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Contribution of oral bacteria to aggravation of non-alcoholic steatohepatitis

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Recently, liver disease caused by excess nutrition intake in individuals who do not drink alcohol, so-called non-alcoholic fatty liver disease, has received attention. In affected patients, advanced pathological changes related to inflammation and fibrosis in the liver are termed non-alcoholic steatohepatitis (NASH). Examinations of saliva specimens collected from NASH patients have frequently detected *Porphyromonas gingivalis*, a major periodontitis-related bacterium. Furthermore, analysis of NASH model mice fed a high-fat diet revealed that infection with *P. gingivalis* OMZ314, highly virulent for periodontitis, resulted in development of NASH conditions after only 8 weeks, while those model mice otherwise typically develop those conditions after at least 48 weeks. As for cariogenic bacteria, infection with the blood isolate *Streptococcus mutans* TW871 led to development of NASH within 8 weeks in the same model. Several *in vitro* analyses also revealed excess production of metallothionein, a cytokine related to oxidative stress, in TW871-infected mice, while inflammatory cytokine and chemokine levels were also elevated, which may be related to aggravation of NASH. These findings suggest that some oral bacteria induce NASH aggravation.

Biography

Shuhei Naka completed her DDS degree at Fukuoka Dental College, followed by receiving a PhD from Osaka University Graduate School of Dentistry. She is an Assistant Professor at the Department of Pediatric Dentistry, Osaka University Graduate School of Dentistry, and Chief of Ward of the Pediatric Dentistry Clinic of Osaka University Dental Hospital, and also a member of the Japanese Society of Pediatric Dentistry and International Association of Dental Research.

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