HIPNAV: PREOPERATIVE PLANNING AND INTRAOPERATIVE NAVIGATIONAL GUIDANCE FOR ACETABULAR IMPLANT PLACEMENT IN TOTAL HIP REPLACEMENT SURGERY.

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INTRODUCTION:

Dislocation of a total hip replacement causes significant distress and additional costs in order to relocate the hip...

CLINICAL RELEVANCE:

The HipNav System will permit proper placement of the acetabular component during total hip replacement surgery thereby reducing the risk of impingement and dislocation...

DESCRIPTION OF METHOD/SYSTEMS:

A system has been developed to permit accurate placement of the acetabular component during total hip replacement (THR) surgery...

RESULTS:

A cadaver trial has been undertaken to evaluate the accuracy of the HipNav System and to test the ability to use the surface geometry of bone to register the preoperative plan with the intraoperative position of the pelvis. To date, three cadaver specimens were scanned with fixed fiducial markers in place to provide the "ground truth"...

CONCLUSIONS:

The goals of the HipNav system are to: (1) reduce dislocations following total hip replacement due to acetabular malposition; (2) determine and potentially increase the "safe" range of motion; (3) reduce wear debris resulting from impingement of the implants femoral neck with the acetabular rim; and (4) track in real time the position of the pelvis and acetabulum during surgery. This information will help the surgeon achieve more reliable and accurate positioning of the acetabular cup and take into account specific anatomy for individual patients...

REFERENCES:

[1] McCollum D E, et al.: Clin. Orthop., (261): 159-170, 1996...