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Minimally invasive restorative surgery using injectable growth factor for osteonecrosis of the femoral head

In the past decades, minimally invasive regenerative therapy has been desired for the early stages of osteonecrosis of the femoral head (ONFH). ONFH is common among young people in their 30s and 40s. In the clinic, although patients are diagnosed, 70%–80% of ONFH patients experience femoral head collapse and have to undergo total hip arthroplasty. The purpose of this study was to evaluate the safety and clinical outcomes of injectable rhFGF-2 gelatin hydrogel. Ten ONFH patients up to precollapse stage 2 underwent a single local administration of 800- μ g rhFGF-2 gelatin hydrogel and were followed up for four years. Primary outcomes included adverse events and complications. Secondary outcomes included changes in Harris Hip Scores, VAS pain scores, UCLA scores, radiological changes as determined via X-ray, CT, and MRI images. The surgery was performed with a minimally invasive technique (1 cm of skin incision), and walking was allowed from the day after surgery. Mean clinical scores improved significantly after four years compared with before surgery. There was only one case of femoral head collapse, and it had the greatest necrosis volume fraction and was considered to be in the early collapse stage at the time of operation. The other nine cases did not involve ONFH stage progression, and collapse was prevented. CT and MRI images confirmed bone regeneration in the ONFH. Our research is ongoing, further phase II multiple center study has been started in January 2016.

Biography

Yutaka Kuroda, Medicine Doctor, now is an Assistant professor of Department of Orthopaedic surgery, Kyoto university. In 1994, was received the B.E. degree in Economics from Keio university, got medical doctor license at St. Marianna university school of medicine in 1999 and Medicine Doctor's degree (Ph.D.) at Graduate School of Medicine, Kyoto University in 2011. His researches focus on the bone regeneration. A Research Award from "The Japanese Society of Inflammation and Regeneration 2014 and 2016 meeting". Member of the Japanese Investigation Committee of Health and Welfare on the establishment of guidelines for Osteonecrosis of the femoral-head.

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