Do non steroidal anti inflammatory drugs cause endoprosthetic loosening?

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Introduction: Total hip arthroplasty is commonly performed for end-stage osteoarthritis of the hip to alleviate pain, stiffness and deformity and improve mobility and quality of life.

Pain relief plays an important role in the intra/post operative stages in order to achieve an almost pain free post operative recovery period and mobilise the patient as early and safely as possible in order to get them back into the community and avoid undesirable post surgical complications.

Recent papers have suggested that NSAID use following total hip arthroplasty may have the potential to adversely affect prosthetic fixation. Other animal studies have suggested that NSAIDs impair fracture healing 3-5 and clinical studies have emerged stating NSAIDs inhibit spinal fusion and retard healing of femoral diaphysial fractures. Other clinical and randomised control studies have also stated NSAIDs as playing role in the prevention of HO suggesting they may have an effect on bone metabolism.

Materials and Methods: A series of 99 total hip arthroplasty patients were assessed for signs of clinical or radiological loosening. All patients received a BHR cup and Birmingham modular heads and a variety of cemented and uncemented stems.

We looked at a total of 99 consecutive hybrid hip joint replacements (cementless cup and cementless or cemented stem) that were performed in 93 patients between 1996 Dec and Jan 2006 by a single surgeon LK. The patients were retrieved from the joint reconstruction data base where prospective information was entered.

Inclusion criteria included all patients irrespective of age or sex who had a cementless or cemented total hip arthroplasty (primary and revision) were recruited into the study.

Those patients who had intra-operative fractures or been on long term steroids or disease modifying drugs for inflammatory arthropathies like rheumatoid arthritis were excluded from the study. Patients who had contraindications for the use of NSAIDs were also excluded.

All surgery was conducted by a single surgeon (LK) and all anaesthesia and pain management was conducted by a single physician anaesthetist (DK). A standard posterior approach used in all cases.

Local anaesthetic mixture (Ropivacaine-Ketorolac (30mg) - Adrenaline or RKA mixture ) was infiltrated into the joint capsule and surrounding tissues after placement of the acetabular component, and thereafter into the different muscle layers in the thigh around the components. A total of 150 to 200 mls of this mixture was injected and a further 50 mls injected through a catheter left insitu upto 24 hrs after surgery before discharge.

Radiographic analysis was carried out using the Hodgkinson criteria to predict acetabular component loosening and used a modified system adopted by Persson et al to determine femoral component loosening.

All patients were mobilising atleast between 4-12 hours post surgery.

Results: Of the 99 hybrid hips, 57 were right and 42 were left hip arthroplasties and 6 patients had bilateral consecutive hips done. 5 were performed for revision of fractured necks of femur in Birmingham hip resurfacings and one total hip arthroplasty revised to a hybrid and the remaining 92 were primary hybrid hip arthroplasties. The arthroplasties were performed for Osteoarthritis (89), RA (4), and others (6).

No components were revised for failure of loosening, No dislocations were recorded in this series.

No deep wound infections, or pulmonary embolisms were noted. One patient was diagnosed to have a below knee deep vein thrombosis which resolved without active treatment.

At the most recent follow-up no components were found to be loose requiring revisions on radiographic examination.

Discussion: The use of high dose local infiltration NSAIDs in the intraoperative and early post operative phase does not seem to affect prosthetic fixation atleast during short to mid term follow up of hip joint arthroplasties. However randomized double blind studies should be conducted to determine the effects of deep local infiltration NSAIDs on long-term prosthetic fixation in hip arthroplasties.


2) Malik M.H.W, Gray J, Kay P.R. Early aseptic loosening of cement-ed total hip arthroplasty: the influence of non-steroidal antiinflammatory drugs and smoking.