R-11. *Porphyromonas gingivalis* lipopolysaccharide stimulates release of nitric oxide by inducing expression of inducible nitric oxide synthase

백은영[1], 이주연, 쇠쩜일, 김성조[2]
부산대학교 치과대학 치주과학교실([1]발표자, [2]지도교수)

Objectives

The purpose of this study was to examine the effects of lipopolysaccharide(LPS) from *Porphyromonas gingivalis*, a major cause of inflammatory periodontal disease, on the production of nitric oxide(NO) and expression of inducible nitric oxide synthase (iNOS) in the murine macrophage cell line RAW264.7. We also attempted to throw light on the signaling mechanisms involved in P. intermedia LPS-induced NO production.

Materials and Methods

LPS from *P. gingivalis* 381 was prepared by the standard hot phenol-water method. NO production was assayed by measuring the accumulation of nitrite in culture supernatants. Western blot analysis of iNOS and analysis of reverse transcription(RT)-PCR products were carried out.

Results

We found that *P. gingivalis* LPS can induce iNOS expression and stimulate the release of NO without additional stimuli and demonstrated that multiple signaling pathways such as NF-κB, microtubule polymerization, protein tyrosine kinase, and protein kinase C are involved in *P. gingivalis* LPS-stimulated NO production. The production of NO required L-arginine.

Conclusions

The present study clearly shows that *P. gingivalis* LPS fully induced iNOS expression and NO production in RAW264.7 cells in the absence of other stimuli. The ability of *P. gingivalis* LPS to promote the production of NO may be important in the pathogenesis of inflammatory periodontal disease.