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Novel Magnesium-based Composite Device for Treatment of Steroid – Induced Osteonecrosis of Femoral Head

#Treatment

#Ageing

#Healthcare



PROJECT QUICK FACTS

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Award

Research Grants Council

Core decompression, the classic preservation treatment for steroid – associated osteonecrosis (SAON), only addresses biological environment of the necrotic head and cannot treat the collapse caused by the biomechanical failure of the femoral head. Prof. QIN Ling and his research team in CUHK have developed a Mg-based composite device of magnesium hip stents, for supporting the subchondral plate during structural reconstitution of the underlying cancellous bone, which can augment core decompression. Besides, the injectable bone cement may fill the gap through the holes on the perforated and cannulated stent, to maintain, consolidate and strengthen the support of the implant. In accordance with previous studies, the Mg ions released from the Mg-based implants during in vivo degradation may prevent the femoral head collapse. This device has been validated on large animal model of the bipedal emu.

Uniqueness and Competitive Advantages

- Supporting the subchondral plate during structural reconstitution of the underlying cancellous bone, while filling the gap to augment mechanical strength
- Protecting against avascular necrosis and ischemia-reperfusion injury
- Preventing further collapse of femoral head via osteogenesis and angiogenesis effect



Mg-based stent with holes in the shaft for injection of bone cement to repair osteonecrosis in the femoral head in emu

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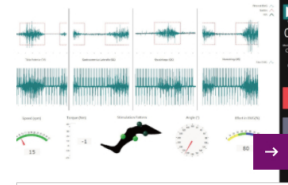
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