1-O-B1-4 Oral Sessions

Evaluation of the anti-inflammatory and anti-pruritic responses of fish oil in a mouse model of dermatitis

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The prevalence of allergic skin disorders has increased and several molecular target drugs have been launched. However, development of supplemental agents to alleviate the symptoms are still needed. In this study, we orally administered the fish oil in a mouse model of atopic dermatitis (AD) and evaluated the efficacy. A mouse model of AD was generated in female NC/nga mice by repetitive topical sensitization with *Dermatophagoides farinae* (Derf). Fish oil (1%, 3% and 10%) was orally treated by mixing a standard rodent diet (AIN-93M). AD score, transepidermal water loss (TEWL), itch behaviour and back skin thickness were measured at the end of the experiment. Back skin tissue and auricular lymph node were also used for histology, cytokine determination and FACS analysis. Mice treated with fish oil showed a significant decrease in TEWL, however back skin thickness, AD score and scratching behavior were not significantly affected. By contrast, fish oil treatment significantly reduced dermal edema and infiltration of inflammatory cells in the skin. We also found that application of fish oil significantly reduced the numbers of T cells and DCs as well as pro-inflammatory cytokine production. In conclusion, oral treatment with Fish oil significantly affected TEWL, numbers of immunocytes and cytokine production in a mouse model of AD.