

KOA patients was significantly higher than early stage of KOA patients (early stage group $96.4 \pm 27.1\text{pg/ml}$, middle stage group $153.3 \pm 16.9\text{pg/ml}$, advanced stage group $149.5 \pm 36.7\text{pg/ml}$). NPY of advanced stage of KOA patients has no significant difference compare with middle stage of KOA patients. These results contradict the notion that NPY has significant relevance to joint pain in patients with KOA. It means a lack of agreement between X-rays evidence of KOA and patients' report of pain at that site based on the result of our studies, which are the first study specifically designed to evaluate the relationship between NPY and KOA pain.

Conclusion: This study demonstrated the presence and variation of NPY in the KOA joint fluid, suggesting a role for NPY as a putative regulator of pain transmission and perception in KOA pain.

Table 1 Hideo Watanabe's knee scoring system-related pain score

Group	Standard
No pain group	Occasionally feeling fatigue or heaviness, but no pain at any time
Mild pain group	Pain at starting time of various activities or occasionally during long-distance walking, but no pain at rest
Moderate pain group	Pain usually on walking, but pain gradually subsides after a brief rest
Strong pain group	Persistent pain on walking, but pain gradually mitigates after a rest, usually associate with spontaneous pain
Severe pain group	Persistent pain at any time, including walking and rest

Table 2 Tomihisa Koshino's radiographic grading for osteoarthritic knees in a standing position^a

Stage	Grade	Standing x-ray
	0	Normal
Early stage	1	Bone sclerosis or osteophyte formation
Middle stage	2	Narrowing of joint space ($\leq 3\text{mm}$)
	3	Obliteration of joint space or subluxation ^b
Advanced stage	4	Defect of tibial plateau ($< 5\text{mm}$)
	5	Defect of tibial plateau ($\geq 5\text{mm}$)

^a An anteroposterior and weight-bearing radiograph taken in a standing position was used for grading.

^b "Subluxation" indicates the condition in which the medial edge of the medial tibial plateau shows a lateral shift by more than 5mm against the medial edge of articular surface of the medial femoral condyle without including osteophyte.

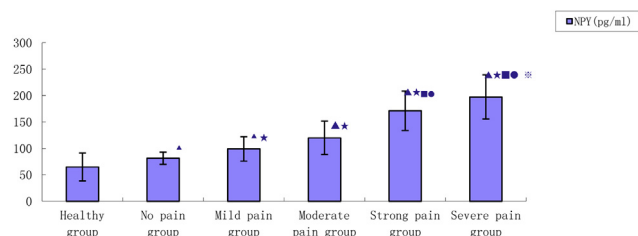


Figure 1 Comparison of pain and NPY of KOA patients with healthy participants ($P < 0.05$: ▲ vs. Healthy control group; Intragroup KOA *vs. No pain group, ■vs. Mild pain group, ●vs. Moderate pain group, ✕vs. Strong pain group.)

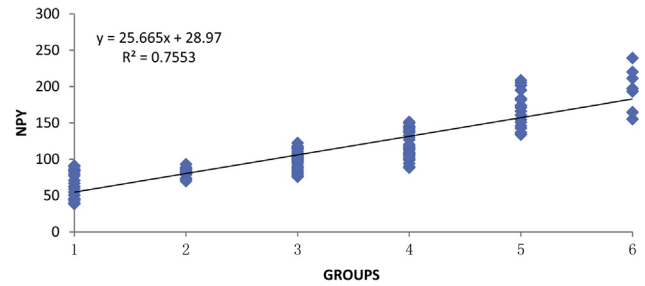


Figure 2 The correlation between synovial fluid NPY levels and pain of KOA patients (1=Healthy control group, 2=No pain group, 3=Mild pain group, 4=Moderate pain group, 5= Strong pain group, 6= Severe pain group.

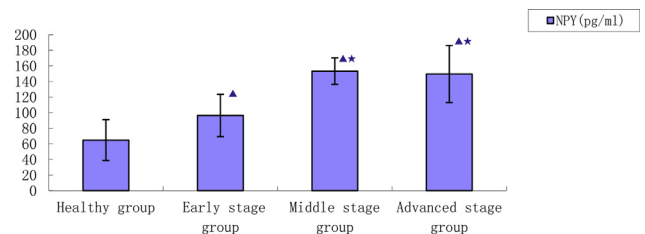


Figure 3 Comparison of radiographic grade and NPY of KOA patients with healthy participants ($P < 0.05$: ▲ vs. Healthy control group; Intragroup KOA *vs. Early stage group.)

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BONE MICROSTRUCTURE IN THE DIFFERENT REGIONS AND STAGES OF HUMAN OSTEONECROTIC FEMORAL HEADS

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Objective: To detect and compare the bone microstructure in different regions and stages of human osteonecrotic femoral heads.

Methods: Thirteen osteonecrotic femoral heads (3 FicatII and 10 Ficat IV) were obtained from patients undergoing total hip arthroplasty. The samples were divided into subchondral bone, necrotic, sclerotic, and healthy regions based on micro-computed tomography (micro-CT) images. The bone microstructure was assessed using micro-CT and pathology.

Results: (1) The spatial structure of the bone trabeculae differed markedly in the various regions of the osteonecrotic femoral heads. (2) In Ficat II group, the subchondral bone and sclerosis region had higher BMD, BV/TV and lower Tb.Sp compare to healthy region, And the collapsed region had higher Tb.Sp and lower Tb.N. (3) In Ficat IV group, the sclerosis regions had higher BMD, BV/TV and lower Tb.Sp compare to healthy region. And the collapsed and subchondral bone region had higher Tb.Sp and lower BV/TV, BMD and Tb.N.

Conclusion: (1) The different regions in osteonecrosis femoral head have a different spatial structure and pathological feature. (2) Micro fracture and bone resorption had already appeared since the early stage. It is not certain that only mechanical support can prevent the collapse of osteonecrotic femoral heads.

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GENDER DIFFERENCES IN CORTICAL THICKNESS OF THE FEMORAL NECK IN ELDERLY CHINESE POPULATION WITH HIP FRACTURES

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Introduction: Bone mineral density and structure analysis by quantitative computed tomography (QCT) have been utilized in clinical research studies to evaluate hip fracture risk. However, there is relatively little information about the distribution of cortical bone of the proximal femoral which is the key to resist fracture, especially for the Chinese elderly people. So, we used bone investigational toolkit (BIT) of QCT to investigate the femoral neck structure of elderly population with acutely atraumatic hip fracture.