

# Synovial Fibroblast Potentiates Mast cell Degranulation and Migration in Rheumatoid arthritis

서울대학교병원운영 서울특별시보라매병원, 서울대병원

\*임희숙, 최지용, 송영욱, 신기철

**Background/Purpose:** A number of studies have shown that synovial mast cells (MCs) are activated, eliciting a pro-inflammatory role in rheumatoid arthritis (RA). Mediators produced by MCs have been demonstrated to activate synovial fibroblasts (SFs), yet the effector function of SF on MC activation is not well understood. **Methods:** Co-culture of SF ( $2.5 \times 10^4$  cells) and human mast cell (HMC)-1 line ( $2.5 \times 10^4$  or  $12.5 \times 10^4$  cells) was done with IMEM phenol red free media including 10% fetal bovine serum in a 24-well plate. We used  $\beta$ -hexosaminidase (HXSA) assay as the readout for MC degranulation (1, 6, 12, 24 hours) after direct/indirect co-culture with or without PMA/ionomycin treatment. HMC-1 was treated with SF conditioned medium (SFCM) to study migration, cytoskeletal rearrangement, proliferation, and degranulation. HMC-1 was pre-treated with anti- $\alpha 5\beta 1$  antibody (0.1, 1  $\mu$ g/ml) for 1 hour at 37 °C, and then cultured for 1, 3, 6 hours on fibronectin (FN)-coated (1 or 5  $\mu$ g/ml) plates. **Results:** Direct, as well as indirect co-culture of SF/HMC-1 showed significantly increased activity of  $\beta$ -HXSA. HMC-1 primed with SFCM for 48 hours burst out 3.6 times of  $\beta$ -HXSA activity compared with control conditions. In addition, HMC-1 transformed into a spindle-shaped cell after cultured in SFCM for 24 hours; surface adherence increased up to 58.3 times compared with cells in control media. Moreover, migration but not proliferation of HMC-1 was significantly enhanced in the SFCM environment. HMC-1 adhesion to FN-coated plates increased in a time-dependent manner. Lastly, attachment of HMC-1 pulsed with anti- $\alpha 5\beta 1$  was compromised as early as 1 hour. **Conclusion:** Our data indicate that interactions between RA SFs and MCs, independent of cell-to-cell contact, facilitate activation of MCs.

# Patterns of Treatment in the Korean Patients with Knee Osteoarthritis

<sup>1</sup>한양대학교 류마티스병원, 류마티스내과, <sup>2</sup>경북대학교, 통계학과, <sup>3</sup>중앙대학교, 약학대학, <sup>4</sup>안동대학교, 정보통계학과

박하림<sup>1\*</sup>, 조수경<sup>1\*</sup>, 임슬기<sup>2</sup>, 정선영<sup>3</sup>, 김달호<sup>2</sup>, 장은진<sup>4</sup>, 성윤경<sup>1</sup>

**Objective:** We aimed to examine the patterns of drug use and the prevalence of corticosteroid intra-articular injection (IAI) for patients with knee OA and evaluate factors related with corticosteroids IAI. **Methods:** Data were obtained from the Korean health insurance review and assessment service in 2014. On the basis of our recent validation study, the knee OA patients was identified with the combined definitions of knee OA diagnostic code (M17) or any OA diagnostic code (M15 to M19) with procedure of knee X-ray in the same claim. Medication studied included oral non steroid anti-inflammatory drugs (NSAIDs), symptomatic slow acting drugs for OA (SYSADOA) and analgesics. Drug utilization was described using medication possession ratios (MPRs), equivalent to the proportion of days covered with the drug of interest. The pattern of IAI with corticosteroids and its associating factors were also evaluated. **Results:** We identified 2,016,516 knee OA patients whose mean age ( $\pm$ standard deviation) was 63.2 ( $\pm$ 10.8) years old. Among them, 1,442,510 (71.5%) were female. In the regular user (MPR $\geq$ 50%), the prevalence of NSAIDs was substantially decreased (48.8%), while the use of SYSADOA (37.3%) and analgesics (23.7%) was slightly decreased. Total of 3,567 patients (0.18%) received IAI with corticosteroid at least one more time during one calendar year. Female (odds ratio, OR 1.3, 95% CI 1.2-1.4) and the number of comorbidity (OR 1.5, 95% CI 1.3-1.4 in patients with one comorbidity, OR 2.1, 95% CI 1.9-2.4) were associated with IAI with corticosteroid in patients with knee OA. **Conclusion:** The use of NSAIDs is most frequently in patients with knee OA. IAI with corticosteroids was associated with female and presence of comorbidities. The further studies about safety or outcomes of treatment including NSAIDs use or IAI are needed.