INTRODUCTION

Total Hip arthroplasty is one of the most successful and cost-effective surgical interventions in medicine and is the most effective treatment for osteoarthritis of the hip joint. ***(Garellick, 1998)***

The main aim in hip arthroplasty is to produce a hip replacement which has no complications and lasts a reasonable length of time. Factors limiting the function and longevity of a total hip prosthesis are the surgical technique, fixation of the implant to bone, the long term skeletal remodelling around the implants and ideal bearing surfaces which show minimal wear, no creep. ***(Harkess and Crockarell, 2008)***

The desired goal of these bearing surfaces is a reduction in biologically active particulate wear debris and thus a reduction in the occurrence of osteolysis and aseptic loosening, which is considered the primary limiting factor in joint replacement longevity. ***(Archibeck, et al., 2000)***

Loosening of the prosthesis due to osteolysis, with accompanying pain and disability, is particularly apparent in patients whose implants are composed of polyethylene components. osteolysis is now understood to be a biological response to particulate debris that results in periprosthetic bone loss. Particulate debris can be generated by corrosion or wear of articulating surfaces. This periprosthetic osteolysis is thought to be the major cause of long term failure. ***(Rokkum, et al., 1999)***

Due to the risk of osteolysis associated with polyethylene components, there is renewed interest in the use of metal-on-metal bearings for Total Hip Replacement. This alternative bearing surface eliminates polyethylene wear and retrieved metal-on-metal articulations made of cobalt-chromium-molybdenum (Co-Cr-Mo) alloy have been shown to have low rates of linear wear. There have been several generations of all metal components with significant variation in design, tolerances, and bearing surface quality. A number of these hips have survived for more than 30 years because of low wear rates and minimal osteolysis. (***Siber, et al., 1999)***

Metal-on-metal hip prosthesis were first used in the 1950s with limited success, although the devices remained functional for up to 40 years in a small number of patients, particularly those who had perfectly matched ball and socket joints. It is now believed that problems with the first-generation metal-on-metal prosthesis resulted from poor manufacturing rather than design. ***(Murray and O'Connor, 1998)***

Advances in manufacturing practices have allowed for precisely matched articulating surfaces, as well as improvements in the quality of the alloy used to form the components. These components are believed to produce approximately 100 times less debris than metal-on-polyethylene. Also the particles generated by metal-on-metal implants are smaller than those generated by polyethylene and are less likely to result in macrophage stimulation with the subsequent osteolysis. ***(Christian et al., 2004)***

The advantages of metal-on-metal prosthesis includes not only reduced wear rates but also the ability to increase the size of the ball component to provide a greater range of motion and increased joint stability, also second- generation metal-on-metal total hip replacements have experienced short and medium-term success as assessed by Harris Hip Scores and patient self-assessment. The combined annual linear wear of the metal-on-metal femoral head and acetabular insert is less than 10 mm and osteolysis has only rarely been observed in association with well- fixed metal-on-metal total hip replacement. ***(Michael and John, 2006)***

The potential for permanent biological fixation with non-cemented components, combined with a bearing surface that does not fail due to wear or osteolysis, makes it conceivable that total hip replacement implants could survive even in active patients for more than 30 years**.** ***(William, 2005)***

THE AIM OF THE WORK

The aim of this work is to evaluate the early results of total hip replacement using the new generation of metal-on-metal articulations. Evaluation includes clinical, radiological and also the early complications of total hip replacement surgery in general as infection and dislocation.