



The 12th Japan-Korea International Nursing Conference

The 3rd International Nursing Conference
at University of Nagasaki, Siebold

PROGRAM | Prospects and Challenges:
Community Health Nursing

September 29th(Fri),2017
University of Nagasaki,Siebold



Peptides obtained by enzymatic decomposition of mackerel prevent nonalcoholic steatohepatitis in Sprague-Dawley rats fed a high-fat and high-cholesterol diet

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Purpose of the Study

Established treatments for nonalcoholic steatohepatitis (NASH) are few, thus it is imperative to develop novel dietary strategies that can prevent NASH. Peptides obtained by enzymatic decomposition of mackerel (EMP) including selenoneine were recently reported to possess antioxidative activity. Because oxidative stress may play an important role in the development of NASH, this EMP can be a candidate dietary strategy for the prevention of NASH.

Methods

Nine-week-old male Sprague-Dawley rats were fed a high-fat and high-cholesterol (HFC) diet with or without EMP (10, 25, 50mg/kg diet, and control) for 9 weeks (n=6-7/group). Histopathology, serology and status of oxidative stress were evaluated.

Results

Histologically, HFC diet with EMP tended to reduce definite NASH progression compared to the HFC diet without EMP (80% vs 100%). Serum levels of leptin in rats fed HFC diet with EMP tended to be lower than those in rats fed HFC diet without EMP. Immunohistochemically, a marker of oxidative stress of 4-hydroxynonenal expression in the liver tended to be less evident in rats fed HFC diet with EMP than those without EMP.

Conclusion

Our data suggest that EMP including selenoneine may prevent NASH progression, presumably through its antioxidative activity.

Keywords : *Selenoneine, Enzymatic decomposition of mackerel, Nonalcoholic steatohepatitis, High-fat and high-cholesterol diet*