Methods: Subjects were 29 patients (53 knees) with knee OA (mean age 65.3 ± 9.8, range 50 – 80 years, all female, Kellgren-Lawrence (KL) grades II: 23, III: 12, IV: 18). The anteroposterior radiographs of lower extremities in standing position and the CT images of the knee joints were all prepared. Femorotibial (FT) joint was divided into 5 regions: medial femoral condyle (MFC), medial tibial plateau (MTP), lateral femoral condyle (LFC), lateral tibial plateau (LTP) and subspinous (SS). The location, number, and size of SBCs were measured in CT. SBCs were defined as the cysts greater than 2 mm in diameter, occurring in the region within 10 mm from the joint surface. The alignments of lower extremity were measured in radiographs: percentage of mechanical axis (%MA), femorotibial angle (FTA), lateral distal femoral angle (L DFA), medial proximal tibial angle (MPTA), and joint line convergence angle (JLCA). Relationship between the number of SBCs and the severity of OA or alignments of lower extremity was analyzed.

Results: SBCs were detected in 88.5% of knees, 53.8% in MFC; 51.9% in MTP; 5.8% in LFC; 13.5% in LTP; and 17.2% in SS. The mean number of SBCs was 2.5 in MFC; 2.1 in MTP; 3.0 in LFC; 1.2 in LTP; 1.6 in SS. The mean size of SBCs resulted respectively as follows: 2.9 mm in MFC; 3.6 mm in MTP; 3.8 mm in LFC; 3.0 mm in LTP; 5.2 mm in SS. The number of SBCs in MFC and MTP had a significantly positive correlation with KL grades, FTA and JLCA, and had a significantly negative correlation with % MA and MPTA. However, there was no correlation in LFC, LTP and SS.

Conclusions: SBCs were frequently detected in patients with knee OA, and more prevalent in medial FT joint. The incidence in medial FT joint was affected by the severity of knee OA or varus knee deformity, although the mean size was small and the number was few. However, SBCs were present in lateral FT joint and SS, and these were not affected by the severity of knee OA or varus knee deformity.

654 THE ASSOCIATION OF BODY COMPOSITION AND METABOLIC SYNDROME WITH KNEE OA AND KNEE PAIN IN A KOREAN COMMUNITY RESIDENTS

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Objectives: Obesity, a major concern of contemporary health care system is closely related to both musculoskeletal pain and OA. Recently, proinflammatory effect of obesity, independent of its biomechanical effect has also been gaining interest in the pathogenesis of OA. In this study, we sought to delineate the relationship between body composition parameters and knee OA/knee pain in a Korean community residents. In addition, we tried to examine the influence of metabolic syndrome on knee OA/knee pain independent of BMI by assessing the risk stratified by body mass index (BMI) and the presence or absence of metabolic syndrome (MetS).

Methods: Participants were from the population-based Hallym Aging Study, an ongoing prospective follow-up of the presence of knee OA or knee pain. Demographic data was obtained by questionnaire. Knee pain was assessed using the Western Ontario and McMaster Universities (WOMAC) Osteoarthritis Index and a 100-mm visual analog scale (VAS). Radiographic evaluations consisted of weight-bearing knee anteroposterior radiographs. Total body fat mass and total lean mass were measured with Dual x-ray absorptiometry. Each subject underwent MRI of the more symptomatic knee or the dominant knee depending on the symptom presence. MRI scans of the knee were obtained with a 1.5-T scanner with a phase-array knee coil and were read according to WORMS grading system.

Result: The mean age of participants (230 men, 274 women) was 70.2 years. Radiographic knee OA was present in 37.7% of subjects. BMI, total fat mass, and fat/muscle ratio were all significantly and positively correlated with knee OA while total lean mass was significantly and negatively correlated with it. After adjusting for age, sex, and manual work, the association remained significant only for fat/muscle ratio. The association between fat/muscle ratio and pain VAS score was significant after adjustment. To analyze the association between metabolic syndrome features independent of body mass index, we divided the population into 4 groups, (metabolically non-obese, normal weight (MNNW), metabolically obese, normal weight (MONW), metabolically non-obese, obese (MNOB), and metabolically obese, obese (MOOB). ORs for knee OA was significantly higher only among MOOB compared to MNNW after adjustment. The severity of knee pain was not significantly associated with any of the 3 subgroups compared to MNNW. Cartilage degeneration as measured with MRI was significantly associated only for BMI after adjustment, and was not significantly associated with any of the 3 subgroups compared to MNNW. Neither any component of the metabolic syndrome, nor the number of metabolic component was significantly associated with radiographic knee OA, knee pain, or cartilage degeneration measured with MR.

Conclusion: These results suggest that aside from BMI, body composition, specifically fat/muscle mass ratio may have important implications for the pathogenesis of knee OA and knee pain, while metabolic syndrome may not.