

ABSTRACT

Recent studies considering antiallergic and antiinflammatory effects of n-3 PUFA (Polyunsaturated fatty acids), have provided succesful results. Rising of food allergy prevalance especially in westernized countries it has become an important health concern. The purpose of this study was to develop physiological model of food allergy and to show the beneficial effects of n-3 PUFA on food allergy murine model .

Female, 6-8 weeks of age, 21 Balb/c mice were used in this study. Mice were divided into three grups; each contained seven mice. Renz method (73) and murine model of Sakamoto et al (74). were used as sample.

Mice in second and third group were sensitized with 10 μ g intraperitoneal ovalb \ddot{u} min (i.p. OVA) on days 1, 7 and 14. Intraperitoneal sensitization was done according to Renz (73). From day 21, challenging intragastric doses of ovalb \ddot{u} min 100 μ g were given to both groups one dose per week for 8 weeks with gavage method. First and second groups received standard mouse diet and omega-3 fatty acids enriched diet was given to third group during the study period. 24 hours after the last intragastric challenge (day 71) all the animals were sacrificed. Eosinophil and mast cell numbers were evaluated in gut mucosa. IL-4, IL-5, IL-8, IL-10 , TNF- α and IFN- γ levels were measured by ELISA method in mouse serum.

When compared the histopathologic evaluation of mice in second group with sham, eozinophil and mast cell numbers found increased statistically. Also IL-5, IL-8, TNF- α and IFN- γ levels were increased significantly in OVA sensitized group (group II), comparing with sham. Increasing in the level of IL-4 and decreasing in the level of IL-10 were not statistically significant.

When compared omega-3 fatty acids enriched diet given group with histopathologically and chemically food allergy developed group (group II), eozinophil and mast cell numbers decreased statistically. Also significantly decrease in IL-5 and IL-8 levels and increse in IL-10 levels have been observed. Decrease in the levels of IFN- γ , TNF- α and IL-4 were not statistically significant.

In this study, development of food allergy in OVA sensitized mice were observed . Futhermore antiallergic effects of n-3 fatty acids either histopathologically or biochemically have been shown in food allergy murine model.

In conclusion, the antiallergic effects of omega-3 fatty acids on animal models and humans should be further evaluated.