klasifikasi, yaitu periodontitis kronis, periodontitis agresif, necrotizing periodontitis, dan periodontitis sebagai manifestasi penyakit sistemik. Periodontitis agresif ditandai dengan meningkatnya proporsi bakteri Aggregatibacter actinomycetemcomitans, namun belum terdapat studi yang secara spesifik membuktikan interaksi langsung antara sel bone marrow-derived macrophages (BMM) sebagai prekursor sel osteoklas dengan bakteri Aggregatibacter actinomycetemcomitans. Tujuan: Menganalisis interaksi langsung antara sel BMM dengan bakteri Aggregatibacter actinomycetemcomitans. Metode: Sel bone marrow dikultur selama 48 jam untuk menjadi sel BMM dan kemudian diinfeksikan oleh bakteri Aggregatibacter actinomycetemcomitans selama 5, 15, dan 30 menit pada kondisi aerob dan anaerob. Data jumlah koloni bakteri Aggregatibacter actinomycetemcomitans didapatkan melalui uji total plate count (TPC). Analisis kuantitatif melalui uji statistik. Hasil: Terjadi peningkatan bermakna jumlah koloni bakteri pada kelompok bakteri Aggregatibacter actinomycetemcomitans yang berinteraksi dengan sel BMM, dibanding tanpa sel BMM pada kelompok paparan aerob 5 dan 15 menit. Tidak terdapat perbedaan pada jumlah koloni bakteri Aggregatibacter actinomycetemcomitans yang diinfeksi pada kondisi aerob atau anaerob. Tidak ada perbedaan bermakna pada jumlah koloni bakteri Aggregatibacter actinomycetemcomitans yang diinfeksi selama 5 menit, 15 menit, dan 30 menit. Kesimpulan: Interaksi langsung antara sel BMM dengan bakteri Aggregatibacter actinomycetemcomitans memengaruhi proliferasi bakteri Aggregatibacter actinomycetemcomitans. Proliferasi bakteri Aggregatibacter actinomycetemcomitans dipengaruhi oleh kondisi aerobik dan anaerobik, namun tidak dipengaruhi lama waktu infeksi.
.....Background: Periodontitis is a chronic inflammatory disease and classified as chronic periodontitis, aggressive periodontitis, necrotizing periodontitis, and periodontitis as a manifestation of systemic disease. Aggressive periodontitis is characterized by an increased in Aggregatibacter actinomycetemcomitans proportion. There has not been any studies that have shown the direct interactions between bone marrow derivedmacrophages cells, as osteoclast precursor cells, with Aggregatibacter actinomycetemcomitans. Purpose: To analyse direct interactions between bone marrowderived macrophages (BMM) cells and Aggregatibacter actinomycetemcomitans. Methods: Bone marrow cells from C57BL/6 mice were cultured for 48 hours in order to differentiate into BMM cells. BMM cells were then infected with Aggregatibacter actinomycetemcomitans for 5 minutes, 15 minutes, and 30 minutes in an aerobic and anaerobic environment. Total plate count of Aggregatibacter actinomycetemcomitans were analysed as a quantitative data using statistical analysis Results: Statistically, significant difference between Aggregatibacter actinomycetemcomitans-infected BMM and control group were observed on 5 minutes and 15 minutes aerobic groups. There were no statistically difference in Aggregatibacter actinomycetemcomitans colony count number between cultures in aerobic or anaerobic environment. No statistically significant difference

were found in Aggregatibacter actinomycetemcomitans colony count number between 5, 15, and 30 minutes infection time. Conclusions: Direct interactions between BMM cells and Aggregatibacter actinomycetemcomitans affect Aggregatibacter actinomycetemcomitans proliferation. Bacterial proliferation is affected by aerobic or anaerobic environments, but not infection time