Orthopedics & Rheumatology-2013
OMICS Group Conferences
Accelerating Scientific Discovery
2nd International Conference and Exhibition on
Orthopedics & Rheumatology
August 19-21, 2013 Embassy Suites Las Vegas, USA

Histopathological and biological features of synovial tissue in Rheumatoid Arthritis patients mediating with biologics

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Abstract

Mediating of biologics for rheumatoid arthritis (RA) dramatically prevents the disease activity and/or the destruction of articular cartilage, although the pathogenesis of synovial diminution under biologics remains unclear. The purpose of this study is to characterize the histological and biological properties of synovial tissues in RA patients under biologics therapy.

Samples were harvested from 20 RA patients who underwent surgery. Biologics were administered to these patients (infliximab, etanercept, or tocilizmab), and 5 RA patients who were given no such agents were used as control. The histological findings were evaluated with the scoring system reported by Rooney, and the relationship to the clinical features evaluated with the disease activity score (DAS) 28-ESR were investigated. The cultured synovial cells from the surgical specimen were exhaustively analyzed, assessing expression levels of cytokines and growth factors by the suspension array system.

Rooney's inflammation scores were significantly lower in biologics groups, especially in the synoviocyte hyperplasia, blood vessels proliferation and lymphocytes perivascular infiltrates. Clinically, patients with high points for DAS28-ESR showed high scores in Rooney's evaluation. In cultured synovial cells, suspension array evaluation showed that the expression of IL-6, IL-8, IL-9, IL-15, IL-17, G-CSF, MCP-1, and TNF-α were significant. Immuno histochemical examination revealed that macrophages or lymphocytes, beside the blood vessels, were positive to these factors. These results suggested that the biologics affected the reduction of synovial cell proliferation in the lining layer and lymphocyte infiltration around the blood vessel formations, by suppressing the expression of cytokines or growth factors.

Biography:

Dr. Takafumi Yayama has completed his PhD at the age of 31 years from Fukui University. He is an associate professor in the department of Orthopedics and Rehabilitation medicine, faculty of medical sciences, university of Fukui. He has published more than 70 papers in reputed journals