Comparison of Indium-111-labeled leukocyte scintigraphy and Technetium-99m joint scintigraphy in rheumatoid arthritis and osteoarthritis

Kimiichi Uno,** Toyo Suguro,*** Kunichi Nohira,*** Hidetsugu Moriya,** Kenji Saegusa,* Yoshimi Anzai,* Takashi Terauchi,* Kazuichi Sató,**** Sadao Uematsu**** and Noboru Arimizu*

*Department of Radiology, Chiba University School of Medicine
**Department of Orthopedics, Chiba University School of Medicine
***Chiba Rehabilitation Center
****Central Division of Radiology, Chiba University Hospital

This study was undertaken to evaluate the use of Indium-111-labeled leukocyte ($^{111}$In-WBC) imaging compared with Technetium-99m pertechnetate ($^{99m}$TcO$_4^-$) imaging in 19 patients with rheumatoid arthritis (RA) and 8 with osteoarthritis. Knee and wrist joints were evaluated for both radionuclides. The results indicated a good correlation of the clinical assessment of pain and swelling with joint uptake ratio (JUR) between $^{111}$In-WBC and $^{99m}$TcO$_4^-$ in RA and osteoarthritis patients. We observed a discrepancy in both imageries in "burned out" cases. It was concluded that a JUR of $^{111}$In-WBC could distinguish active RA from inactive RA or osteoarthritis at a value of 1.15 and that the use of $^{111}$In-WBC was a more reliable procedure than $^{99m}$TcO$_4^-$.  

Key words: Indium-111-labeled leukocyte, Technetium-99m pertechnetate, rheumatoid arthritis, osteoarthritis, comparative studies