行政院國家科學委員會專題研究計畫　成果報告

臨床用藥透明質酸對退化性關節炎病人金屬蛋白酵素之影響

計畫類別：個別型計畫
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（一）計畫中文摘要

關鍵詞：退化性關節炎，透明質酸，金屬蛋白酵素

關節炎及其相關疾病是造成成人行動障礙的主要原因之一，而其所佔的社會經濟成本也逐年增加。隨著人口年齡的老化，退化性關節炎罹患率也越來越高，所以對於關節炎之致病機轉和治療的研究是刻不容緩。目前雖然將退化性關節炎視為非發炎性疾病，但是許多研究顯示退化性關節炎病人之滑膜組織有發炎現象，而且發現組織中趨化激素表現量比正常人高。

雖然現今世界上許多國家皆有採用透明質酸注射法來治療退化性關節炎，且台灣目前也正在評估其治療的可行性，但是目前對於透明質酸的作用學理機制卻不是很清楚。所以本計畫研究透明質酸對關節組織的影響，以更進一步了解透明質酸在退化性關節炎治療中可能的學理作用機制為何。

本計劃希望完成下列實驗目標：

(1) 收集以透明質酸治療之退化性關節炎患者之血液與滑膜滑液。

(2) 分析退化性關節炎患者治療前後血液與滑膜滑液內 eotaxin 蛋白質表現量為何。

（二）計畫英文摘要

Keywords：osteoarthritis, hyaluronic acid, MMPs.

Arthritis and related disorders are leading causes of activity limitation and disability in the adult population of world, where the economic costs of musculoskeletal illness have been conservatively estimated to be getting cost. A significant portion of these costs is attributable to arthritis. As the population ages, the impact of arthritis in terms of disability and associated economic cost is expected to increase. Research efforts continue to advance understanding of the pathogenesis and treatment of arthritic diseases. Osteoarthritis is the common disease now. Although osteoarthritis has been regarded primarily as a noninflammatory arthropathy, symptoms of local inflammation and synovitis are present in many patients. Recently studies indicate that up-regulation of chemokines expression is considered play a role in cartilage destruction with chronic arthritis.

Intra-articular administration of hyaluronic acid has become widely used for the treatment of OA in the world. However, its mechanism of action is incompletely understood. Based on the chemokines in the degradation of cartilage collagens and proteoglycans in OA is well established. Thus, we attempt to accomplish the following goals:

(1) Collection of the synovial fluid (SF) samples from patients with OA before and after HA treatments at different times.

(2) Investigation of the different eotaxin expression in SF samples from OA patients before and after HA treatment at different times.

(三)實驗結果

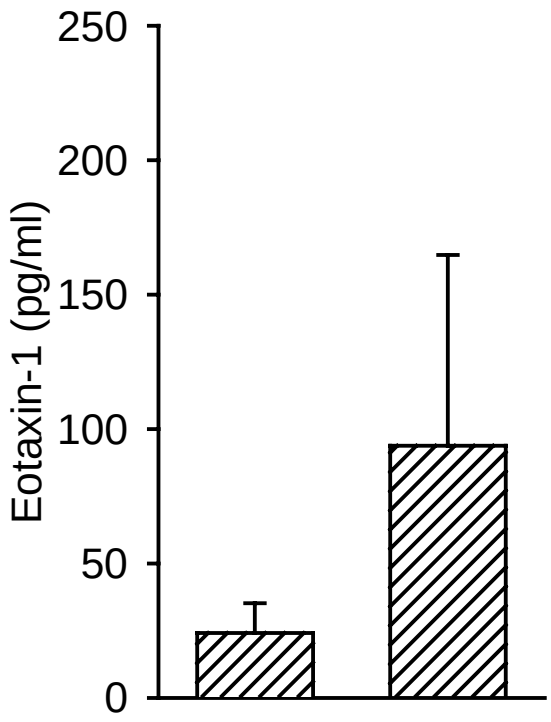

Fig. 1. Plasma levels of eotaxin in patients with osteoarthritis. Plasma samples obtained from patients with osteoarthritis (OA, *n*=40) and from normal donors (Normal, *n*=50) were analyzed for concentrations of the eotaxin-1 by ELISA. Values represent the mean ± S.E.

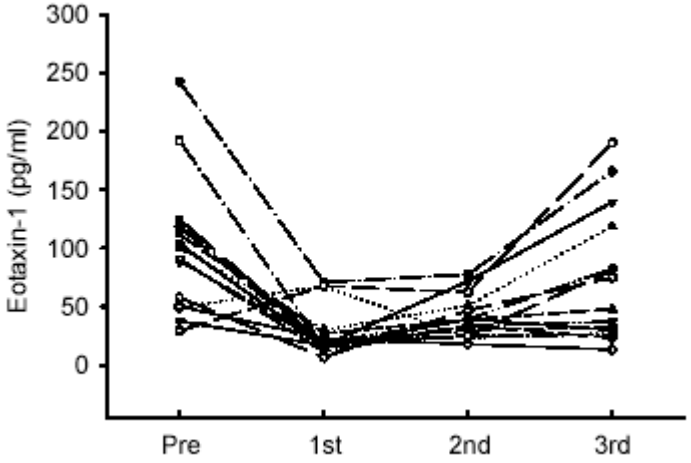

Fig. 2. Plasma levels of eotaxin in patients with osteoarthritis after HA treatment. Plasma samples obtained from different treatment patients with osteoarthritis (pre: means before HA injection; 1st: means 30 days after 1st HA injection; 2nd: means 30 days after 2nd HA injection; 3nd: means 30 days after 3nd HA injection) and they were analyzed for concentrations of the eotaxin-1 by ELISA. Values represent the mean ± S.E.

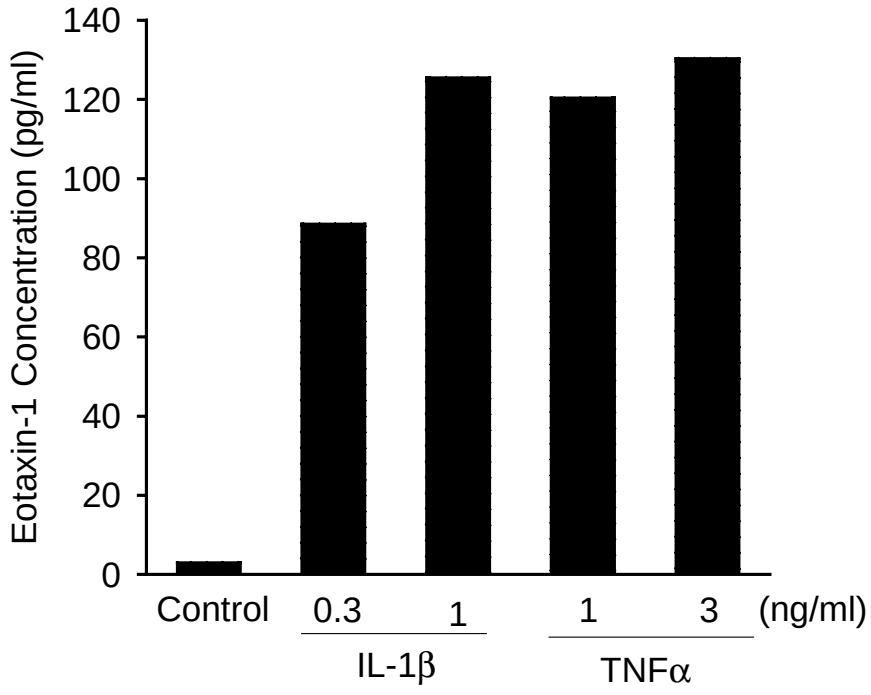

Fig. 3. Effect of IL-1β and TNF-α on eotaxin-1 expression in chondrocytes. Cells were treated with IL-1β or TNF-α for 24 h, and eotaxin-1 levels in cultured medium were determined by ELISA.