

an increased risk of post-operative in-hospital adverse events. While no significant differences were seen in discharge disposition, patients with multiple symptomatic joints spent an average of half a day longer in hospital before discharge when compared to those with symptoms in the operated joint only, and accrued almost 10% greater costs from the hospital perspective. Physicians and other health care decision makers should be aware that multi-joint OA may characterize a distinct clinical entity that may warrant specific attention.

395 MULTIPLE SYMPTOMATIC JOINTS ARE ASSOCIATED WITH INCREASED IN-HOSPITAL RESOURCE UTILIZATION AMONG PATIENTS UNDERGOING TOTAL HIP ARTHROPLASTY FOR OSTEOARTHRITIS

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Purpose: The presence of multiple symptomatic joints has been associated with worse pre-operative knee-specific pain and function in patients undergoing total knee arthroplasty for osteoarthritis (OA). However, it remains unknown whether similar patterns are seen in patients with end-stage hip OA. The purpose of the present study was to evaluate whether the presence of multiple symptomatic joints is associated with differences in pre-operative hip-specific pain and function, American Society of Anesthesiologists (ASA) class, adverse event rates, length of stay, discharge disposition, or episode of care costs in patients undergoing primary total hip arthroplasty (THA) for OA.

Methods: All patients who underwent primary THA for OA at a single institution between April 2011 and October 2012 were reviewed. Patients with a history of rheumatoid arthritis or inflammatory arthropathy were excluded. Prospectively collected demographic and clinical data, including number and location of symptomatic joints, as well as ASA class and discharge disposition were extracted and linked with hospital administrative data. Patients were grouped into three categories: 1) symptoms in the operated joint only, 2) symptoms in a total of 2–4 joints, and 3) five or more symptomatic joints. A total of 203 patients were included, with 46, 96, and 61 in each group, respectively. Differences in hospital costs and length of stay were extrapolated to determine the potential nationwide health services impact of multi-joint osteoarthritis in Canada and the United States.

Results: Increasing symptomatic joint count was associated with significantly worse hip-specific mean WOMAC pain (8.59, 9.3, and 10.5 points respectively; $p = 0.018$) and function (29.9, 32.2 and 37.2 points respectively; $p = 0.010$) scores, as well as greater mean ASA class ($p = 0.001$). The difference in mean length of stay between single joint and 5+ symptomatic joints groups was 0.17 days (one additional in-hospital day for every 6 patients), irrespective of whether all patients or only those patients discharged home were considered. No differences in the incidence of adverse events were seen. However, the presence of five or more symptomatic joints was associated with significantly greater in-hospital episode of care costs (10% incremental difference compared to the single joint group; $p = 0.029$), irrespective of discharge disposition. Assuming the 30% prevalence of multiple symptomatic joints observed in the present sample is representative of the nationwide population of patients undergoing THA, this is conservatively estimated to represent an incremental burden from the hospital perspective of \$8,296,000 (CAD) when compared to procedures performed in patients with a single symptomatic joint, and an additional 1,543 in-hospital bed-days. When extrapolated to case volumes in the United States, this represents an incremental cost burden of \$67,356,000 (USD) and an additional 12,903 hospital bed-days to the US healthcare system in 2010, potentially rising to \$152,283,000 unadjusted USD and an additional 29,172 hospital bed-days by 2030.

Conclusions: Given the large and increasing number of patients undergoing THA, the presence of multiple symptomatic joints may have substantial health services implications as a result of higher incremental hospital costs and increased length of stay. Further study is needed to better characterise the differences in in-hospital health resource requirements to identify the specific reasons for these disparities. However, physicians and other health care decision makers

should be aware that OA associated with multiple symptomatic joints may characterize a distinct clinical entity, potentially warranting specific attention and intervention.

396 ARTHRITIS AND BACK PAIN IMPACT RESPIRATORY-SPECIFIC QUALITY OF LIFE MEASURES IN SMOKERS WITH AND WITHOUT COPD

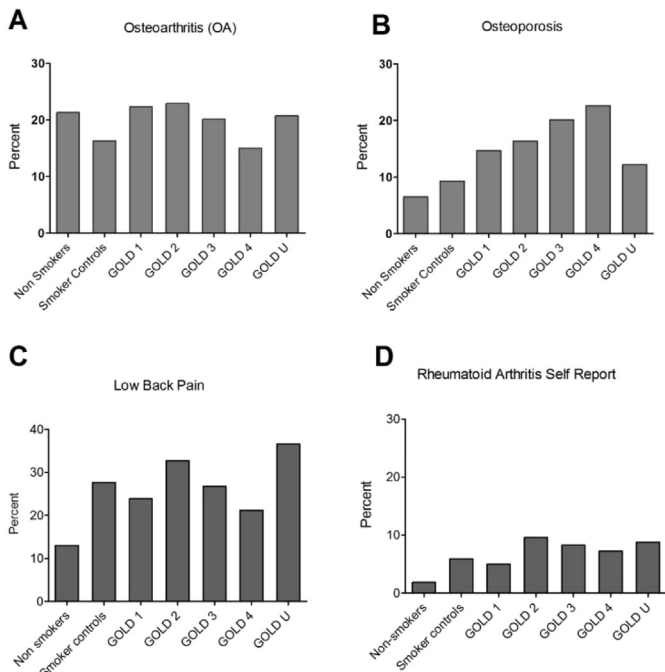
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Purpose: COPD affects more than 10 million people in the US and approximately 49% of the US population over age 45 is a current or ex-smoker. Comorbid arthritis and degenerative spine disease occur in aging smokers but the prevalence of these conditions in smokers and their impact on respiratory-specific quality of life measures has not been studied. We hypothesized that either condition might impact the St George Respiratory Questionnaire (SGRQ) – which is the most commonly used instrument in both COPD clinical trials and the assessment of COPD progression. We have previously found strong associations of osteoporosis to smoking and COPD severity.

Methods: COPDGene is a longitudinal cohort of 10,192 current and ex-smokers, age 45–80, designed to assess subtypes of COPD and their genetic associations. Baseline cross-sectional data from the smoker controls and from COPD subjects was used. Study data included self-reports of musculoskeletal diseases and physical complaints. We identified those with osteoarthritis (OA) based on self-report of physician-diagnosis. Chronic back pain was identified by a positive response to “Do you have lower back, buttock, or radiating leg pain most days of the month?” We determined the prevalence of OA and Chronic Back Pain (CBP) by age groups and by severity of lung disease. Using multivariable regression adjusting for age, gender, obesity and race, we tested the association of current smoking and pack years to OA and chronic back pain. We compared these results to similar analyses of self-reported osteoporosis, osteoporosis based on volumetric QCT measures, and rheumatoid arthritis based on self-report and disease-modifying anti-rheumatic drugs (DMARD) use. Multivariable regression (adjusting for age, gender, race, smoking status and pack years) was used to assess the impact of each of these conditions on SGRQ scores and on the SF-36.

Results: Self-reported OA is slightly more prevalent in COPD cases (21%) than controls (17%) in univariate analysis but the association is not present after adjustment for age, gender, and race (OR 0.9, 95% CI 0.8–1.0, $p = 0.07$). There are expected associations to female gender, obesity and increased age in univariate and multivariable analyses. In this smoker cohort, the overall prevalence of OA is 19% but increases by age group up to 40% in the 60–70 year old age group. Neither current smoking nor pack years were associated with OA in multivariable models. Chronic back pain is also not associated with COPD, but is strongly associated with African American race, female gender, obesity, current smoking and pack years in multivariable models. Both OA and back pain have significant negative effects on respiratory health status exceeding the minimal clinically significant difference of 4 units in COPD patients), but the magnitude of the effect from chronic back pain is three-fold greater than OA (range 11–20 units). The generic quality of life instrument, SF-36 showed similar results with both conditions demonstrating significant impairment, but chronic back pain had a 3 to 5-fold greater effects on physical function, bodily pain and physical component scores.

Conclusions: Osteoarthritis and chronic back pain are common in a smoking cohort and in COPD patients, but show divergent associations with smoking. Chronic back pain has much greater impact on quality of life than osteoarthritis of the lower extremities. Both conditions affect quality of life measurements using a respiratory-specific instrument. Clinical trials that use the SGRQ to measure outcomes of treatment in COPD should assess subjects for OA and chronic spine disease to avoid confounding. Drug treatments for COPD that are directed toward controlling inflammation may improve respiratory-specific quality of life scores as a result of improved musculoskeletal function.



397

LONGITUDINAL ASSESSMENT OF PAIN IN PATIENTS WITH KNEE OSTEOARTHRITIS (OA): USING DATA FROM THE STUDY OF REAL WORLD THERAPIES (SORT)

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Pain is a key concern for patients suffering with osteoarthritis (OA) and is one of the most common reasons for seeking care from a general practitioner. In this analysis, inadequate pain relief (IPR) was defined as a score of >4 on the Brief Pain Inventory (BPI) average pain question. Characterizing the variability of knee OA pain is critical in providing clinical insight and initiating effective treatment plans.

Purpose: The objective was to examine variability of average pain scores, pain severity and WOMAC pain subscale scores over 12 months in knee OA patients who reported IPR at baseline as compared to those who reported non-IPR using data from SORT

Methods: OA knee patients ≥ 50 years who required medicinal therapies were recruited from physicians' practices at 53 centres in 6 European countries. Pain was assessed by the (BPI) using average pain score and pain severity and the WOMAC Pain subscale. Descriptive statistics were used to describe and contrast IPR and non-IPR cohorts over 12 months.

Results: A total of 1284 patients were enrolled with 1187 eligible for evaluation and 53.8% met the definition of IPR at baseline. Fluctuations in average pain score, pain severity, and WOMAC pain were minimal. When contrasting IPR vs. non-IPR cohorts, the magnitude of the variability was similar overtime based on group level standard deviations. Additionally, statistically significant differences between the cohorts remained regardless of the pain measures ($p < 0.0001$).

Conclusions: Patients with IPR appear to have stable disease and remain in IPR over time. Pain levels were relatively stable in this population suggesting the importance of initially treating OA pain with alternative therapies to avoid IPR.

398

SERVICE PROVISION FOR PATIENTS WITH CHRONIC PAIN AFTER KNEE REPLACEMENT: AN EVALUATION OF CURRENT PRACTICE IN HIGH VOLUME ORTHOPAEDIC CENTRES

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Background: Total knee replacement is one of the most commonly performed elective surgical procedures. The operation is usually conducted to relieve pain and improve function, but recent studies indicate that up to 20% of patients experience chronic post-surgical pain (CPSP) after total knee replacement; this equates to around 16,000 new cases of CPSP in the UK each year. The wider literature on chronic pain indicates that people with chronic pain encounter patchy service provision. People with CPSP after knee replacement have already undergone major surgery for pain, and follow-up after surgery may have a role in care and pain management. However, we do not know what services are on offer to this group, nor whether there is consistency in service provision including identification of need and any associated referral processes. We therefore conducted a survey to scope current UK service provision for patients with CPSP after total knee replacement.

Methods: This ongoing project is funded through a National Institute for Health Research (NIHR) Programme Development Grant on the treatment and management of chronic pain after total knee replacement (the STAR programme). The project was conducted as a service evaluation of services at high volume NHS orthopaedic centres across the UK. The 23 NHS orthopaedic centres that conduct 500 or more primary total knee replacements per year were identified from the National Joint Registry. Contact was made with a key health professional at each centre who was familiar with the processes of post-operative assessment and follow-up. A structured telephone interview was conducted to obtain information about usual patient pathways at the different centres. Questions focused on identification, triage, treatment, management, and referral of patients with CPSP after total knee replacement. Information was recorded on a standardised proforma and entered into an Access database. Information was then collated and summarised in Excel.

Results: The survey has been completed by 14/23 NHS orthopaedic centres. Data collection is ongoing, with completion by February 2014. All centres routinely follow-up patients at 6 weeks after total knee replacement, although the provision and timing of subsequent appointments vary. The majority of centres do not have a specific time point at which patients are diagnosed with CPSP; in those that do, time points range from 4.5–18 months post-operative. When assessing pain levels, most centres use patient narrative, and there is some use of a standardised tool, most frequently a visual analogue scale. Four centres reported using a standardised protocol for assessment of patients with CPSP, and two centres reported use of a standardised protocol for management and treatment. Treatment and management options offered to patients vary between and within centres, and include further orthopaedic interventions, referral to pain management services, analgesia review, and referral for physiotherapy.

Conclusion: This survey of current service provision for patients with CPSP after total knee replacement identified national variation in the identification, assessment and management of these patients. Although some centres have developed a care pathway for patients with CPSP, the majority of centres lack standardised protocols to guide care provision. This highlights the potential to develop and evaluate standardised referral pathways and integrated service provision for patients with CPSP after total knee replacement.

399

KNEE ARTHRITIS: A CONFIRMED BURDEN

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Purpose: Arthritis is a joint disease characterised by progressive degradation of the cartilage. Arthritis can cause suffering in an acute manner called "inflammatory flare-up", or in a more chronic manner leading to sometimes severe disability, which affects the everyday life of patients. Among the different locations of arthritis, arthritis of the knee