

Dear participants of the osteoarthritis initiative (OAI):

We are conducting a study using the knee radiographs of OAI participants by applying the fully automatic program KOACAD (knee OA computer-aided diagnosis) to quantify parameters such as joint space widths and area of osteophytes, examine the longitudinal changes in these parameters, and compare the results with the data of Japanese people.

【Study title】

中高年齢者における膝関節 X 線画像上の関節裂隙の定量的評価とその日米比較
("Quantitative assessment of joint space widths on the knee radiographs of middle-aged and older individuals and comparison with Japanese data," ID: 2020116NI)

【Research office and the primary investigator】

Research office: Department of Medical Research and Management for Musculoskeletal Pain, 22nd Century Medical and Research Center, Faculty of Medicine, The University of Tokyo, Tokyo, Japan

Primary investigator: Hiroyuki Oka

Responsibility: Data analysis

【Study period】

September 10, 2020 to March 31, 2025.

If the study needs to be extended, we will apply for an extension from the ethical review board.

【Target individuals】

All participants of the OAI

【Study objectives】

Knee osteoarthritis (knee OA) is common and a major cause of mobility disability in older adults. However, current treatment options include palliative therapy and joint replacement. No disease-modifying OA drugs that repair the structural changes or delay disease progression have been approved.

The OAI study has collected knee images such as radiographs and magnetic resonance imaging (MRI) scans from participants over 10 years to examine useful imaging biomarkers of the incidence and progression of knee OA. Many research groups worldwide have been studying the images collected by the OAI.

We established fully automated programs to quantify the major OA parameters on knee radiographs. The objectives of the present study are to quantify knee OA parameters such as joint

space width and area of osteophytes on knee radiographs from the OAI, estimate their longitudinal change, and compare the results with the data of Japanese individuals.

【Study methods】

We are downloading the imaging and clinical data from the National Institute of Mental Health (NIMH) Data Archive website (<https://nda.nih.gov>). Currently, data from baseline to the 96-month visit are available for research purposes. The imaging and clinical data have already been deidentified, and study IDs have been assigned.

We will quantify OA parameters on knee radiographs from baseline to 96 months using the KOACAD system. The longitudinal changes of these parameters will be estimated and compared with published data from Japanese subjects¹⁾.

1) Oka H, Muraki S, Akune T, Nakamura K, Kawaguchi H, Yoshimura N. Normal and threshold values of radiographic parameters for knee osteoarthritis using a computer-assisted measuring system (KOACAD): ROAD study. J Orthop Sci. 2010 Nov;15(6):781-9. doi: 10.1007/s00776-010-1545-2. Epub 2010 Nov 30. PMID: 21116896.

This study was approved by the institutional review board of the University of Tokyo.

This study analyzes OAI data that have already been collected, and the participants will not undergo any additional examinations.

【Protection of personal information】

The imaging and clinical data are stored in computers protected with security software and password in our office. The OAI data have already been deidentified when they were provided by the NIMH Data Archive. Thus, individual participants cannot withdraw from the study.

The results of this study could be published in research conferences and scientific journals.

The data will be kept secure for 5 years after completion of the study. Then, the data will be destroyed.

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The researchers have no competing interests to declare regarding this study.

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and the Promotion of Practical Use of AI Medical Diagnosis Support Equipment. These companies have no role in the data analysis or manuscript drafting for this study.

No additional reward is offered to OAI participants.

If you have any questions or concerns, please contact the following person.

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【Contact information】

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