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Editorial

Biologics for Immune-Mediated Diseases and Flavonoids for Allergic Diseases

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It is a great honor and pleasure for me to be invited to join the Editorial Board of the Austin Journal of Clinical Immunology. Since the aim of the journal is to provide a forum for immunologists, researchers, physicians, and other health professionals to find and share the most recent advances related to the immune systems in all organisms, I would be very pleased indeed if I could contribute to the journal in my fields of expertise.

The clinical application of biologics has led to a paradigm shift in the treatment of intractable immune-mediated diseases such as rheumatoid arthritis (RA), systemic juvenile idiopathic arthritis, and inflammatory bowel diseases, and has resulted in overcoming the refractoriness of such diseases. However, several issues remain to be elucidated regarding the appropriate use of these biologics. First, several biologics such as tumor necrosis factor (TNF) inhibitors, an interleukin (IL)-6 inhibitor, a T-cell stimulation blocker, and a B-cell depletory are currently being used for the treatment of RA. However, a substantial percentage of RA patients do not achieve primary or secondary responses to a particular biologic due to the heterogeneous nature of RA. Thus, in order to realize the optimal selection of a biologic for an individual RA patient, further characterization of biologics and elucidation of the pathology of individual patients are required. As an example of the second issue, a humanized anti-IL-6 receptor monoclonal antibody, tocilizumab, has now been approved for RA in more than 100 countries, for systemic juvenile idiopathic arthritis in Japan, India, the USA and the EU, and for Castleman's disease in Japan and India. Various off-label uses of tocilizumab suggest that it will be even more widely applicable for the treatment of other immune-mediated disease [1]. TNF inhibitors are efficacious and have been approved for the treatment of ankylosing spondylitis, whereas clinical trials of tocilizumab as well as a fully human anti-IL-6 receptor antibody, sarilumab, have not proved to be efficacious for ankylosing spondylitis. Conversely, tocilizumab appears to be more effective for refractory adult-onset still's disease than TNF inhibitors, so that further clinical evaluation of biologics is essential to determine their best application for refractory autoimmune and chronic inflammatory diseases.

Allergic diseases such as asthma, atopic dermatitis and allergic rhinitis are also immune-mediated diseases. Clarification of the pathological mechanism for persistent allergic inflammation in involved organs to cause the development of allergic diseases has led to an innovative therapeutic strategy for local administration of the anti-inflammatory drug corticosteroid, resulting in a major success in the treatment of allergic diseases. Moreover, specific immunotherapies and therapies targeted at molecules responsible for the development of allergic diseases have been developed. Such progress in treatments has significantly improved the quality of life and daily living activities of allergic patients. However, the prevalence of allergic diseases has increased worldwide during the past two decades and this has led to a significant increase in patient morbidity and placed a major burden on society. Recent changes in the environment are thought to be responsible for this development and it has been suggested that dietary change is one of the relevant environmental factors. Flavonoids are low-molecular-weight polyphenolic secondary plant metabolites and ubiquitously present in vegetables, fruits, and teas. In this context, it is noteworthy that flavonoids possess antioxidant, anti-allergic, anti-inflammatory and immune-modulating properties. Findings regarding the preventative and therapeutic effectiveness of flavonoids studied in various allergic animal models have indicated the potential benefits of flavonoids for allergic diseases. Although epidemiological and intervention studies in human shave been limited so far, an appropriate intake of flavonoids seems promising for the prevention of and as a complementary strategy for allergic diseases [2].

It would be a great honor and pleasure, if I could contribute to the journal in these two fields outlined above.

Reference

1. Tanaka T, Narazaki M, Kishimoto T. Therapeutic targeting of the interleukin-6 receptor. Annu Rev Pharmacol Toxicol. 2012; 52: 199-219.

2. Tanaka T. Flavonoids for allergic diseases: present evidence and future perspective. Curr Pharm Des. 2013.

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