Teaser Memorandum

INDUSTRY-ACADEMIC COOPERATION FOUNDATION,
CATHOLIC UNIVERSITY OF KOREA

Pin guide for avascular necrosis of femoral head

Executive Summary

□ The present invention relates to a surgical instrument for avasclar necrosis of the femoral head capable of improving the recovery of a patient after surgical operation by carrying out the implant without exhausting a hip joint bone of a patient.

□ The risk of the pin being trapped in the bone is reduced as the pin surface is smooth.

□ The present invention improves the recovery of a patient after implant by not using a hip joint bone of a patient and reduces surgical operation time by not implanting a hip joint bone of another person.

Industry Sector :
Medical devices(Medical appliance)

Therapeutic Target :
Avascular necrosis of femoral head

State of Development :
Experimental stage

Key Technology Highlights

□ The present invention disclosed therein is a big femoral head and femoral head surface replacement, which are used for hip osteoarthritis, osteosynthesis and vascular necrosis of the femoral head.

□ Use of the femoral head surface replacement(FHSR) and big femoral head system gives convenience to the surgeon and a lower economic burden to patients.

Proposal Abstract

□ The present invention relates to a device for use in osteosynthesis to treat femoral fractures, in the intertrochanteric region of the femur. Also, the related accessory showed initial stability of the femoral head surface replacement during operation and prevent femoral neck fractures in follow-up periods.

□ The modularity provides the surgeon margin to change the operation methods. The sleeve system gives initial stability of the femoral stem and the adapter can be used with conventional total hip arthroplasty alternatively.

■ IP Owner Summarmary

Catholic University of KOREA
Industry Academic Cooperation Foundation

- Increase cooperation between businesses and researchers and enhance planning to secure sustained research funding.
- Improve the ability to obtain and commercialize high-quality intellectual property rights.

■ Personal Description of Researcher

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□ Major: Orthopedic Surgery
□ Research interest: Artificial Joints, Arthritis, Pediatric Orthopedics/Hand, Pes, Fractures
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Market Feasibility

□ Domestic and foreign market size: Size of world medical device market in 2010 is about $363 billion.
□ Domestic and foreign market opportunity:
① Medison Healthcare(KR)
② Johnson & Johnson(USA)
③ GE Healthcare(USA)

■ Trends & Partnerships

□ Future outlook and trends related to technology : medical device
□ Technology Transfer and commercialization conditions : N/A
□ Type of business relationship sought (including licensing availability) : N/A

Technology Overview

■ Technology Platform

The present invention relates to a surgical instrument for avasclar necrosis of the femoral head(AVN) capable of improving the recovery of a patient after surgical operation by carrying out the implant without exhausting a hip joint bone of a patient.

The present invention relates to a modular FHSR, a modular femoral neck stem, and related sleeve, adapter and osteoconducting rod, which are used to perform total hip replacement.

■ Background and unmet needs

Many implants have been developed to treat intertrochanteric femoral fractures which are basically based on a hip nail or screw that is inserted from the side of the femur through the femoral neck and into the head. Afterwards it is fixed either to an intramedullary nail positioned inside the femoral shaft, or to a side plate.

Bone contact was insufficient to support a patient's weight, resulting in an increased risk of bending or breaking of the implanted hip nail. This, together with the shape of the hip nail, distributed too much pressure over the femoral neck and head bone tissue, causing the implant to cut through the cancellouse tissue of the femoral neck or head in a condition known as "cut out", causing the nail to pierce the surface of the femoral neck or head, or at the least to lose proper alignment of the bone fracture.

To solve one of these difficulties, collapsible implants were developed.

■ Discovery and Achievements

The total hip replacement, which is the final treatment method of osteoarthritis and AVN of the femoral head, is the most successful treatment to relieve pain, recover stability and increase the range of motion. However, as time goes, because of progressive wear of the plastic liner, osteolysis resulted in the pelvis and femur by abraded particles, causing a reduction in the range of motion of the hip joint and increased dislocation rate of the hip due to a small femoral head and instability.

Simple and fixed-type big femoral heads or FHSR are commonly used in the world medical market, but a modular femoral head surface replacement according to the present invention gives convenience and support to a surgeon to choose a straight or tapered, fluted type stem according to the patient's bone state.

Now is the time to challenge the market of medical appliances owing to development of the metal industry and ceramic technology. The most important factor for the surgeon in choosing the implant is the design.

The various types of FHSR or modular big femoral head can be selected according to the patients' conditions. The sleeves of various types can be applied according to the degree of AVN to prevent breakage of the femoral neck support femoral neck stem metal.

Patents and Publications

Country	Appln. No.	Status	Description
Korea	10-0603974	registration	method for preparing nano-scale or amorphous particle using solid fat as a solvent
U.S.A	10/596178	publication	
Europe	04819986.3	publication	
China	CN 1894158 B	registration	
Japan	2006-542492	registration	
Canada	2547659	publication	
Australia	2004295259	registration	
Korea	10-2006-0040317	publication	Method for preparing nano-scale particles of active material using diol compounds
Korea	10-2006-0040416	publication	Method for preparing nano-scale particles of active material using supertical fluid under low pressure at low temperature
U.S.A	12/299500	publication	Method for preparing nano-scale particles of active material
Japan	4830019	registration	
Europe	07746327	publication	
China	200780017532.4	publication	
Australia	2007246277	publication	
Canada	2651346	publication	
India		publication	

Contact Point

KHIDI (Korea Health Industry Development Institute) is currently receiving inquiries from interested parties in this transaction. If you are interested, please contact any of the KHIDI professionals below:

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