Objective: To evaluate the internal consistency of the Hip disability and Osteoarthritis Outcome Score-Physical Function Short-form (HOOS-PS) and the Knee injury and Osteoarthritis Outcome Score-Physical Function Short-form (KOOS-PS) in total hip replacement (THR) and total knee (TKR) replacement. Construct validity and responsiveness were compared to the Western Ontario & McMaster Universities’ Osteoarthritis Index (WOMAC) Likert 3.0 Physical function (PF) subscale and the PF excluding the items in the short measures (PF-exclusions).

Methods: Participants completed the full HOOS or KOOS, measures of fatigue, anxiety, depression and the Chronic Pain Grade (CPG) pre-surgery and the HOOS or KOOS 6 months post-surgery. Internal consistency for the HOOS-PS and KOOS-PS was calculated using Cronbach’s alpha. For construct validity, it was hypothesised that correlations between the HOOS-PS or KOOS-PS and PF and PF-exclusions with fatigue, CPG, anxiety and depression and HOOS/KOOS PS scales would differ by magnitudes of 0.5. Standardised response means (SRMs) were calculated for the HOOS-PS, KOOS-PS, PF and PF-exclusions and hypothesised to be >1. The THR group (n=248) had a mean age of 64.5 years; 63.7% were female. The TKR group (n=248) had a mean age of 62.3 years; 53.2% were female. Regression analysis indicated that physical disability of patients with knee OA and overweight diminished after a moderate weight loss of >0.24% reduction per week. Clinical efficacy on pain reduction was present, although not predictable after weight loss. Meta-regression analysis showed that disability could be significantly improved when weight was reduced over 5.1%, or at the rate of >0.25% per week. Median reduction of weight loss was calculated for the HOOS-PS, KOOS-PS, PF and PF-exclusions and hypothesised to be >1.

Results: The THR group (n=248) had a mean age of 64.5 years; 63.7% were female. The TKR group (n=248) had a mean age of 62.3 years; 53.2% were female. The SRM was 1.5, 1.7 and 1.7 for the HOOS-PS, PF and PF-exclusions; for THR, the SRM was 1.4, 1.5 and 1.7, respectively. CONCLUSIONS: The short HOOS-PS and KOOS-PS represent homogenous short measures of PF with similar construct validity and responsiveness to the 17-item PF. The HOOS-PS and KOOS-PS are parsimonious, valid and responsive for evaluating PF in THR and TKR. Support for weight loss as conservative therapy for patients with osteoarthritis of the knee.

Idiopathic KDOS and KOOS as a measure of patient function regarding total knee and total hip replacement.
Supports exercise as conservative therapy for osteoarthritis of the knee.

Conservative Therapy; Assistive Devices


OBJECTIVE: To assess the impact of daily cane use during gait in relation to pain, function, general health and energy expenditure among patients with knee osteoarthritis. METHODS: Forty patients were randomly assigned to an experimental group (EG) or control group (CG). The EG used a cane every day for 2 months, whereas the CG did not use a cane in this period. The main outcome was pain and the second were function (Lequesne and WOMAC), general health (SF-36) and energy expenditure. META-ANALYSIS: There was no difference between groups in the outcome of pain. However, there was a significant difference in the outcome of general health; the CG improved compared to the EG. CONCLUSION: A cane can be safely used in daily life and should be considered for patients suffering from chronic knee pain. It is advisable to use a cane for more than 2 months to achieve clinical benefit.

Conservative Therapy; Exercise


AAOS recommendation strength: "Strong." We recommend that patients with symptomatic osteoarthritis of the knee participate in self-management programs, strengthening, low-impact aerobic exercises, and neuromuscular education; and engage in physical activity consistent with national guidelines. [19 refs] (see p. 19 Guideline)

Supports strengthening exercise and physical therapy as conservative therapy for osteoarthritis of the knee.


AAOS recommendation strength: "Inconclusive." "We cannot recommend for or against." (see p. 19 Guideline)

Evidence neither supports nor refutes use of bracing for patients with knee OA in terms of reduced pain or improved physical function. SUPPORTS USE: Five electronic databases were searched, up until December 2007. SELECTION CRITERIA: All randomized controlled trials randomizing individuals and comparing some form of land-based therapeutic exercise (as opposed to exercises conducted in the water) with a non-exercise group. DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data and assessed methodological quality. All analyses were conducted on continuous outcomes. MAIN RESULTS: The 32 included studies provided data on 30,360 participants for knee pain and 13,713 participants for self-reported physical function. Meta-analysis revealed a beneficial treatment effect with a standardized mean difference (SMD) of 0.40 (95% confidence interval [CI] 0.30 to 0.51) for pain; and SMD 0.37 (95% CI 0.25 to 0.48) for physical function. There was marked variability across the included studies in participants recruited, symptom duration, exercise interventions assessed and important aspects of study methodology. The results were sensitive to the number of direct supervision occasions provided and various aspects of study methodology. While the pooled beneficial effects of exercise programs providing less than 12 direct supervision occasions or studies utilizing more rigorous methodologies remained significant and clinically relevant, between-study heterogeneity remained marked and the magnitude of the treatment effect of these studies would be considered small. AUTHORS' CONCLUSIONS: There is platinum level evidence that land-based therapeutic exercise has at least short term benefit in terms of reduced pain and improved physical function for people with knee OA. The magnitude of the treatment effect would be considered small, but comparable to estimates reported for non-stereoidal anti-inflammatory drugs.

Conservative Therapy; Shoe Modification


Pooled effect sizes for pain were 0.52 for aerobic walking and 0.39 for quadriceps strengthening. For self reported disability, pooled effect sizes were 0.61 for aerobic walking and 0.49 for quadriceps strengthening. CONCLUSION: Both aerobic walking and home-based quadriceps strengthening exercise reduce pain and disability from knee osteoarthritis but no difference between them was found in indirect comparison.

Conservative Therapy; Shoe Modification


AAOS recommendation strength: "Inconclusive." "We cannot recommend for or against." [see p. 19 Guideline]

Evidence neither supports nor refutes use of bracing for patients with osteoarthritis of the knee.

Conservative Therapy; Shoe Modification


AAOS recommendation strength: "Moderate." "We cannot suggest that lateral wedge insoles be used for patients with symptomatic medial compartment osteoarthritis of the knee." [see p. 19 Guideline]

Supports use of cane to reduce pain and improve exercise performance in patients with osteoarthritis of the knee.

Conservative Therapy; Shoe Modification


AAOS recommendation strength: "Strong;" "We recommend that patients with symptomatic osteoarthritis of the knee participate in self-management programs, strengthening, low-impact aerobic exercises, and neuromuscular education; and engage in physical activity consistent with national guidelines." [19 refs] (see p. 19 Guideline)

Supports strengthening exercise and physical therapy as conservative therapy for osteoarthritis of the knee.

Conservative Therapy; Shoe Modification


AAOS recommendation strength: "Strong;" "We recommend that patients with symptomatic osteoarthritis of the knee participate in self-management programs, strengthening, low-impact aerobic exercises, and neuromuscular education; and engage in physical activity consistent with national guidelines." [19 refs] (see p. 19 Guideline)

Supports strengthening exercise and physical therapy as conservative therapy for osteoarthritis of the knee.


AAOS recommendation strength: "Moderate." "We cannot suggest that lateral wedge insoles be used for patients with symptomatic medial compartment osteoarthritis of the knee." [see p. 19 Guideline]

Supports use of cane to reduce pain and improve exercise performance in patients with osteoarthritis of the knee.
Conservative Therapy; Medications; Acetaminophen

29 October 2013

Conservative Therapy; Medications; Oral

Background: Osteoarthritis (OA) is the most common form of arthritis. Published guidelines and expert opinion are divided over the relative role of acetaminophen (also called paracetamol or Tylenol) and non-steroidal anti-inflammatory drugs (NSAIDs) as first-line pharmacologic therapy. The comparative safety and efficacy of acetaminophen versus placebo and versus NSAIDs (ibuprofen, diclofenac, arthrotec, celecoxib, rofecoxib) for treating OA. SEARCH STRATEGY: We searched MEDLINE (up to July 2003), EMBASE (2002-July 2003), Cochrane Central Register of Controlled Trials (CENTRAL), ACP Journal Club, DARE, Cochrane Database of Systematic Reviews (all from 1994 to July 2005). Reference lists of identified RCTs and pertinent review articles were also hand searched. SELECTION CRITERIA: Published randomized controlled trials (RCTs) evaluating the efficacy and safety of acetaminophen alone or in combination with other analgesics, physical function and global assessment outcomes were selected. Results for continuous outcome measures were expressed as standardized mean differences (SMD). Dichotomous outcome measures were pooled using relative risk (RR) and the number needed to treat (NNT) was calculated. MAIN RESULTS: Fifteen RCTs involving 5860 participants were included in the review. Seven RCTs compared acetaminophen to placebo and ten RCTs compared acetaminophen to NSAIDs. In the placebo-controlled RCTs, acetaminophen was superior to placebo in five of the seven RCTs and had a similar safety profile. Compared to placebo, a pooled analysis of five trials of overall pain using multiple methods demonstrated a statistically significant reduction in pain (SMD 0.21, 95% CI -0.22 to -0.04), which is of questionable clinical significance. The relative percent improvement from baseline was 5% with an absolute change of 4 points on a 100 mm Visual Analog Scale. The NNT to achieve an improvement in pain ranged from 4 to 16. In the comparator-controlled RCTs, acetaminophen was less effective than NSAIDs in terms of pain reduction, global assessments and in terms of improvement in functional status. No significant difference was found overall between the safety of acetaminophen and NSAIDs, although patients taking traditional NSAIDs were more likely to experience an adverse GI event (RR 1.47, 95% CI 1.08 to 2.00). 19% of patients in the traditional NSAID group versus 12% in the acetaminophen group experienced an adverse GI event. However, the median trial duration was only 5 weeks and it is difficult to assess adverse outcomes in a relatively short time period. AUTHORS’ CONCLUSIONS: The evidence to date suggests that NSAIDs are superior to acetaminophen for improving knee and hip pain in people with OA. The use of the treatment effect was median, and the median trial duration was only 5 weeks, therefore, additional considerations need to be factored in when making the decision between using acetaminophen or NSAIDs. In OA subjects with moderate-to-severe levels of pain, NSAIDs appear to be more effective than acetaminophen.

Conservative Therapy; Medications; Acetaminophen


Abstract: OBJECTIVE: To evaluate the analgesic efficacy of conventional and non-steroidal anti-inflammatory drugs (NSAIDs), including selective cyclo-oxygenase-2 inhibitors (COX-2), in patients with osteoarthrosis of the knee. DESIGN: Systematic review and meta-analysis of randomised placebo-controlled trials. STUDIES REVIEWED: 23 trials including 10 845 patients, median age of 62.5 years, 7807 patients received acetaminophen and 3038 received placebo. The mean weighted baseline pain score was 64.2 mm on a 100 mm visual analogue scale (VAS), and average duration of symptoms was 8.2 years. MAIN OUTCOME MEASURE: Change in pain intensity at 12 weeks. RESULTS: Methodological quality of trials was acceptable, but 12 trials excluded patients failing to randomise if they did not respond to NSAIDs. One trial provided long term data for pain that showed no significant effect of NSAIDs compared with placebo at one to four years. The pooled difference for pain on visual analogue scale in all included trials was 10.1 mm (95% confidence interval 7.4 to 12.8) or 15% better than placebo after 12-23 weeks. The results were heterogeneous, and the effect size for pain reduction was 0.32 (0.24 to 0.39) in a random effects model. In 10 trials that did not exclude non-responders to NSAID treatment the results were homogeneous, with an effect size for pain reduction of 0.21 (0.15 to 0.27). CONCLUSION: NSAIDs can reduce short term pain in osteoarthrosis of the knee slightly better than placebo, but the current analysis does not support long term use of NSAIDs for this condition. As serious adverse effects are associated with oral NSAIDs, only limited use can be recommended. [References: 62]

Conservative Therapy; Medications; Acetaminophen


Objective: To assess the efficacy and safety of acetaminophen versus placebo and versus NSAIDs (ibuprofen, diclofenac, arthrotec, celecoxib, naproxen, rofecoxib) for treating OA. SEARCH STRATEGY: We searched MEDLINE (up to July 2003), EMBASE (2002-July 2003), Cochrane Central Register of Controlled Trials (CENTRAL), ACP Journal Club, DARE, Cochrane Database of Systematic Reviews (all from 1994 to July 2005). Reference lists of identified RCTs and pertinent review articles were also hand searched. SELECTION CRITERIA: Published randomized controlled trials (RCTs) evaluating the efficacy and safety of acetaminophen alone or in combination with other analgesics, physical function and global assessment outcomes were selected. Results for continuous outcome measures were expressed as standardized mean differences (SMD). Dichotomous outcome measures were pooled using relative risk (RR) and the number needed to treat (NNT) was calculated. MAIN RESULTS: Fifteen RCTs involving 5860 participants were included in the review. Seven RCTs compared acetaminophen to placebo and ten RCTs compared acetaminophen to NSAIDs. In the placebo-controlled RCTs, acetaminophen was superior to placebo in five of the seven RCTs and had a similar safety profile. Compared to placebo, a pooled analysis of five trials of overall pain using multiple methods demonstrated a statistically significant reduction in pain (SMD 0.21, 95% CI -0.22 to -0.04), which is of questionable clinical significance. The relative percent improvement from baseline was 5% with an absolute change of 4 points on a 100 mm Visual Analog Scale. The NNT to achieve an improvement in pain ranged from 4 to 16. In the comparator-controlled RCTs, acetaminophen was less effective than NSAIDs in terms of pain reduction, global assessments and in terms of improvement in functional status. No significant difference was found overall between the safety of acetaminophen and NSAIDs, although patients taking traditional NSAIDs were more likely to experience an adverse GI event (RR 1.47, 95% CI 1.08 to 2.00). 19% of patients in the traditional NSAID group versus 12% in the acetaminophen group experienced an adverse GI event. However, the median trial duration was only 5 weeks and it is difficult to assess adverse outcomes in a relatively short time period. AUTHORS’ CONCLUSIONS: The evidence to date suggests that NSAIDs are superior to acetaminophen for improving knee and hip pain in people with OA. The use of the treatment effect was median, and the median trial duration was only 5 weeks, therefore, additional considerations need to be factored in when making the decision between using acetaminophen or NSAIDs. In OA subjects with moderate-to-severe levels of pain, NSAIDs appear to be more effective than acetaminophen.

Conservative Therapy; Medications; Acetaminophen


Objective: To estimate the analgesic efficacy of non-steroidal anti-inflammatory drugs (NSAIDs), including selective cyclo-oxygenase-2 inhibitors (COX-2), in patients with osteoarthrosis of the knee. DESIGN: Systematic review and meta-analysis of randomised placebo-controlled trials. STUDIES REVIEWED: 23 trials including 10 845 patients, median age of 62.5 years, 7807 patients received acetaminophen and 3038 received placebo. The mean weighted baseline pain score was 64.2 mm on a 100 mm visual analogue scale (VAS), and average duration of symptoms was 8.2 years. MAIN OUTCOME MEASURE: Change in pain intensity at 12 weeks. RESULTS: Methodological quality of trials was acceptable, but 12 trials excluded patients failing to randomise if they did not respond to NSAIDs. One trial provided long term data for pain that showed no significant effect of NSAIDs compared with placebo at one to four years. The pooled difference for pain on visual analogue scale in all included trials was 10.1 mm (95% confidence interval 7.4 to 12.8) or 15% better than placebo after 12-23 weeks. The results were heterogeneous, and the effect size for pain reduction was 0.32 (0.24 to 0.39) in a random effects model. In 10 trials that did not exclude non-responders to NSAID treatment the results were homogeneous, with an effect size for pain reduction of 0.21 (0.15 to 0.27). CONCLUSION: NSAIDs can reduce short term pain in osteoarthrosis of the knee slightly better than placebo, but the current analysis does not support long term use of NSAIDs for this condition. As serious adverse effects are associated with oral NSAIDs, only limited use can be recommended. [References: 62]
Conservative Therapy; Medications; Oral glucosamine

Conservative Therapy; [29 October 2013]

Corticosteroids

Intra-articular Corticosteroids


AAOS. recommendation strength: "Conclusion: "We are unable to recommend for or against the use of intraarticular (IA) corticosteroids for patients with symptomatic osteoarthritis of the knee."" (see p. 13 Guidebook)
Peripheral vascular disease

Supports use of short term intrarticular corticosteriod injections for pain relief in patients with osteoarthrisis of the knee.

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Supports use of short term intrarticular corticosteriod injections for pain relief in patients with osteoarthrisis of the knee.
II / A


OBJECTIVE: Advances in surgical techniques and management of arthroplasty patients have contributed to a significant reduction in surgical complications. Preoperative nutritional status has a significant impact on surgical outcome. Studies have reported improved outcomes in both hip and hip fracture patients receiving nutritional supplementation during their recoveries. Our objective was to assess the effects of preoperative nutritional status on the incidence of complications, resource consumption, and the length of stay of patients undergoing hip and knee replacements. Resource consumption included inpatient costs, morbidity, mortality, and medical severity of illness was assessed on all patients using the Charlson Comorbidity Index. Anesthesia and surgery time was recorded. Short term outcome was assessed utilizing hospital charges as a measure of resource consumption. (length of stay (LOS), in-hospital consults and the presence and number of complications during hospitalization. Non-parametric Kruskal-Wallis and chi-square statistic analyses were performed. A p value < .05 was considered significant. Results: Mean age was 64.4 years ± 15.42. 52.9% had osteoarthritis (OA). 4.3% had rheumatoid arthritis (RA). 4.3% had osteonecrosis (ON). 6.0% had hip fractures and 20.1% had total knee arthroplasty (TKA) or total hip arthroplasty (THA). Mean albumin and total lymphocyte count (TLC) were 38.3 ± 5.35 and 7720 ± 2680 cells/µl, respectively. Patients with albumin levels less than 34 g/L had 32.7% higher charges ( لأ = 0.025 SE, p = 0.05), higher medical severity of illness (p = 0.05) and longer LOS (5.4 days ± 2.6 days, p = 0.05). Patients with TLC less than 5000 cells/µl had higher charges ()].64 ± 0.53 SE, p = 0.05), longer LOS (5.2 days ± 0.54 days, p = 0.05) and higher medical severity of illness (p = 0.05). Mean serum albumin level was 33.8 ± 4.5 g/l (± S.D.), and overall 55% (n=318) of patients had a low albumin. The in-hospital mortality was 8% (n=46) and rate of any non-fatal post-operative complication rate was 31/100. Mortality was 11% (n=55) among those with low albumin levels (p < 0.001) for those with normal values (squared odds ratio OR = 2.86, 95% CI = 1.0-7.9, higher mortality adjusted). The association between low serum albumin and mortality remained large and statistically significant (adjusted OR=2.44, 95% confidence interval 1.17-5.12). Low albumin levels were also significantly associated with post-operative medical complications (adjusted OR=4.16, 95% CI=3.6-4.8). We conclude that routine measurement of albumin provides valuable prognostic information for treating this frail population.

II / A


BACKGROUND: Poor nutrition status is considered the most important preoperative parameter in elderly patients undergoing general surgery. METHODS: A systematic literature search of 10 consecutive years, 1998-2008, in PubMed, EMBASE, and Cochrane databases was performed. Search terms used were: nutrition status, preoperative assessment, postoperative outcome, and surgery (hip or general), including their synonyms and MeSH terms. Limits used in the search were human studies, published in English, and age 65 years or older. Articles were screened using inclusion and exclusion criteria. All selected articles were checked on methodology and graded. RESULTS: Of 463 articles found, 15 were included. They showed profound heterogeneity in the parameters used for preoperative nutrition status and postoperative outcome. The only significant preoperative predictors of postoperative outcome in elderly general surgery patients were serum albumin and ≥ 10% weight loss in the previous 6 months. CONCLUSIONS: This systematic review revealed only 2 preoperative parameters to predict postoperative outcome in elderly general surgery patients: serum albumin and weight loss. Both are open to discussion in their use as a preoperative nutrition parameter. Nonetheless, serum albumin seems a reliable preoperative parameter to identify a patient at risk for nutrition deterioration and related complicated postoperative course.

II / A


We used a logistic regression model to identify the pre-operative variables that are independent predictors of post-operative complications in patients with hip fracture. The primary aim of the study was to evaluate the independent association between various pre-operative variables and their impact on hospital mortality and any post-operative complications of patients with hip fracture. We reviewed a prospective population-based cohort of 1410 hip fracture patients who had minimum 60-day inpatient stay, or 30-day hospice stay in one of the 3 tertiary hospitals in Northern Alberta, Canada. Patients with a primary diagnosis of hip fracture and 65 years or older were included. The primary outcome was hospital mortality, and any pre-specified post-operative complication. Mean serum albumin level was 33.8 ± 4.5 g/l (± S.D.), and overall 55% (n=318) of patients had a low albumin. The in-hospital mortality was 8% (p = 0.05) and rate of any non-fatal post-operative complication was 31/100. Mortality was 11% (p = 0.05) among those with low albumin levels (OR=4.16, 95% CI=3.6-4.8). The multivariate model adjusted the association between low serum albumin and mortality remaining large and statistically significant (adjusted OR=2.44, 95% confidence interval 1.17-5.12). Low albumin levels were also significantly associated with post-operative medical complications (adjusted OR=4.16, 95% CI=3.6-4.8). We conclude that routine measurement of serum albumin provides valuable prognostic information for treating this frail population.
Dementia


BACKGROUND: Dementia patients often present with worsening medical conditions and potentially face higher risk of complications during hospitalization. Because the general features of postoperative adverse outcomes among surgical patients with dementia are unknown, we conducted a nationwide, retrospective cohort study to characterize surgical complications among dementia patients compared with age- and sex-matched non-dementia controls. METHODS: Reimbursement claims from the Taiwan National Health Insurance Research Database were studied. A total of 12,042 dementia patients and 60,210 age- and medical condition-matched non-dementia controls undergoing total knee arthroplasty were identified. RESULTS: Dementia patients who underwent surgery had a significantly higher overall postoperative complication rate, adjusted risk ratio (ARR) 1.79 (95% confidence interval [CI] 1.70-1.84), with higher medical resource use, and in-hospital expenditures. Compared with controls, dementia patients had a higher occurrence of certain postoperative complications that are less likely to be identified in their initial stage, such as: acute renal failure, OR = 1.32 (95% CI: 1.29-1.36); pneumonia, OR = 2.18 (2.12-2.24); sepsis, OR = 1.81 (99% CI: 1.70-1.93); stroke, OR = 1.51 (95% CI: 1.40-1.64); and urinary tract infections, OR = 1.46 (95% CI: 1.41-1.51). CONCLUSIONS: These findings have specific implications for postoperative care of dementia patients regarding complications that are difficult to diagnose in their initial stages, acute renal failure, pneumonia, sepsis, stroke, and urinary tract infection are the top priorities for prevention, early recognition, and intervention of postoperative complications among surgical patients with dementia. Further efforts are needed to determine specific protocols for health care teams serving this population.

Suggests that for patients undergoing surgical procedures, those with dementia have a higher rate of postoperative complications.

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Suggests that for patients undergoing surgical procedures, those with dementia have a higher rate of postoperative complications.

Pre-operative Exam; Screening for Dementia; Screening tool


BACKGROUND: Dementia patients often present with worsening medical conditions and potentially face higher risk of complications during hospitalization. Because the general features of postoperative adverse outcomes among surgical patients with dementia are unknown, we conducted a nationwide, retrospective cohort study to characterize surgical complications among dementia patients compared with age- and sex-matched non-dementia controls. METHODS: Reimbursement claims from the Taiwan National Health Insurance Research Database were studied. A total of 12,042 dementia patients and 60,210 age- and medical condition-matched non-dementia controls undergoing total knee arthroplasty were identified. RESULTS: Dementia patients who underwent surgery had a significantly higher overall postoperative complication rate, adjusted risk ratio (ARR) 1.79 (95% confidence interval [CI] 1.70-1.84), with higher medical resource use, and in-hospital expenditures. Compared with controls, dementia patients had a higher occurrence of certain postoperative complications that are less likely to be identified in their initial stage, such as: acute renal failure, OR = 1.32 (95% CI: 1.29-1.36); pneumonia, OR = 2.18 (2.12-2.24); sepsis, OR = 1.81 (99% CI: 1.70-1.93); stroke, OR = 1.51 (95% CI: 1.40-1.64); and urinary tract infections, OR = 1.46 (95% CI: 1.41-1.51). CONCLUSIONS: These findings have specific implications for postoperative care of dementia patients regarding complications that are difficult to diagnose in their initial stages, acute renal failure, pneumonia, sepsis, stroke, and urinary tract infection are the top priorities for prevention, early recognition, and intervention of postoperative complications among surgical patients with dementia. Further efforts are needed to determine specific protocols for health care teams serving this population.

Suggests that for patients undergoing surgical procedures, those with dementia have a higher rate of postoperative complications.

Obesity & Knee Replacement


BACKGROUND: Dementia patients often present with worsening medical conditions and potentially face higher risk of complications during hospitalization. Because the general features of postoperative adverse outcomes among surgical patients with dementia are unknown, we conducted a nationwide, retrospective cohort study to characterize surgical complications among dementia patients compared with age- and sex-matched non-dementia controls. METHODS: Reimbursement claims from the Taiwan National Health Insurance Research Database were studied. A total of 12,042 dementia patients and 60,210 age- and medical condition-matched non-dementia controls undergoing total knee arthroplasty were identified. RESULTS: Dementia patients who underwent surgery had a significantly higher overall postoperative complication rate, adjusted risk ratio (ARR) 1.79 (95% confidence interval [CI] 1.70-1.84), with higher medical resource use, and in-hospital expenditures. Compared with controls, dementia patients had a higher occurrence of certain postoperative complications that are less likely to be identified in their initial stage, such as: acute renal failure, OR = 1.32 (95% CI: 1.29-1.36); pneumonia, OR = 2.18 (2.12-2.24); sepsis, OR = 1.81 (99% CI: 1.70-1.93); stroke, OR = 1.51 (95% CI: 1.40-1.64); and urinary tract infections, OR = 1.46 (95% CI: 1.41-1.51). CONCLUSIONS: These findings have specific implications for postoperative care of dementia patients regarding complications that are difficult to diagnose in their initial stages, acute renal failure, pneumonia, sepsis, stroke, and urinary tract infection are the top priorities for prevention, early recognition, and intervention of postoperative complications among surgical patients with dementia. Further efforts are needed to determine specific protocols for health care teams serving this population.

Suggests that for patients undergoing surgical procedures, those with dementia have a higher rate of postoperative complications.
11 9/A Obesity & Surgical Complications

BACKGROUND AND PURPOSE: Discussion persists as to whether obesity negatively influences the outcome of hip arthroplasty. We performed a meta-analysis with the primary research question of whether obesity has a negative effect on short- and long-term outcome of total hip arthroplasty. METHODS: We searched the literature and included studies comparing the outcome of hip arthroplasty in different weight groups. The methodology of the studies included was scored according to the Cochrane guidelines. We extracted and pooled the data. For continuous data, we calculated a weighted mean difference and for dichotomous variables we calculated a weighted odds ratio (OR). Heterogeneity was calculated using I² statistics. RESULTS: 13 studies were eligible for data extraction. In obese patients, distraction of the hip (OR = 0.54, 95% CI: 0.38-0.75) [10 studies, n = 8,636], acute loosening (OR = 0.64, CI: 0.34-1.06) [6 studies, n = 5,137], infection (OR = 0.51, CI: 0.19-1.46) [10 studies, n = 7,500], and venous thromboembolism (OR = 0.56, CI: 0.32-0.98) [7 studies, n = 4,715] occurred more often. Concerning septic loosening and intraoperative fractures, no statistically significant differences were found, possibly due to low power. Subjective outcome measurements did not allow pooling because of high heterogeneity (I² > 50%). INTERPRETATION: Obesity appears to have a negative influence on the outcome of total hip replacement.

Lower quality than Kirkoffs citation, but still fits criteria for Tier-2 study. Supports conclusion that obesity has a negative influence on outcome of total hip replacement.

12 9/A Delirium & Adverse Outcomes

We reviewed independently by 2 of the authors. Of 2939 references in the original search, 51 relevant articles were identified. DATA SOURCE: We extracted and pooled the data. For continuous data, we calculated a weighted mean difference and for dichotomous variables we calculated a weighted odds ratio (OR). Heterogeneity was calculated using I² statistics. RESULTS: 15 studies were eligible for the primary analysis. The meta-analysis was performed with the primary research question of whether delirium in elderly patients is associated with poor outcome independent of important confounders, such as age, sex, comorbid illness or illness severity, and baseline dementia. Pooled-effect estimates were calculated with random-effects models. The primary analysis with adjusted hazard ratios (HRs) showed that delirium is associated with an increased risk of death compared with controls after an average follow-up of 22.7 months [7 studies; 271/714 patients (38.0%) with delirium, 616/2243 controls (27.5%); HR, 1.95 [95% confidence interval {CI}, 1.51-2.52]; I(2), 44.0%]. Moreover, patients who had experienced delirium were also at increased risk of institutionalization [7 studies; average follow-up, 14.6 months; 176/527 patients (33.4%) with delirium and 220/2151 controls (10.3%); odds ratio [OR], 2.41 [95% CI, 1.77-3.29]; (2), (2), and dementia] 2 studies; average follow-up, 4-1 years; 35/56 patients (62.5%) with delirium and 15/185 controls (8.1%); OR, 12.52 [95% CI; 1.86-84.21]; (2), 52.4%. The sensitivity, trim-and-fill, and secondary analyses with unadjusted high-quality risk estimates stratified according to the study characteristics confirmed the robustness of these results. CONCLUSION: This meta-analysis provides evidence that delirium in elderly patients is associated with poor outcome independent of important confounders, such as age, sex, comorbid illness or illness severity, and baseline dementia [I²=77%].

Study of elderly patients treated in hospital or acute care setting for medical or surgical conditions supports the conclusion that delirium is associated with poor outcomes.

13 9/A Opioids
Washington State Department of Labor and Industries. Guideline for prescribing opioids to treat pain in injured workers. Effective July 1, 2013. VM Tier-2 evidence

The Washington State Department of Labor & Industries (L&I, or the department) is officially adopting the Interagency Guideline on Opioid Dosing for Chronic Non-Cancer Pain as developed by the Agency Medical Directors’ Group (AMDG Guideline) and revised in June 2010 [1]. The AMDG Guideline represents the best practices and universal precautions necessary to safely and effectively prescribe opioids to treat patients with chronic non-cancer pain. This guideline is a supplement to both the AMDG Guideline and the Department of Health’s (DOH) pain management rules, and provides information specific to treating injured workers covered by Washington State workers’ compensation [2]. Both the AMDG Guideline and this guideline are intended for use by health care providers, the department, insurers, and utilization review staff. This guideline was developed in 2011-2012 by the industrial insurance-medical advisory committee (IAMAC) and its subcommittee on chronic non-cancer pain. It is based on the best available clinical and scientific evidence from a systematic review of the literature and a consensus expert opinion. The IAMAC’s primary goal is to provide standards that ensure the highest quality of care for injured workers in Washington State.

Recommends postoperative use of opioids should be limited to no longer than six weeks. Also provides criteria for perioperative management of patients on chronic opioid therapy.
See pages 11-12 for discussion of peri-operative care for patients on chronic smoking.

BACKGROUND: Smokers are at higher risk of cardiopulmonary and wound-related postoperative complications than non-smokers. Our aim was to investigate the effect of preoperative smoking intervention on the frequency of surgical complications and duration of hospital admittance. The main analysis was by intention to treat. FINDINGS: Eight controls were randomly assigned 6-8 weeks before scheduled surgery to either the control (n = 60) or smoking intervention (n = 60) group. Patients who underwent joint replacement surgery. The present retrospective study compared patients with uncontrolled diabetes mellitus (n = 105,485) and those without diabetes mellitus (n = 9,671,508) with regard to common surgical and systemic complications, mortality, and hospital course alterations. Additional stratification compared the effects of glucose control among patients with Type I and Type II diabetes. Glycemic control was determined by physician assessments on the basis of the American Diabetes Association guidelines with use of a combination of patient self-monitoring of blood-glucose levels, the hemoglobin A1c level, and related comorbidities. RESULTS: Compared with patients with controlled diabetes mellitus, those with uncontrolled diabetes mellitus had a significantly increased odds of death (adjusted odds ratio = 3.42; 95% confidence interval = 1.87 to 6.25; p < 0.001), urinary tract infection (adjusted odds ratio = 1.97; 95% confidence interval = 1.35 to 2.82; p < 0.001), fever (adjusted odds ratio = 2.40; 95% confidence interval = 1.63 to 3.46; p < 0.001), postoperative hemorrhage (adjusted odds ratio = 1.99; 95% confidence interval = 1.38 to 2.87; p < 0.001), transfusion (adjusted odds ratio = 1.19; 95% confidence interval = 1.04 to 1.36; p < 0.01), wound infection (adjusted odds ratio = 2.82; 95% confidence interval = 1.36 to 5.83; p = 0.002), and death (adjusted odds ratio = 3.12; 95% confidence interval = 1.87 to 5.77; p < 0.001). Patients with uncontrolled diabetes mellitus had a significantly increased length of stay (almost a full day) as compared with patients with controlled diabetes (p < 0.001). All patients with diabetes had significantly increased infection-adjusted postoperative charges when compared with nondiabetic patients (p < 0.001). CONCLUSION: Regardless of diabetes type, patients with uncontrolled diabetes mellitus exhibited significantly increased odds of surgical and systemic complications, higher mortality, and increased length of stay during the index hospitalization following lower extremity joint arthroplasty.

BACKGROUND: As the prevalence of diabetes mellitus in people over the age of sixty years is expected to increase, the number of patients who undergo total hip and knee arthroplasty should be expected to increase accordingly. In general, patients with diabetes are at increased risk for adverse events following arthroplasty. The goal of the present study was to determine whether the quality of preoperative smoking intervention affected the prevalence of in-hospital perioperative complications following lower extremity joint arthroplasty. METHODS: From 1998 to 2000, the Nationwide Inpatient Sample recorded over 1 million patients who underwent joint replacement surgery. The present prospective study compared patients with uncontrolled diabetes mellitus (n = 105,485), and those without diabetes mellitus (n = 9,671,508) with regard to common surgical and systemic complications, mortality, and hospital course alterations. Additional stratification compared the effects of glucose control among patients with Type I and Type II diabetes. Glycemic control was determined by physician assessments on the basis of the American Diabetes Association guidelines with use of a combination of patient self-monitoring of blood-glucose levels, the hemoglobin A1c level, and related comorbidities. RESULTS: Compared with patients with controlled diabetes mellitus, those with uncontrolled diabetes mellitus had a significantly increased odds of death (adjusted odds ratio = 3.42; 95% confidence interval = 1.87 to 6.25; p < 0.001), urinary tract infection (adjusted odds ratio = 1.97; 95% confidence interval = 1.35 to 2.82; p < 0.001), fever (adjusted odds ratio = 2.40; 95% confidence interval = 1.63 to 3.46; p < 0.001), postoperative hemorrhage (adjusted odds ratio = 1.99; 95% confidence interval = 1.38 to 2.87; p < 0.001), transfusion (adjusted odds ratio = 1.19; 95% confidence interval = 1.04 to 1.36; p < 0.01), wound infection (adjusted odds ratio = 2.82; 95% confidence interval = 1.36 to 5.83; p = 0.002), and death (adjusted odds ratio = 3.12; 95% confidence interval = 1.87 to 5.77; p < 0.001). Patients with uncontrolled diabetes mellitus had a significantly increased length of stay (almost a full day) as compared with patients with controlled diabetes (p < 0.001). All patients with diabetes had significantly increased infection-adjusted postoperative charges when compared with nondiabetic patients (p < 0.001). CONCLUSION: Regardless of diabetes type, patients with uncontrolled diabetes mellitus exhibited significantly increased odds of surgical and systemic complications, higher mortality, and increased length of stay during the index hospitalization following lower extremity joint arthroplasty.

ABSTRACT: HYPOTHESIS: Good preoperative glycemic control (hemoglobin A1c (HbA1c) levels <7%) is associated with decreased postoperative infections. METHODS: Retrospective observational study using Veterans Affairs National Surgical Quality Improvement Program data from the Veterans Affairs Connecticut Healthcare System from January 1, 2000, through September 30, 2003. SETTING: Veterans Affairs Connecticut Healthcare System, a tertiary referral center and major university teaching site. PATIENTS: Six hundred forty-seven diabetic patients undergoing hip or knee arthroplasty were enrolled in the study and compared with a control group of 1,573 nondiabetic patients matched by age, gender, and surgical procedure. The overall complication rate was 18% (95% confidence interval, 17% to 19%). The median length of stay was 11 days (range 7-55) in the intervention group and 13 days (8-65) in the control group. The median length of stay was 11 days (range 7-55) in the intervention group and 13 days (8-65) in the control group. INTERPRETATION: An effective smoking intervention programme 6-8 weeks before surgery reduces postoperative morbidity, and we recommend, on the basis of our results, this programme be adopted for all patients. The impact of smoking cessation programmes prior to surgery on cardiovascular disease morbidity, and we recommend, on the basis of our results, this programme be adopted for all patients.
BACKGROUND: Smokers have a substantially increased risk of postoperative complications. Preoperative smoking intervention may be effective in decreasing this incidence, and surgery may constitute a unique opportunity for smoking cessation interventions. OBJECTIVES: The objective of this review was to assess the effect of preoperative smoking intervention on smoking cessation at the time of surgery and 3-12 months postoperatively and on the incidence of postoperative complications. SEARCH STRATEGY: The specialized register of the Cochrane Tobacco Addiction Group was searched using the free text and keywords: surgery or (surgery) or (operation) or (anaesthesia) or (anesthesia). MEDLINE, EMBASE and CINAHL were also searched, combining tobacco-related and surgery-related terms. Most recent search April 2010. SELECTION CRITERIA: Randomized controlled trials that recruited people who smoked prior to surgery, offered a smoking cessation intervention, and measured preoperative and long-term abstinence from smoking and/or the incidence of postoperative complications. DATA COLLECTION AND ANALYSIS: The authors independently assessed studies to determine eligibility. Results were discussed between the authors. MAIN RESULTS: Eight trials enrolling a total of 1156 people met the inclusion criteria. All of these did not report cessation as an outcome. Two trials initiated multivitamin face-to-face counseling at least 6 weeks before surgery whilst six used a brief intervention. Nonsmoker therapy (NNT) was offered or recommended to some or all participants in seven trials. Six trials detected significantly increased smoking cessation at the time of surgery, and one approached significance. Subgroup analyses showed that both intensive and brief intervention significantly increased smoking cessation at the time of surgery, pooled RR 10.76 (95% confidence interval (CI) 4.55 to 25.46, two trials) and RR 1.41 (95% CI 1.22 to 1.63, five trials) respectively. Four trials evaluating the effect on long-term smoking cessation found a significant effect; pooled RR 1.41 (95% CI 1.12 to 1.83). However, when pooling intensive and brief interventions separately, only intensive intervention retained a significant effect on long-term smoking cessation; RR 3.96 (95% CI 1.17 to 13.3, two trials) Five trials examined the effect of smoking intervention on postoperative complications. Pooled risk ratios were 0.70 (95% CI 0.56 to 0.88) for any complications, and 0.79 (95% CI 0.51 to 1.25) for wound complications. Exploratory subgroup analyses showed a significant effect of intensive intervention on any complications; RR 0.42 (95% CI 0.27 to 0.64) and on wound complications RR 0.31 (95% CI 0.14 to 0.63). For brief interventions the effect was not statistically significant, but Chi-square did not rule out a clinically significant effect (RR 0.89 (95% CI 0.74 to 1.05) for any complications, RR 0.98 (95% CI 0.85 to 1.04) for wound complications). AUTHORITY CONCLUSIONS: There is evidence that preoperative smoking interventions including NNT increase short-term smoking cessation and may reduce postoperative morbidity. The optimal preoperative intervention intensity remains unknown. Based on indirect comparison and evidence from two small trials, interventions that lasts four to eight weeks before surgery, include weekly counseling, and use NNT are more likely to have an impact on complications and on long-term smoking cessation. Based on evidence from two small trials, interventions that lasts four to eight weeks before surgery, include weekly counseling, and use NNT are more likely to have an impact on complications and on long-term smoking cessation. Supports the value of smoking interventions to reduce postoperative morbidity.

NIAAA accurately identified unhealthy alcohol use in this sample of primary care patients. These findings support the use of this brief screen in primary care.
Shared Decision-Making

Amartun D. Introducing decision aids at Group Health was linked to sharply lower hip and knee surgery rates and costs. Health Affairs, 2012, Sep; 31(9); 2084-104. PMID: 22949440

Decision aids are evidence-based sources of health information that can help patients make informed treatment decisions. However, little is known about how decision aids affect health care use when they are implemented outside of randomized controlled clinical trials. We conducted an observational study to examine the associations between introducing decision aids for hip and knee coxarthroses and rates of joint replacement surgery and costs in a large health system in Washington State. Consistent with prior randomized trials, our introduction of decision aids was associated with 26 percent fewer hip replacement surgeries, 38 percent fewer knee replacements, and 13-21 percent lower costs over six months. These findings support the concept that patient decision aids for some health conditions, for which treatment decisions are highly sensitive to both patients’ and physicians’ preferences, may reduce rates of elective surgery and lower costs.

Supports use of shared decision-making to avoid surgery that the patient otherwise might choose.

Patient Education Pre-Surgery


From April 2006 to May 2007, 661 patients undergoing primary unilateral total hip arthroplasty or total knee arthroplasty were offered voluntary participation in a one-on-one preoperative educational program. Length of stay (LOS) and patient data were monitored and recorded, prospectively. Education participants enjoyed a significantly shorter LOS than nonparticipants for both total hip arthroplasty (3.1 +/- 0.8 days vs 3.9 +/- 1.4 days; P < .001) and total knee arthroplasty (3.1 +/- 0.9 days vs 4.1 +/- 1.9 days; P < .001).

Supports pre-operative education for patients undergoing total knee or total hip replacement surgery. Unblinded, uncontrolled study.

Advance Directives


CONCLUSION: It is unclear if advance directives (living wills) are associated with end-of-life expenditures and treatments. OBJECTIVE: To examine regional variation in the associations between treatment-limiting advance directive use, end-of-life Medicare expenditures, and use of palliative and intensive treatments. DESIGN, SETTING, AND PATIENTS: Prospectively collected survey data from the Health and Retirement Study for 3002 Medicare beneficiaries who died between 1998 and 2007 linked to Medicare claims and the National Death Index. Multivariable regression models examined associations between advance directives, end-of-life Medicare expenditures, and treatments by level of Medicare spending in the decedent’s hospital referral region. MAIN OUTCOME MEASURES: Medicare expenditures, life-sustaining treatments, hospice care, and in-hospital death over the last 6 months of life. RESULTS: Advance directives specifying limits in care were associated with lower spending in hospital referral regions with high average levels of end-of-life expenditures (-$5585 per decedent; 95% CI, -$10,903 to -$267) but there was no difference in spending in hospital referral regions with low or medium levels of end-of-life expenditures. Directives were associated with lower adjusted probabilities of in-hospital death in high- and medium-spending regions (0.8%; 95% CI, 16% to 5% in high-spending regions; 0.9%; 95% CI, 10% to 0.4% in medium-spending regions). Advance directives were associated with higher adjusted probabilities of hospice care in high- and medium-spending regions (17%; 95% CI, 12% to 21% in high-spending regions, 11%; 95% CI, 6% to 16% in medium-spending regions), but not in low-spending regions. CONCLUSION: Advance directives specifying limitations in end-of-life care were associated with significantly lower levels of Medicare spending, lower likelihood of in-hospital death, and higher use of hospice care in regions characterized by higher levels of end-of-life spending.

Supports the use of advance directives to reduce the use of inappropriate and costly end-of-life care.

Fitness for Surgery, Cardiopulmonary Fitness


Presents guideline for cardiovascular evaluation for patients that will have non-cardiac surgery.

Society guideline discussing preoperative evaluation.
Nasal Culture

BACKGROUND: Surgical site infection has been identified as one of the most important preventable sources of morbidity and mortality associated with medical treatment. The purpose of the present study was to evaluate the feasibility and efficacy of an institutional prescreening program for the prescriptive detection and eradication of both methicillin-resistant and methicillin-sensitive Staphylococcus aureus in patients undergoing elective orthopaedic surgery. METHODS: Data were collected prospectively during a single-center study. A universal prescreening program, employing rapid polymerase chain reaction analysis of nasal swabs followed by an eradication protocol of intranasal mupirocin and chlorhexidine showers for identified carriers, was implemented. Surgical site infection rates were calculated and compared with a historical control period immediately preceding the start of the screening program. RESULTS: During the study period, 7013 of 7338 patients underwent prescreening before elective surgery, for a successful screening rate of 95.7%. One thousand five hundred and eighty-eight (22.0%) of the patients were identified as Staphylococcus aureus carriers, and 390 (4.4%) were identified as methicillin-resistant Staphylococcus aureus carriers. A significantly higher rate of surgical site infection was observed among methicillin-resistant Staphylococcus aureus carriers (0.97%); three of 309 compared with noncarriers (0.84%; seven of 5122) (p = 0.028). Although a higher rate of surgical site infection was also observed among methicillin-sensitive Staphylococcus aureus carriers (0.83%; three of 384) compared with noncarriers, this difference did not achieve significance (p = 0.708). Overall, thirteen cases of surgical site infection were identified during the study period, for an institutional infection rate of 0.19%. This rate was significantly lower than that observed during the control period (0.45%; twenty-four cases of surgical site infection among 5203 patients) (p = 0.003). CONCLUSIONS: Implementation of an institution-wide prescreening program for the identification and eradication of methicillin-resistant and methicillin-sensitive Staphylococcus aureus carrier status among patients undergoing elective orthopaedic surgery is feasible and can lead to significant reductions in postoperative rates of surgical site infection. LEVEL OF EVIDENCE: Therapeutic level III. See Instructions to Authors for a complete description of levels of evidence.

Nasal Culture

BACKGROUND: Nasal carriage of Staphylococcus aureus are at increased risk for health care-associated infections with this organism.\n
The indication of nasal and extravasal sites on hospital admission may reduce this risk. METHODS: In a randomized, double-blind, placebo-controlled, multicenter trial, we assessed whether rapid identification of S. aureus nasal carriers by means of a real-time polymerase-chain-reaction (PCR) assay, followed by treatment with mupirocin nasal ointment and chlorhexidine soap, reduces the risk of hospital-associated S. aureus infection. RESULTS: From October 2005 through June 2007, a total of 6771 patients were screened on admission. A total of 1270 nasal swabs from 1251 patients were positive for S. aureus. We enrolled 827 of these patients in the intention-to-treat analysis, of whom 808 (88.1%) underwent a surgical procedure. All the S. aureus strains identified on PCR assay were susceptible to mupirocin and mupirocin. The rate of S. aureus infection was 3.4% (57 of 1654 patients) in the mupirocin-chlorhexidine group, compared with 7.7% (122 of 1573 patients) in the placebo group (relative risk of infection, 0.42; 95% confidence interval [CI], 0.23 to 0.75). The effect of mupirocin-chlorhexidine treatment was most pronounced for deep surgical-site infections (relative risk, 0.21; 95% CI, 0.07 to 0.62). There was no significant difference in all-cause in-hospital mortality between the two groups. The time to the onset of nosocomial infection was shorter in the placebo group than in the mupirocin-chlorhexidine group (P = 0.055). CONCLUSIONS: The number of surgical-site S. aureus infections acquired in the hospital can be reduced by rapid screening and decolonizing of nasal carriers of S. aureus on admission. (Current Controlled Trials number, ISRCTN16877888).

Reducing nasal colonization; Reducing skin colonization

Abstract: We quantified surgical site infections (SSIs) following preoperative screening/eradicative decolonization before elective total joint arthroplasty (TJA) with 2-year follow-up and 2 controls. Concurrent controls (n = 2284) were patients of surgeons not participating in screening/decolonization. Preintervention controls (n = 761) were patients of participating surgeons who underwent TJA the previous year. Staphylococcus aureus nasal carriers (321/1285 [25%]) used intranasal mupirocin and chlorhexidine as outpatients. Staphylococcal SSIs occurred in no intervention patients (0/321) and 19 concurrent controls. If all SIs occurred in carriers and 25% of controls were carriers, staphylococcal SSI rate would have been 3.3% in controls (19/5771) (P = .99). Overall SSI rate decreased from 2.7% (2/761) in 2 reinervention controls to 1.2% (17/1442) in intervention patients (P = .009). Preoperative screening/eradicative decolonization was associated with fewer SSIs after elective TJA. SUPPORTS the use of pre-operative screening and eradication of carrier state for Staphylococcal aureus prior to elective orthopaedic surgery. Note: cannot determine drop out rate in control or experimental group.

Supports the use of pre-operative screening and eradication of carrier state for Staphylococcal aureus prior to elective orthopaedic surgery. Note: cannot determine drop out rate in control or experimental group.

Supports treatment of patients with Staphylococcus aureus diagnosed by nasal swab PCR assay to reduce incidence of surgical site infections.
Autologous Blood Donation

BACKGROUND: While autologous blood is commonly practiced to provide replacement of blood lost in orthopaedic procedures, few studies of patients managed with total joint replacement have addressed the problem of which patients are likely to benefit from an autologous blood donation program. MCI (2004). A retrospective analysis of 468 consecutive patients who had total joint arthroplasty was performed to identify the risk factors for allogenic transfusion and to further define the indications for preoperative autologous blood donation. The operations included total hip replacement, total knee replacement, and revision arthroplasty. In total, 457 patients contributed 1426 autologous units. The prevalence of allogenic transfusion was 38% (174 total hip replacements, 162 total knee replacements and 13 revision procedures). Fifty-four percent (201) of the 400 patients required a total of 527 units of blood (average, 2.6 units per patient preoperatively). RESULTS: One hundred and thirty-one patients (33%) required a transfusion of autologous blood or allogenic blood, or both. One hundred and thirty-one patients (33%) required a transfusion of autologous blood, twenty-five patients (6%) received both autologous and allogenic blood. Either form of transfusion caused serious complications. Fifty-six percent (69) of the 121 units of autologous blood were discarded. Autologous donation significantly decreased the requirements for allogenic transfusion (relative risk, 2.3; p = 0.001). It also lowered the level of hemoglobin to below 10.2 g per liter from the time before donation to the time before the operation (p = 0.001). Factors that increased the risk for allogenic transfusion were a revision knee or hip procedure or a one-stage bilateral primary knee replacement (relative risk, 5.7; p = 0.001), an initial hemoglobin level of less than 130 g per liter (relative risk, 5.4; p = 0.001), and an age of sixty-five years or older (relative risk, 1.4, p = 0.03). None of the sixty-three patients who had a primary arthroplasty or an initial hemoglobin level of 150 g per liter or more required an allogenic transfusion. In addition, none of the sixty-three patients who had a primary arthroplasty or an initial hemoglobin level of between 130 and less than 150 g per liter, or an age of less than sixty-five years required an allogenic transfusion. Eighty-three percent (115) of the 138 autologous units donated by the seventy patients in these two groups were discarded. These wasted units accounted for 38.2% of the 295 discarded units for the entire study sample. CONCLUSION: The efficiency of collection of autologous blood can be improved by identifying patients who have a very low risk of transfusion according to the type of arthroplasty, the initial level of hemoglobin, and age. Patients who have an initial hemoglobin level of at least 150 grams per liter or an age of less than sixty-five years have a minimal risk of needing a transfusion during or after a primary total joint replacement. These patients should be informed of their low risk so that they can make an informed decision regarding preoperative autologous blood donation.

Does not support universal pre-operative autologous blood donation for patients undergoing total knee or hip arthroplasty.

Autologous Blood Donation

BACKGROUND: The International Consortium for Health Outcomes Measurement (ICHI) promotes the development, testing, and responsible use of Internet-based patient-reported outcome measurement systems (PROMIS). The work group that patients with prosthetic joint implants or other orthopaedic implants maintain appropriate oral hygiene. Does not address issue of pre-operative dental screening, but recommends good dental hygiene in patients with joint implants.

Cycle 3: Surgical Repair of the Osteoarthritic Joint
Surgeon volume


BACKGROUND: A number of factors have been identified as influencing total knee arthroplasty outcomes, including patient factors such as gender and medical comorbidity, technical factors such as alignment of the prosthesis, and provider factors such as hospital and surgeon procedure volumes. Recently, strategies aimed at optimizing provider factors have been proposed, including regionalization of total joint arthroplasty to higher volume centers, and adoption of volume standards. To contribute to the discussions concerning the optimization of provider factors and proposals to regionalize total knee arthroplasty practices, we undertook a systematic review to investigate the association between surgeon volume and primary total knee arthroplasty outcomes. METHODS: We performed a systematic review examining the association between surgeon volume and primary total knee arthroplasty outcomes. To be included in the review, the study population had to include patients undergoing primary total knee arthroplasty. Studies had to report on the association between surgeon volume and primary total knee arthroplasty outcomes, including perioperative mortality and morbidity, patient-reported outcomes, or total knee arthroplasty implant survivorship. There were no restrictions placed on study design or language. RESULTS: Studies were variable in defining surgeon volume (1/2 = 5 to 52 total knee arthroplasty per year; ‘high’ = > 50 to > 70 total knee arthroplasty per year). Mortality rate, survivorship, and thromboembolic events were not found to be associated with surgeon volume. We found a significant association between low surgeon volume and higher rate of infection (1.26 - 2.84 higher), procedure time (40 min versus 135 min), longer length of stay (4.4 - 3.3 days longer), transfusion rate (0.9% versus 6.2%), and worse patient reported outcomes. CONCLUSIONS: Findings suggest a trend towards better outcomes for higher volume surgeons, but results must be interpreted with caution.

2) Henderson WG, Mitchell ME, Itani KM. Time of day is associated with surgeon volume influence the revision rate following unicondylar knee replacement procedures starting between 6 pm and 11 pm (OR = 1.60, P < or = 0.005). CONCLUSIONS: When considering a nonemergent procedure, surgeons must bear in mind that cases that start after routine “business” hours within the VA System may face an elevated risk of complications that warrants further evaluation.

3) Unadjusted later start time was significantly associated with outcomes over the course of the day for anesthetic adverse events, death in the ICU, and dialysis care. The relationship between operation start time and patient outcomes is yet undefined. METHODS: We performed a retrospective cohort study of the National Surgical Quality Improvement Program Database. Operation start time was the independent variable of interest. RESULTS: A total of 919 surgeons and a total of 366 centers performed at least one replacement, with the majority performing a small number of procedures. The revision rate for the centers with the lowest volume (fifty or fewer procedures over the eight-year study period) was 1.62 (95% confidence interval [CI], 1.42 to 1.82) revisions per 100 component years, which was significantly higher than the rate for the centers with the highest volume (more than 400 procedures), which was 1.32 (95% CI, 0.97 to 1.70) revisions per 100 component years. The five-year implant survival rate of 92.3% (95% CI, 92.0% to 92.6%) for the lowest-volume centers was significantly lower than the rate of 94.1% (95% CI, 93.0% to 95.2%) for the highest-volume centers. Similarly, the revision rate for the surgeons with the lowest volume (twenty-five or fewer procedures), 2.55 (95% CI, 1.90 to 3.24) revisions per 100 component years, was significantly higher than that for the surgeons with the highest volume (more than 200 procedures), 0.80 (95% CI, 0.60 to 1.00) revisions per 100 component years. The five-year survival rate of 98.2% (95% CI, 98.0% to 98.4%) for the lowest-volume surgeons was also significantly lower than the rate of 99.6% (95% CI, 99.5% to 99.7%) for the highest-volume surgeons. CONCLUSIONS: The relationship between operation start time and patient outcomes is yet undefined. METHODS: We performed a retrospective cohort study of the National Surgical Quality Improvement Program Database. Operation start time was the independent variable of interest. RESULTS: A total of 919 surgeons and a total of 366 centers performed at least one replacement, with the majority performing a small number of procedures. The revision rate for the centers with the lowest volume (fifty or fewer procedures over the eight-year study period) was 1.62 (95% confidence interval [CI], 1.42 to 1.82) revisions per 100 component years; this was significantly lower than the rate of 1.85 (95% CI, 1.78 to 1.92) revisions per 100 component years for the highest-volume centers. CONCLUSIONS: Higher-volume centers and surgeons specializing in such procedures had superior outcomes following unicondylar knee replacement compared with their low-volume counterparts. These results suggest that centers and surgeons should undertake a minimum of thirteen such procedures per year to achieve results comparable with the high-volume operators.

4) Similar, the revision rate for the surgeons with the lowest volume (twenty-five or fewer procedures), 2.55 (95% CI, 1.90 to 3.24) revisions per 100 component years, was significantly higher than that for the surgeons with the highest volume (more than 200 procedures), 0.80 (95% CI, 0.60 to 1.00) revisions per 100 component years. The five-year survival rate of 98.2% (95% CI, 98.0% to 98.4%) for the lowest-volume surgeons was also significantly lower than the rate of 99.6% (95% CI, 99.5% to 99.7%) for the highest-volume surgeons. CONCLUSIONS: When center and surgeon volume were considered simultaneously, the hazard of revision was greater for lower-volume centers compared with higher-volume centers (hazard ratio = 1.87 [95% CI, 1.58 to 2.22], p < 0.001). CONCLUSIONS: High-volume centers and surgeons specializing in such procedures had superior outcomes following unicondylar knee replacement compared with their low-volume counterparts. These results suggest that centers and surgeons should undertake a minimum of thirteen such procedures per year to achieve results comparable with the high-volume operators.

5) The revision rate for the surgeons with the lowest volume (twenty-five or fewer procedures), 2.55 (95% CI, 1.90 to 3.24) revisions per 100 component years, was significantly higher than that for the surgeons with the highest volume (more than 200 procedures), 0.80 (95% CI, 0.60 to 1.00) revisions per 100 component years. The five-year survival rate of 98.2% (95% CI, 98.0% to 98.4%) for the lowest-volume surgeons was also significantly lower than the rate of 99.6% (95% CI, 99.5% to 99.7%) for the highest-volume surgeons. CONCLUSIONS: The relationship between operation start time and patient outcomes is yet undefined. METHODS: We performed a retrospective cohort study of the National Surgical Quality Improvement Program Database. Operation start time was the independent variable of interest. RESULTS: A total of 919 surgeons and a total of 366 centers performed at least one replacement, with the majority performing a small number of procedures. The revision rate for the centers with the lowest volume (fifty or fewer procedures over the eight-year study period) was 1.62 (95% confidence interval [CI], 1.42 to 1.82) revisions per 100 component years; this was significantly lower than the rate of 1.85 (95% CI, 1.78 to 1.92) revisions per 100 component years for the highest-volume centers. CONCLUSIONS: Higher-volume centers and surgeons specializing in such procedures had superior outcomes following unicondylar knee replacement compared with their low-volume counterparts. These results suggest that centers and surgeons should undertake a minimum of thirteen such procedures per year to achieve results comparable with the high-volume operators.

6) Our analysis found a trend towards better outcomes for higher volume surgeons, but results must be interpreted with caution.
Nerve Block

AB BACKGROUND: Total knee arthroplasty (TKA) is associated with intense post-operative pain. Besides providing optimal analgesia, reduction in side effects and enhanced mobilization are important in this elderly population. The adductor-canal block is theoretically an almost pure sensory blockade. We hypothesized that the adductor-canal block may reduce morphine consumption (primary endpoint), improve pain relief, enhance early ambulation ability, and reduce side effects compared with placebo.

METHODS: Patients aged 50-85 years scheduled for TKA were included in this parallel double-blinded, placebo-controlled randomized trial. The patients were allocated to receive a continuous adductor-canal block with intermittent boluses via a catheter with either ropivacaine 0.75% (n=34) or placebo (n=37)

RESULTS: In the THA cohort (n=292), a later surgery start time was significantly related to duration of surgery (P=0.05). Postoperative complications, component alignment and functional outcome scores were not significantly affected by surgery start time. There were no significant findings for any of the intraoperative or postoperative outcomes in the TKA cohort (n=200), CONCLUSION: Duration of surgery and incidence of intraoperative complications for THA may increase with later surgery start time; however, the relatively small statistical differences observed imply that they likely are not clinically significant.

Retrosppective cohort study of prognostic, duration of surgery as patient-oriented outcome. Supports avoiding late surgical start times, but small statistical differences imply results are likely not clinically significant.
A double-blind prospective study involving 1,591 clean orthopaedic surgical procedures was performed to test the effectiveness of the effect of five days of antibiotic prophylaxis with cefazolin injections (beginning just before surgery) on postoperative infections. Andersen, Henning Lykke MD; Gyrn, Jens MD; Moller, Lars MD; Christensen, Per.[1] The effect of five days of antibiotic prophylaxis with cefazolin injections (beginning just before surgery) on postoperative infectious complications was evaluated in a double-blind, randomised, placebo-controlled trial in nine centres on 2137 patients undergoing hip replacement. Antibiotic prophylaxis reduced the number of hip infections significantly from 3.3% (placebo) to 0.9% (cephalosporin). Positive postoperative skin swabs and positive bacteriological examination of the drain were not risk factors for hip infection but the prognostic value of obesity, diabetes, or previous hip surgery was not studied. The development of a urinary infection was not related to hip infection. Hip infections were less common in the four centres with hypertensive operating theatres, and the benefits of prophylactic antibiotics were restrained to patients having hip replacement operations in conventional theatres.

Supports use of saphenous nerve block to reduce pain without interfering with early mobilization.

Single trial, reasonably well-done, but small sample size, same as for Jenstrup article.

29 September 2013

41 / 8 / 1 Anerdsen, Henning Lykke MD; Gyrn, Jens MD; Moller, Lars MD; Christensen, Per. Technical specifications for ACE Demonstration Quality Monitoring Program. 2013. ISBN: 978-1-57400-147-1.


Executive Summary: Periprosthetic joint infection (PPI), with its disastrous implications, continues to challenge the orthopaedic community. Preventing orthopaedic surgeons continue to invest efforts to minimize surgical site infection (SSI). Although high-level evidence may support some of these practices, many are based on little to no scientific foundation. This results in wide variation across the globe for prevention and management of PJI. To address this, The International Consensus Meeting on Periprosthetic Joint Infection was organized. Delegates from disciplines including orthopaedic surgery, infectious disease, and many others participated.

Introduction: The CMS Surgical Care Improvement Project (SCIP) measures are a subset of National Hospital Quality Measures created through the joint efforts of the Centers for Medicare & Medicaid and the Joint Commission (Specifications Manual for National Hospital Quality Measures Version 2.5, effective for discharges 10-01-2008 through 03-31-2009). The SCIP measures have been endorsed by the National Quality Forum, and are used by Hospital Compare, the Premier demonstration, and RHIO/INTERPASS. Corresponding measures are used by PIRFS at the physician level. The SCIP endorsed measures are calculated across a defined list of major surgical procedures and separately for the MS-DRG ACI demonstration surgical procedure groups of CABG, Cardiac Valve, and Hip and Knee Replacement.

Supports use of antibiotics to reduce post-operative infection. Note: Hip infection was reduced with fusafcillin administration to patients with surgery in standard operating rooms, but no difference seen with or without fusaficillin when laminar flow used in operating rooms.


Note: the prophylactic use of cephalosporin with cephalosporins injection (beginning just before surgery) on postoperative infectious complications was evaluated in a double-blind, randomised, placebo-controlled trial in nine centres on 2127 patients undergoing hip replacement. Antibiotic prophylaxis reduced the number of hip infections significantly from 3.3% (placebo) to 0.9% (cephalosporin). Positive postoperative skin swabs and positive bacteriological examination of the drain were not risk factors for hip infection but the prognostic value of obesity, diabetes, or previous hip surgery was not studied. The development of a urinary infection was not related to hip infection. Hip infections were less common in the four centres with hypertensive operating theatres, and the benefits of prophylactic antibiotics were restrained to patients having hip replacement operations in conventional theatres.

Supports use of prophylactic and intra-operative antibiotics in reducing the incidence of post-operative infection. Proportion of cohort with knee and hip replacement surgeries is not stated. Study includes pediateric patients. Older study.


A double-blind prospective study involving 1,501 clean orthopaedic surgical procedures was performed to test the effectiveness of prophylactic and intra-operative antibiotics in reducing the infectious complications. The antibiotic and placebo groups were analysed for factors known to predispose to infection. A decrease in the over-all postoperative infection rate from 5.7% in the placebo group to 2.2% in the antibiotic group was found.
Use of intravenous tranexamic acid to reduce allogeneic blood transfusion in total hip and knee arthroplasty is associated with significant blood loss. Techniques such as the use of antifibrinolytics or desmopressin, or normovolaemic haemodilution have been used to reduce the need for allogeneic blood transfusion. Tranexamic acid has been used to reduce blood loss and transfusion requirement for total hip and knee arthroplasty, with variable results. This meta-analysis aims to evaluate whether intravenous tranexamic acid, when compared with placebo, reduces blood loss and transfusion requirement in total hip and knee joint replacement surgery and whether it might increase the risk of thromboembolic complications. The literature search was based on MEDLINE, EMBASE, Cochrane Controlled Trials Register, and information from the pharmaceutical company that produces tranexamic acid (Pharmacia-Upjohn). We identified 15 clinical trials and 12 were considered suitable for detailed data extraction. Tranexamic acid reduces the proportion of patients requiring allogeneic blood transfusion (OR 0.16, 95% CI: 0.09-0.26), total amount of blood loss (MD: 460 ml, 95% CI: 274-626 ml), and the total number of units of allogeneic blood transfused (MD: 0.85 unit, 95% CI: 0.36-1.33). Tranexamic acid does not increase the risk of thromboembolic complications such as deep vein thrombosis, pulmonary embolism, thrombotic cerebral vascular accident, or myocardial infarction (OR 0.98, 95% CI: 0.45-2.12). Intravenous tranexamic acid appears effective and safe in reducing allogeneic blood transfusion and blood loss in total hip and knee arthroplasty.

Tranexamic acid

No evidence that intravenous tranexamic acid to reduce allogeneic blood transfusion in total hip and knee arthroplasty is associated with significant blood loss. Techniques such as the use of antifibrinolytics or desmopressin, or normovolaemic haemodilution have been used to reduce the need for allogeneic blood transfusion. Tranexamic acid has been used to reduce blood loss and transfusion requirement for total hip and knee arthroplasty, with variable results. This meta-analysis aims to evaluate whether intravenous tranexamic acid, when compared with placebo, reduces blood loss and transfusion requirement in total hip and knee joint replacement surgery and whether it might increase the risk of thromboembolic complications. The literature search was based on MEDLINE, EMBASE, Cochrane Controlled Trials Register, and information from the pharmaceutical company that produces tranexamic acid (Pharmacia-Upjohn). We identified 15 clinical trials and 12 were considered suitable for detailed data extraction. Tranexamic acid reduces the proportion of patients requiring allogeneic blood transfusion (OR 0.16, 95% CI: 0.09-0.26), total amount of blood loss (MD: 460 ml, 95% CI: 274-626 ml), and the total number of units of allogeneic blood transfused (MD: 0.85 unit, 95% CI: 0.36-1.33). Tranexamic acid does not increase the risk of thromboembolic complications such as deep vein thrombosis, pulmonary embolism, thrombotic cerebral vascular accident, or myocardial infarction (OR 0.98, 95% CI: 0.45-2.12). Intravenous tranexamic acid appears effective and safe in reducing allogeneic blood transfusion and blood loss in total hip and knee arthroplasty.

Tranexamic acid


PURPOSE: Our aim was to determine whether the administration of intravenous tranexamic acid is a safe and effective means of reducing blood loss associated with hip and knee replacement surgery. METHODS: Sequential cohort study analysing hemoglobin titers, transfusion rates, and the occurrence of venous thromboembolism in patients undergoing hip and knee replacements with and without the administration of tranexamic acid at the time of induction. Finally, a cost benefit analysis was performed. RESULTS: Two hundred and seventy-three patients were included in our study. We demonstrated that 1 gram of tranexamic acid administered intravenously at the time of induction significantly reduces operative blood loss and transfusion rates (p < 0.05). Moreover, the use of tranexamic acid reduces the costs associated with surgery. CONCLUSIONS: The administration of 1 gram of intravenous tranexamic acid is a safe and effective means of reducing operative blood loss and blood transfusion rates in patients undergoing hip and knee replacements.

Tranexamic acid


Total hip or knee arthroplasty is associated with significant blood loss. Techniques such as the use of antifibrinolytics or desmopressin, or normovolaemic haemodilution have been used to reduce the need for allogeneic blood transfusion. Tranexamic acid has been used to reduce blood loss and transfusion requirement for total hip and knee arthroplasty, with variable results. This meta-analysis aims to evaluate whether intravenous tranexamic acid, when compared with placebo, reduces blood loss and transfusion requirement in total hip and knee joint replacement surgery and whether it might increase the risk of thromboembolic complications. The literature search was based on MEDLINE, EMBASE, Cochrane Controlled Trials Register, and information from the pharmaceutical company that produces tranexamic acid (Pharmacia-Upjohn). We identified 15 clinical trials and 12 were considered suitable for detailed data extraction. Tranexamic acid reduces the proportion of patients requiring allogeneic blood transfusion (OR 0.16, 95% CI: 0.09-0.26), total amount of blood loss (MD: 460 ml, 95% CI: 274-626 ml), and the total number of units of allogeneic blood transfused (MD: 0.85 unit, 95% CI: 0.36-1.33). Tranexamic acid does not increase the risk of thromboembolic complications such as deep vein thrombosis, pulmonary embolism, thrombotic cerebral vascular accident, or myocardial infarction (OR 0.98, 95% CI: 0.45-2.12). Intravenous tranexamic acid appears effective and safe in reducing allogeneic blood transfusion and blood loss in total hip and knee arthroplasty. Supports use of tranexamic acid to reduce transfusions and blood loss without increasing thromboembolic complications.

Tranexamic acid


A laminar hood reduces bacterial contamination and may reduce bacterial concentrations by 65% to 99%. However, studies have yielded conflicting results. This meta-analysis compared airflow and ultraviolet radiation in the operating room. The authors concluded that both laminar airflow (LAF) and ultraviolet light (UVL) are effective in reducing microbial counts. However, the financial and potential health costs of each must be considered. Moreover, the use of tranexamic acid reduces the costs associated with surgery. CONCLUSIONS: Both LAF and UVL reduce PJI. The absence of a high level of evidence from randomized trials is not proof of ineffectiveness. The historically high cost of LAF has decreased substantially. Only LAF has been standardized by several European countries. The CDC recommends further study of LAF but recommends UVL not be used secondary to documented potential health risks to personnel. Supports use of laminar air flow at surgery. Note: systematic review of mostly lower quality trials but with patient-oriented outcomes.
Anticoagulation

The article discusses the prevention of venous thromboembolism (VTE) and is part of the Antithrombotic and Thrombolytic Therapy: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Grade 1 recommendations are strong and indicate that the benefits do or do not outweigh risks, burden, and costs. Grade 2 suggestions imply that individual judgment may vary with different choices (for a full discussion of the grading, see the "Grades of Recommendation" chapter by Guyatt et al.). Among the key recommendations in this chapter are the following: we recommend that every hospital develop a formal strategy that addresses the prevention of VTE (Grade 1A). We recommend against the use of aspirin alone as thromboprophylaxis for any patient group (Grade 1A), and we recommend that mechanical methods of thromboprophylaxis be used primarily for patients at high bleeding risk (Grade 1A) or possibly as an adjunct to anticoagulant thromboprophylaxis (Grade 1A). For patients undergoing major general surgery, we recommend thromboprophylaxis with low-molecular-weight heparin (LMWH), low-dose unfractionated heparin (LDUH), or fondaparinux (each Grade 1A). We recommend routine thromboprophylaxis for all patients undergoing major gynecologic surgery or major, open urologic procedures (Grade 1A for both groups), with LMWH, LDUH, fondaparinux, or intermittent pneumatic compression (IPC). For patients undergoing elective hip or knee arthroplasty, we recommend one of the following three anticoagulant agents: LMWH, fondaparinux, or a vitamin K antagonist (VKA), international normalized ratio (INR) target, 2.0; range, 2.0 to 3.0 (each Grade 1A). For patients undergoing hip fracture surgery (HFS), we recommend the routine use of fondaparinux (Grade 1A), LMWH (Grade 1B), or a VKA (target INR, 2.5; range, 2.0 to 3.0) (Grade 1B), or LDUH (Grade 1B). We recommend that patients undergoing hip or knee arthroplasty or HFS receive thromboprophylaxis for a minimum of 10 days (Grade 1A); for hip arthroplasty and HFS, we recommend continuing thromboprophylaxis (Grade 1A) for up to 35 days (Grade 1A). We recommend that all major trauma and all spinal cord injury (SCI) patients receive thromboprophylaxis (Grade 1A). In patients admitted to hospital with an acute medical illness, we recommend thromboprophylaxis with LMWH, LDUH, or fondaparinux (each Grade 1A). We recommend that, on admission to the ICU, all patients be assessed for their risk of VTE, and that most receive thromboprophylaxis (Grade 1A).

Society specialty guideline recommends anticoagulant therapy for elective knee and hip arthroplasty.

Supports the use of anticoagulants post-operatively.

Anticoagulation

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Supports the use of post-operative anticoagulants. Note: relatively small study, n=188, included only total hip arthroplasty.

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**BACKGROUND:** In response to the increased volume, risk, and cost of medical devices, in 2001 Kaiser Permanente (KP) developed implant registries to enhance patient safety and quality, and to evaluate cost-effectiveness. METHODS: Using an integrated electronic health record system, administrative databases, and other institutional databases, orthopedic, cardiology, and vascular implant registries were developed in 2001, 2006, and 2011, respectively. These registries monitor patients, implants, clinical practices, and surgical outcomes for KP’s 9 million members. Critical to registry success is surgeon leadership and engagement; each geographical region has a surgeon champion who provides feedback on registry initiatives and disseminates registry findings. RESULTS: The registries enhance patient safety by providing a variety of clinical decision tools such as risk calculators, quality reports, and adjusted medical center reports, summaries of surgeon data, and infection control reports to registry stakeholders. The registries are used immediately by patients who recalled devices, evaluate new and established device technology, and identify outlier implants. The registries contribute to cost-effectiveness initiatives through collaboration with subspecialty and contracting groups and confirming adherence to device formulary guidelines. Research studies based on registry data have directly influenced clinical best practices. CONCLUSIONS: Registries are important tools to evaluate longitudinal device performance and safety, study the clinical indications for and outcomes of device implantation, respond promptly to recalls and advisories, and contribute to the overall high quality of care of our patients.

**BACKGROUND:** The number of periprosthetic infections is increasing in the United States, and it is believed that number of patients infected is underestimated. OBJECTIVE: To present the National joint registry of England and Wales (NJR) 9th Annual Report. RESULTS: The overall 30-day mortality was 2.3%, with nonsurvivors having significantly higher blood glucose levels before and after surgery (both P < 0.01) than survivors. Perioperative hyperglycemia was associated with increased hospital and intensive care unit LOS (P < 0.001) as well as higher numbers of postoperative cases of pneumonia (P = 0.001), systems blood infection (P < 0.001), urinary tract infection (P < 0.001), acute renal failure (P = 0.003), and acute myocardial infarction (P = 0.003). In multivariate analysis (adjusted for age, sex, race, and surgery severity), the risk of death increased in proportion to perioperative glucose levels; however, this association was significant only for patients without a history of diabetes (P = 0.003) compared with patients with known diabetes (P = 0.78). CONCLUSIONS: Perioperative hyperglycemia is associated with increased LOS, hospital complications, and mortality after noncardiac surgery. Randomized controlled trials are needed to determine whether perioperative diabetes management improves clinical outcome in noncardiac surgery patients.

**BACKGROUND:** In 2011, the Registry reported for the first time on ten year outcomes for both hip and knee replacement. This year the Registry presents data on an increased number of prostheses combinations that have reached this milestone. At ten years, 44.0% of all patients still have the prostheses implanted, with the survivorship for those undergoing total hip replacement 94.4% and total knee replacement 91.0%. The Registry continues to present data on an increasing number of prostheses combinations that have reached this milestone. The registries are used immediately by patients who recalled devices, evaluate new and established device technology, and identify outlier implants. The registries contribute to cost-effectiveness initiatives through collaboration with subspecialty and contracting groups and confirming adherence to device formulary guidelines. Research studies based on registry data have directly influenced clinical best practices. CONCLUSIONS: Registries are important tools to evaluate longitudinal device performance and safety, study the clinical indications for and outcomes of device implantation, respond promptly to recalls and advisories, and contribute to the overall high quality of care of our patients.
BACKGROUND: Emergency department visits and rehospitalization are common after hospital discharge. OBJECTIVE: To test the effects of an intervention designed to minimize hospital utilization after discharge. DESIGN: Randomized trial using block randomization of 6:6. Randomly assigned index cards were placed in opaque envelopes labeled consecutively with study numbers, and participants were assigned a study group by revealing the index card. SITTING: General medical service at an urban, academic, safety-net hospital. PATIENTS: 740 English-speaking hospitalized adults (mean age, 49.9 years). INTERVENTION: A nurse discharge advocate worked with patients during their hospital stay to arrange follow-up appointments, confirm medication reconciliation, and conduct patient education with an individualized instruction booklet that was sent to their primary care provider. A clinical pharmacist called patients 2 to 4 days after discharge to reinforce the discharge plan and review medications. Participants and providers were not blinded to treatment assignment. MEASUREMENTS: Primary outcomes were emergency department visits and hospitalizations within 30 days of discharge. Secondary outcomes were self-reported preparedness for discharge and frequency of primary care providers’ follow-up within 30 days of discharge. Research staff doing follow-up were blinded to study group assignment. RESULTS: Participants in the intervention group (n = 375) had a lower rate of hospital utilization than those receiving usual care (n = 365) (0.314 vs. 0.451 visits per person per month; incidence rate ratio, 0.69 [95% CI, 0.515 to 0.937]; P = 0.03). The intervention was most effective among participants with hospital utilization in the 6 months before index admission (P = 0.014). Adverse events were not assessed; these were collected but are still being analyzed. LIMITATION: This was a single-center study in which not all potentially eligible patients could be enrolled, and outcome assessment sometimes relied on participant report. CONCLUSION: A package of discharge services reduced hospital utilization within 30 days of discharge. FUNDING: Agency for Healthcare Research and Quality and National Heart, Lung, and Blood Institute, National Institutes of Health.

SUPPORTS THE VALUE OF EARLY MOBILIZATION FOLLOWING SURGERY TO REDUCE POST-OPERATIVE DEEP VEIN THROMBOSIS. NOTE: SMALL NUMBER OF PATIENTS AND PRIMARY OUTCOME WAS ULTRASOUND FINDINGS OF VEINS APPEARING THROMBIC.
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