THA, and to account for lack of experience by performing a sensitivity analysis excluding these surgeons.
Methods: We defined a cohort of patients who received their first primary elective THA between 2002-2009 utilizing health administrative databases from Ontario, Canada. We excluded those who had received a primary or revision arthroplasty of the hip or knee prior to April 1, 2002, and those whose first procedure was non-elective (e.g. for cancer, fracture, or external cause of injury), or if the patient had a diagnosis of an inflammatory arthritis. Surgeon volume was determined by pooling the number of primary and revision THAs performed by the primary surgeon in the 365d prior to the surgery and categorizing by quartiles (lowest: ≤30; 2nd: 31-50; 3rd: 51-75; 4th: >75 cases). Generalized estimating equations were used to determine the relationship between volume quartile and the occurrence of specific complications (within 90d: DVT/PE, AMI; within 2y: dislocation, infection and revision) after controlling for potential confounders (income quintile, rurality, prior intra-articular injection, and hospital volume), and accounting for clustering by surgeons. We repeated our analysis after excluding patients of surgeons who had graduated from medical school less than years before performing the THA. A propensity score for treatment by the lowest quartile, versus any of the other quartiles, was developed and used as a balancing score. The number needed to harm (NNH) for each complication was then determined.
Results: Between April 1, 2002 and March 31, 2009, there were 37,881 THA recipients (lowest volume quartile: 7,267 patients; 2nd: 9,307 patients; 3rd: 9,566 patients; highest volume quartile: 11,741 patients). Relative to the highest surgeon volume quartile of hip replacements, THA recipients in the lowest quartile were more likely to be female (lowest: 57.1%, highest: 53.2%, p<0.001), older (lowest: mean age 68.1y, highest: 63.6y, p<0.001), and reside in a rural area (p<0.001). Controlling for these differences, and for clustering among surgeons, THA recipients treated by surgeons in the lowest volume quartile were at increased risk of dislocation (adjusted OR 1.60, 95%CI 1.26, 2.05, p<0.0001) and revision within 2y of THA (adjusted OR 1.59, 95%CI 1.25, 2.02, p=0.0002) relative to all other THA recipients. This increased risk persisted after excluding surgeons with less experience (dislocation: adjusted OR 1.63, 95%CI 1.24, 2.14, p=0.0004; revision: adjusted OR 1.49, 95%CI 1.11, 1.98, p=0.0071). Propensity score matching matched 6,827 patients who received their THA from a surgeon in the lowest volume quartile (94% of potential cases) with 15,840 patients who received their THA from a surgeon in any of the other volume quartile (52% of potential controls). The number needed to harm for THA recipients who received their THA from a surgeon in the lowest volume quartile was 149 patients for dislocation, and 167 patients for revision within 2years.
Conclusions: Patients who receive their THA by surgeons in the lowest volume quartile (defined here as 30 or fewer cases annually) had increased risk for early revision and dislocation. This increased risk persists after accounting for lack of surgeon experience. To our knowledge, this is the first study to demonstrate this relationship in Canada, and to quantify the added risk.

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THREE TRAJECTORIES OF ACTIVITY LIMITATIONS IN EARLY SYMPTOMATIC KNEE OSTEOARTHRITIS: A 5-YEAR FOLLOW-UP STUDY

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Purpose: Osteoarthritis (OA) is a leading cause of activity limitations among older adults. The knee OA population is heterogeneous and is likely to consist of subgroups with distinct trajectories of activity limitations. The aim of the present study was to identify homogeneous subgroups with distinct trajectories of activity limitations in patients with early symptomatic knee OA, and to describe characteristics of these subgroups.
Methods: Follow-up data over a period of five years of 697 participants with early symptomatic knee OA from the Cohort Hip and Cohort Knee (CHECK) were used. Activity limitations were measured yearly (six measurements over time) with the Western Ontario and McMaster Universities Osteoarthritis Index. Latent class growth analyses identified homogeneous subgroups with distinct trajectories of activity limitations. Multivariable regression analyses examined differences in characteristics between the subgroups.
Results: Three subgroups were identified. Participants in Subgroup 1 ('good outcome'; n=330) developed or displayed slight activity limitations over time. Participants in Subgroup 2 ('moderate outcome'; n=257) developed or displayed moderate activity limitations over time. Participants in subgroup 3 ('poor outcome'; n=110) developed or displayed severe activity limitations over time. Compared to the 'good outcome' subgroup, the 'moderate outcome' and 'poor outcome' subgroups were characterized by: younger age, higher body-mass index, greater pain, bony tenderness, reduced knee flexion, hip pain, osteophytosis, ≥3 comorbidities, lower vitality, or avoidance of activities.
Conclusions: Based on the 5-year course of activity limitations examined in our study, we identified homogeneous subgroups of knee OA patients with good, moderate or poor outcome. Characteristics of these subgroups were consistent with existing knowledge on prognostic factors regarding activity limitations, which supports the validity of this classification. Identification of homogeneous subgroups may contribute to the development of tailored preventive interventions in knee OA patients.

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DO HIGH MOLECULAR WEIGHT ADIPONECTIN LEVELS ASSOCIATE WITH RADIOGRAPHIC PROGRESSION IN EARLY RHEUMATIOD ARTHRITIS AND HAND OSTEOARTHRITIS?

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Purpose: Adipose tissue can secrete many different soluble factors (adipokines) influencing whole body metabolism. Some of these adipokines, such as adiponectin, have been shown to influence radiographic progression in osteoarthritis (OA) and rheumatoid arthritis (RA). In RA patients, total adiponectin (totAPN) levels in serum associate positively with radiographic progression, which suggestes an adverse effect on disease. Intruiguingly, in patients with hand OA, high totAPN levels in serum associated with a decreased relative risk for radiographic progression, suggesting a benificial effect on disease.
Adiponectin is a pleiotropic adipokine, which consists of several isoforms. Of these isoforms, high molecular weight adiponectin (hmwAPN) has been described as one of the most biologically active and its effect on radiographic progression in RA and hand OA is unknown. Therefore, we explored the possibility that the association between totAPN and disease progression is primarily mediated by the hmwAPN isoform.
Methods: Concentrations of hmwAPN and totAPN were determined in baseline plasma of 324 RA patients from the Early Arthritis Cohort (EAC) and in baseline sera of 164 hand OA patients from the Genetics Arthrosis and Progression (GARP) study. The association between levels of hmwAPN and totAPN with radiographic progression were determined using a multivariate normal regression model (EAC cohort) or by generalized estimated equations (GARP cohort). Adjustments were made for age, gender, treatment strategy and Body Mass Index (BMI).
Results: In RA patients totAPN associated positively with radiographic progression (Sharp van der Heijde scores) (association estimate 3.65, p = 0.002), whereas in patients with hand OA, totAPN associated negatively with radiographic progression (joint space narrowing (JSN)) (Odds 0.24/ Odds 0.21, p = 0.002/ p = 0.002 two highest tertiles compared to the lowest tertile). HmwAPN on the other hand, did not associate significantly with radiographic progression in patients with hand OA or RA, although in patients with RA we did observe a trend towards a positive association (association estimate 1.53 p = 0.07) upon correcting for age, gender and treatment strategy. This trend was lost after further adjustment for BMI. Similar results were obtained when joint space narrowing (JSN) was used as outcome measurement.
Conclusions: Our data further substantiate the connection between APN-levels and radiographic progression in rheumatic disease and indicate that the differential effects associated between totAPN and radiographic progression in either in RA and hand OA is not mediated by (a selective effect of) hmwAPN.