

Regional Differences In Body Mass Index With Effect On 1-Year Outcome Scores In Patients Undergoing Total Hip Arthroplasty

Orthopaedics / Pelvis, Hip & Femur / Joint Replacement - Primary

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Introduction

Obesity is an increasing problem in Western countries and high Body Mass Index (BMI) is known to influence surgical risk in total hip arthroplasty, with increased BMI leading to elevated risk of thrombosis, wound healing complications and infection and poorer outcome scores. Regional variations in BMI may thus impact on the relative success of total hip arthroplasty.

Objectives

We aimed to assess the impact of regional variations of BMI on Harris Hip scores using a multinational trial data of a single implant

Methods

We assessed the BMI in 11 regional centres and the association with Harris Hip score at one year post operative review. Data were collected from 744 patients prospectively from 11 centres in the UK, Germany, Switzerland, Austria, New Zealand and Netherlands as part of a multicentre outcome trial. All Total Hip Replacements used RM Pressfit vitamys acetabular components (Mathys, Switzerland). Demographic (age, gender, BMI) and operative data (surgical centre and approach) Harris Hip scores pre operatively and at one year were collected. Data were analysed with General Linear Model Anova, Minitab 16 (Minitab Inc, Pennsylvania US).

Results

744 patients were included in the study with mean age 70.0yrs (30.5-93.1, SD 10yrs) with 310 (41.7%) male and 534 (58.3%) female distribution. Mean BMI was 27.7 (16.7-47.1 SD 4.7). The most frequent surgical approach was Posterior with 361 cases (48.5%) cases, Anterior 135 (18.1%), Anterolateral 126 (16.9%) and Direct Lateral 117 (15.7%). The study included patients from Austria 48 (6.4%), Germany 150 (20.2%), Netherlands 258 (34.6%), New Zealand 51 (6.9%), Switzerland 180 (24.2%) and United Kingdom 294 (39.5%).

The greatest proportion of high risk obese patients BMI >40 were performed in the UK 4.4%

and New Zealand 5.9% with Germany and the Netherlands operating on high BMI patients less than 1% of the time. The UK had the highest proportion of overweight (BMI > 30) patients at 39%. The greatest proportion of low BMI patients were found in the Netherlands, New Zealand and Switzerland with over a third being under BMI 25.

Higher BMI was associated with improvements in Harris Hip scores ($p=0.043$). Country of surgery also influenced outcome scores ($p<0.01$) with New Zealand and Austria showing particular improvements in Harris Hip scores. Age and Surgical approach had no influence on outcome scores.

Conclusions

In this study of a single prosthetic implant, significant regional variations in patient BMI were observed. Higher BMI positively correlates with a greater improvement in Harris Hip score showing that obese patients may benefit more from Hip Arthroplasty. A relationship between patient's country of surgery and outcome scoring was also noted which is independent of BMI. No differences were noted with age, surgical approach or gender.