Cycle 1: Disability due to osteoarthritis despite conservative therapy

1. Appropriateness Criteria
   - Objective: We used a modified version of validated appropriateness criteria to determine the prevalence of total knee arthroplasty (TKA) surgeries that were classified as appropriate, inconclusive or inappropriate. Based on prior evidence, we hypothesized that the prevalence of TKA surgeries classified as inappropriate would approximate 30%.
   - Methods: The appropriateness classification system was adapted for use on persons undergoing TKA in the Osteoarthritis Initiative database. A pre-variation of 400 patients were included in the OAI and the Multicenter Osteoarthritis Study (MOST) within the US health system. Participants 4490 participants with or at high risk for knee osteoarthritis aged 40-79 from the OAI with no previous knee replacement were followed up for nine years. Validation cohort comprised 2007 patients from MOST with two year follow-up harvest. The results were similar to the OAI cohort. For construct validity, it was hypothesized that correlations between the HOOS-PS or KOOS-PS and PF and PF-exclusions was 0.90 and 0.86, respectively; r=0.90 (PF) and r=0.85 (PF-exclusions) for the KOOS-PS. The results of the OAI were reproduced among patients with knee osteoarthritis from the MOST cohort.
   - Conclusion: Approximately a third of TKA surgeries were judged to be inappropriate. Variation in the characteristics of persons undergoing TKA was extensive. These data support the need for consensus development of criteria for patient selection among practitioners in the US treating potential TKA candidates. Among the important issues, consensus development needs to address variation in patient characteristics and the relative importance of a pre-operative status and subsequent outcome.

2. Appropriateness Criteria
   - Objective: To evaluate the impact of total knee replacement on quality of life in people with knee osteoarthritis and to estimate associated differences in lifetime costs and quality adjusted life years (QALYs) according to level of symptoms. Design: Marginal structural structural data analysis based on lifetime predictions for total knee replacement and death from population-based cohort data. Setting: Data from two studies-Osteoarthritis Initiative (OAI) and the Multicenter Osteoarthritis Study (MOST) within the US health system. Participants: 4490 participants with or at high risk for knee osteoarthritis aged 40-79 from the OAI with no previous knee replacement were followed up for nine years. Validation cohort comprised 2007 patients from MOST with two year follow-up harvest. Results: Results from the OAI cohort. For construct validity, it was hypothesized that correlations between the HOOS-PS or KOOS-PS and PF and PF-exclusions was 0.90 and 0.86, respectively; r=0.90 (PF) and r=0.85 (PF-exclusions) for the KOOS-PS. The results of the OAI were reproduced among patients with knee osteoarthritis from the MOST cohort.
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Study applies appropriateness criteria previously developed by Escobar and colleagues to estimate "appropriate" total knee arthroplasty in US. Study has a population perspective and does not include patient comorbidities in an assessment of appropriateness.

Study estimates that a substantial proportion of patients have "inappropriate" TKA.
BACKGROUND: Patient-reported outcome measures (PROMs) are increasingly in demand for outcomes evaluation by hospitals, administrators, and policymakers. However, assessing total hip arthroplasty (THA) through such instruments is challenging because most existing measures of hip health are lengthy and/or proprietary.

QUESTIONs/PURPOSES: The objective of this study was to derive a patient-relevant short-form survey based on the Hip disability and Osteoarthritis Outcome Score (HOOS), focusing specifically on outcomes after THA.

METHODS: We retrospectively evaluated patients with hip osteoarthritis who underwent primary THA and who had completed preoperative and 2-year postoperative PROMs using our hospital’s hip replacement registry. The 2-year followup in this population was 85% (4308 of 5111 patients). Of these, 2270 completed every item on the HOOS before surgery and at 2 years, making them eligible for the formal item reduction analysis. Through semistructured interviews with 30 patients, we identified items in the HOOS deemed qualitatively most important to patients with hip osteoarthritis. The original HOOS has 40 items, the four quality-of-life items were eliminated a priori, four were excluded for being redundant, and one was excluded based on patient-relevance surveys. The remaining 30 items were evaluated using Rasch modeling to yield a final six-item HOOS, Joint Replacement (HOOS, JR), representing a single construct of “hip health.” We calculated HOOS, JR scores for the Hospital for Special Surgery (HSS) cohort and validated this new score for internal consistency, external validity (versus HOOS and WOMAC domains), responsiveness to THA, and floor and ceiling effects. Additional external validation was performed using calculated HOOS, JR scores in collaboration with the Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement (FORCE-TJR) nationally representative joint replacement registry (n = 912).

RESULTS: Internal consistency for the HOOS, JR was high (Person Separation Index, 0.84; and 0.85), external validity against other validated knee surveys representing a single dimension, which we define as “knee health” because it reflects aspects of pain, symptom severity, and activities of daily living (ADL) including movements or activities that are directly relevant and difficult for patients with advanced knee OA. Rasch analysis identified the HOOS, JR, a seven-item instrument, with 2291 patients with knee OA who underwent primary unilateral THA and who had completed preoperative and 2-year postoperative PROMs using our hospital’s knee replacement registry. The 2-year followup in this population was 85% (4308 of 5111 patients). Of these, 2270 completed every item on the KOOS before surgery and at 2 years, making them eligible for the formal item reduction analysis. Through semistructured interviews with 30 patients, we identified items in the KOOS deemed qualitatively most important to patients with knee OA. The original KOOS has 42 items, from the 42-item KOOS that were quantitatively most difficult for patients to perform before TKA and the qualitative most relevant to patients with end-stage knee OA. We assessed the internal consistency, external validity (versus KOOS and WOMAC domains), responsiveness to TKA, and floor and ceiling effects. Additional external validation was performed using calculated KOOS, JR scores in collaboration with the Function and Outcomes Research for Comparative Effectiveness in Total Joint Replacement (FORCE-TJR) nationally representative joint replacement registry (n = 912).

CONCLUSION: Measures in rapid clinical trials using patient-reported outcome measures (PROMs) are increasingly in demand for outcomes evaluation by hospitals, administrators, and policymakers. However, assessing total knee arthroplasty (TKA) through such instruments is challenging because most existing measures of knee health are lengthy and/or proprietary. This study supports the use of a 7-question abbreviated version emphasizing pain and activities of daily living as a substitute of the longer 40-question survey.
Please contact your local Library to https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2965562/

OBJECTIVES: Patient-reported outcomes (PROs) are essential when evaluating many new treatments in health care; yet, current measures have been limited by a lack of precision, standardization, and comparability of scores across studies and diseases. The Patient-Reported Outcomes Measurement Information System (PROMIS) developed and tested its first wave of adult self-reported health outcome item banks: 2005-2008. iBone Epidemiol. 2010 Nov;98(9):1797-94. PMID: 20888078

Veterans RAND (12 item Numeric Pain Rating Scale)

Lower Extremity Activity Scale

METHODS: The eighteen-level self-administered scale was developed with the aid of physical activity that occurs prior to and following lower-limb arthroplasty, we ascertained a lack of a practical and valid measure of the change in actual daily physical activity of patients undergoing revision total knee arthroplasty; and (3) application, and content experts to ensure face validity. Validity and reliability were assessed with the use of (1) pedometer measurements of seventy subjects over seven days; (2) next-of-kin proxy measurements of the activity levels of ninety patients before they underwent lower-limb arthroplasty; and (3) application, and correlation with the Western Ontario and McMaster Universities Osteoarthritis Index scores, in a prospective seventeen-center clinical study of 297 consecutive patients undergoing revision total knee arthroplasty. In this latter study, demographic and comorbidity data were also collected. Univariate and bivariate correlations were performed, and a multivariate structural-equation modeling approach was used to further test responsiveness, reliability, and validity of the lower-extremity activity scale.

RESULTS: Pedometer readings correlated with the activity levels derived with the lower-extremity activity scale (p = 0.70). Off note was the finding that age, weight, and body mass index did not correlate well with the average number of steps per day (r = 0.32, 0.32, and 0.25, respectively). A significant correlation was found between the lower-extremity activity scores recorded by the patients and those reported by their next of kin (Pearson correlation, r = 0.71; p < 0.001) and between the initial lower-extremity activity scores and two-week-retest scores (intraclass correlation = 0.947; p = 0.001), demonstrating the validity and reliability of the scale. The lower-extremity activity scale was responsive, accurately reflecting changes in the patient's

PROMIS-10/Patient Reported Outcomes


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METHODS: SUBJECTS: From the Rotterdam Study (aged \( \geq \) 55 years, n = 3585) were dependent.

OBJECTIVE: To compare the reliability and validity in a large open population of three frequently used radiological definitions of hip osteoarthritis (OA): Kellgren and Lawrence grade, minimal joint space (MJS), and Croft grade; and to investigate whether the validity of the three definitions of Hip OA is sex dependent.

METHODS: SUBJECTS: From the Rotterdam study (aged \( \geq \) 55 years, n = 3585) were evaluated. The inter-rater reliability was tested in a random set of 148 x rays. The validity was expressed as the ability to identify patients who show clinical symptoms of Hip OA (construct validity) and as the ability to predict total hip replacement (THR) at follow up (predictive validity).

RESULTS: Inter-rater reliability was similar for the Kellgren and Lawrence grade and MJS (kappa statistics 0.68 and 0.62, respectively) but lower for Croft's grade (kappa statistic 0.51). The Kellgren and Lawrence grade and MJS showed the strongest associations with clinical symptoms of Hip OA. Sex appeared to be an effect modifier for Kellgren and Lawrence and MJS definitions, women showing a stronger association between grading and symptoms than men. However, the sex dependency was attributed to differences in height between women and men. The Kellgren and Lawrence grade showed the highest predictive value for THR at follow up.

CONCLUSIONS: Based on these findings, Kellgren and Lawrence still appears to be a useful OA definition for epidemiological studies focusing on the presence of Hip OA.

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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 osteoarthritis and rates and costs of total 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 12-21 percent lower 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 12-21 percent lower joint replacement surgery and costs in a large health system in Washington State.

**Pain was estimated at 44 points on a 0 to 100-point scale (0 indicated no pain) in the control group; exercise reduced pain by an equivalent of 10 points (95% CI 8 to 13 points) in the intervention group.**

**Objectives:** To determine whether land-based therapeutic exercise is beneficial for people with knee OA in terms of reduced joint pain or improved physical function and quality of life. No cure for knee OA is known, but exercise therapy is among the dominant non-pharmacological treatments. Pain was estimated at 44 points on a 0 to 100-point scale (0 indicated no pain) in the control group; exercise reduced pain by an equivalent of 10 points (95% CI 8 to 13 points) in the intervention group.

**Key findings:**
- **Pain was estimated at 44 points on a 0 to 100-point scale (0 indicated no pain) in the control group; exercise reduced pain by an equivalent of 10 points (95% CI 8 to 13 points) in the intervention group.**
- **Physical function and quality of life were participant self-reported.**
- **High-quality evidence from 44 trials (3537 participants) indicates that land-based therapeutic exercise (as opposed to exercise conducted in the water) with a non-exercise group or a non-treatment control group.**
- **Improved physical function and quality of life.**

### Methods
- **Randomised controlled trials (RCTs) randomly assigning individuals and comparing groups treated with some form of land-based therapeutic exercise (as opposed to exercise conducted in the water) with a non-exercise group or a non-treatment control group.**
- **Data collection and analysis:** Three teams of two review authors independently extracted data, assessed risk of bias for each study, and assessed the quality of the body of evidence for each outcome using the GRADE (Grades of Recommendation, Assessment, Development and Evaluation) approach. We conducted analyses on continuous outcomes (pain, physical function and quality of life) immediately after treatment and on dichotomous outcomes (proportion of study withdrawals) at the end of the study; we also conducted analyses on the sustained effects of exercise on pain and function (two to six months, and longer than six months).
- **Main results:** In total, we extracted data from 54 studies. Overall, 10 (20%) studies reported adequate random sequence generation and allocation concealment and adequately accounted for incomplete outcome data; we considered these studies to have an overall low risk of bias. Studies were largely free from selection bias, but research results may be vulnerable to performance and detection bias, as only four of 44 trials reported blinding of treatment group allocation, and, although most RCTs reported blinding outcome assessment, pain, physical function and quality of life were participant self-reported. Good quality evidence from 44 trials (3537 participants) indicates that exercise reduced pain (standardised mean difference (SMD) -0.49; 95% confidence interval (CI) -0.63 to -0.35) immediately after treatment. Pain was estimated at 44 points on a 0 to 100-point scale (100 indicated no pain) in the control group; exercise reduced pain by an equivalent of 10 points (95% CI 8 to 13 points) immediately after treatment.

- **Quality of life was estimated at 43 points on a 0 to 100-point scale (100 indicated best quality of life) in the control group; exercise improved quality of life by an equivalent of 4 points (95% CI 2 to 5 points) immediately after treatment.**
Conservative Therapy; Exercise

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: Four 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 first visit was before the period of intervention. Outcome data were obtained for pain and self reported disability and the effect size was calculated for each outcome. Both groups were educated according to exercise mode and the data pooled using both fixed and random effects models. RESULTS: At 12 months the EG was identified, 13 of whom met inclusion criteria and provided data suitable for further analysis. Focused effect sizes for pain were 0.32 for aerobic walking and 0.39 for quadriceps strengthening. For self reported disability, pooled effect sizes were 0.04 for aerobic walking and 0.12 for quadriceps strengthening.
CONCLUSIONS: Both aerobic walking and home based quadriceps strengthening exercise reduce pain and disability from knee osteoarthritis.

Conservative Therapy; Exercise

RESEARCH DESIGN: An RCT of 64 patients with osteoarthritis of the knee comparing improvement in pain and function with or without the use of a cane.
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: Sixty-four 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 first visit was before the period of intervention. Outcome data were obtained for pain and self reported disability and the effect size was calculated for each outcome. Both groups were educated according to exercise mode and the data pooled using both fixed and random effects models. RESULTS: The groups were homogeneous for all parameters at baseline. Compared with the CG, the EG significantly improved pain (ES 0.38), function – Lequesne (ES 0.15) and SF-36 (ES 0.12) and energy expenditure (gas analysis during the 6-minute walk test (GAMT) with and without a cane). Evaluations were performed at baseline, 30 and 60 days. GROUP: The results were non-significant for all outcome measures. The data from the EG were pooled and the effect sizes for pain were 0.24 for aerobic walking and 0.32 for quadriceps strengthening.
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Conservative Therapy; Exercise

OBJECTIVES: To determine whether land-based therapeutic exercise is beneficial for patients with symptomatic osteoarthritis of the knee in reducing pain and improving function with or without the use of a cane.
METHODS: The MEDLINE, Embase, CINAHL, Cochrane, and PEDro databases and the Cochrane controlled trials register were searched for randomised controlled trials (RCTs) of subjects with knee osteoarthritis comparing aerobic walking or home based quadriceps strengthening exercise with a non-exercise control group. Methodological quality of retrieved RCTs was assessed. Outcome data were obtained for pain, function and self reported disability and the effect size was calculated for each outcome. Both groups were educated according to exercise mode and the data pooled using both fixed and random effects models. RESULTS: Nine RCTs were identified, 8 of which met inclusion criteria and provided data suitable for further analysis. Focused effect sizes for pain were 0.32 for aerobic walking and 0.39 for quadriceps strengthening. For self reported disability, pooled effect sizes were 0.04 for aerobic walking and 0.12 for quadriceps strengthening.
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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: Sixty-four 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 first visit was before the period of intervention. Outcome data were obtained for pain and self reported disability and the effect size was calculated for each outcome. Both groups were educated according to exercise mode and the data pooled using both fixed and random effects models. RESULTS: The groups were homogeneous for all parameters at baseline. Compared with the CG, the EG significantly improved pain (ES 0.38), function – Lequesne (ES 0.15) and SF-36 (ES 0.12) and energy expenditure (gas analysis during the 6-minute walk test (GAMT) with and without a cane). Evaluations were performed at baseline, 30 and 60 days. GROUP: The results were non-significant for all outcome measures. The data from the EG were pooled and the effect sizes for pain were 0.24 for aerobic walking and 0.32 for quadriceps strengthening.
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CONCLUSIONS: Both aerobic walking and home based quadriceps strengthening exercise reduce pain and disability from knee osteoarthritis.
OBJECTIVE: To investigate the efficacy and safety of paracetamol (acetaminophen) in the management of spinal pain and osteoarthritis of the hip or knee.

DESIGN: Systematic review and meta-analysis.

DATA SOURCES: Medline, Embase, AMED, CINAHL, Web of Science, LIACS, International Pharmaceutical Abstracts, and Cochrane Central Register of Controlled Trials from inception to December 2014.

ELIGIBILITY CRITERIA FOR SELECTING STUDIES: Randomised controlled trials comparing the efficacy and safety of paracetamol with placebo for spinal pain or low back pain and osteoarthritis of the hip or knee.

DATA EXTRACTION: Two independent reviewers extracted data on adverse events, disability, and quality of life. Secondary outcomes were adverse effects, patient adherence, and use of rescue medication. Pain and disability scores were converted to a scale of 0 (no pain or disability) to 100 (severe possible pain or disability). We calculated weighted mean differences or risk ratios and 95% confidence intervals using a random-effects model. The Cochrane Collaboration's tool was used for assessing risk of bias, and the GRADE approach was used to evaluate the quality of evidence and summarize conclusions.

RESULTS: 12 reports (13 randomised trials) were included. There was "high" evidence that paracetamol is ineffective for reducing pain intensity (weighted mean difference -0.95, 95% confidence interval -2.0 to 0.1) and disability (0.8, 1.7 to 2.2) in the short term in people with low back pain. For hip or knee osteoarthritis there was "high" evidence that paracetamol provides a significant, although not clinically important, effect on pain (3.7, 5.5 to 1.9) and disability (2.8, 4.8 to 0.9) in the short term. The number of patients reporting any adverse event (risk ratio 1.0, 95% confidence interval 0.9 to 1.1), any serious adverse event (1.3, 0.7 to 2.1) or withdrawn from the study because of adverse events (1.2, 0.9 to 1.5) was similar in the paracetamol and placebo groups. Paracetamol adherence was treatment (1.0, 0.9 to 1.1) and use of rescue medication (0.7, 0.4 to 1.3) was also similar between groups. "High" quality evidence showed that patients taking paracetamol are nearly four times more likely to have abnormal results on liver function tests (3.8, 1.9 to 7.4), but the clinical importance of this effect is uncertain.

CONCLUSIONS: Paracetamol is ineffective in the treatment of low back pain and provides minimal short term benefit for people with osteoarthritis. These results support the reconsideration of recommendations to use paracetamol for patients with low back pain and osteoarthritis of the hip or knee in clinical practice guidelines.

SISTEMATIC REVIEW REGISTRATION: PROSPERO registration number CRD42013006387.

OBJECTIVE: To investigate the efficacy and safety of paracetamol (acetaminophen) in patients with osteoarthritis.

METHODS: We performed a systematic review of the literature including searches of MEDLINE (up to July 2005), EMBASE (2002 to July 2005), Cochrane Central Register of Controlled Trials (CENTRAL),ACP Journal Club,EAME, 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 in OA were considered for inclusion. DATA COLLECTION AND ANALYSIS: Pain, physical function and global assessment outcomes were reported. Results for continuous outcome measures were expressed as standardized mean differences (SMD). Dichotomous outcome measures were pooled using relative risk (RR) and number needed to treat (NNT) was calculated. MAIN RESULTS: Fifteen RCTs involving 5986 participants were included in this review. Seven RCTs compared acetaminophen versus placebo and versus NSAIDs (ibuprofen, diclofenac, arthrotec, celecoxib, naproxen, rofecoxib) for treating OA. The number of patients reporting any adverse event (risk ratio 1.0, 95% confidence interval 0.9 to 1.1), any serious adverse event (1.2, 0.7 to 2.1), or withdrawn from the study because of adverse events (1.2, 0.9 to 1.5) was similar in the paracetamol and placebo groups. Paracetamol adherence was treatment (1.0, 0.9 to 1.1) and use of rescue medication (0.7, 0.4 to 1.3) was also similar between groups. "High" quality evidence showed that patients taking paracetamol are nearly four times more likely to have abnormal results on liver function tests (3.8, 1.9 to 7.4), but the clinical importance of this effect is uncertain.

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SISTEMATIC REVIEW REGISTRATION: PROSPERO registration number CRD42013006387.

OBJECTIVE: To investigate the efficacy and safety of paracetamol (acetaminophen) in patients with osteoarthritis.

METHODS: We performed a systematic review of the literature including searches of MEDLINE (up to July 2005), EMBASE (2002 to July 2005), Cochrane Central Register of Controlled Trials (CENTRAL),ACP Journal Club,EAME, 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 in OA were considered for inclusion. DATA COLLECTION AND ANALYSIS: Pain, physical function and global assessment outcomes were reported. Results for continuous outcome measures were expressed as standardized mean differences (SMD). Dichotomous outcome measures were pooled using relative risk (RR) and number needed to treat (NNT) was calculated. MAIN RESULTS: Fifteen RCTs involving 5986 participants were included in this review. Seven RCTs compared acetaminophen versus placebo and versus NSAIDs (ibuprofen, diclofenac, arthrotec, celecoxib, naproxen, rofecoxib) for treating OA. The number of patients reporting any adverse event (risk ratio 1.0, 95% confidence interval 0.9 to 1.1), any serious adverse event (1.2, 0.7 to 2.1), or withdrawn from the study because of adverse events (1.2, 0.9 to 1.5) was similar in the paracetamol and placebo groups. Paracetamol adherence was treatment (1.0, 0.9 to 1.1) and use of rescue medication (0.7, 0.4 to 1.3) was also similar between groups. "High" quality evidence showed that patients taking paracetamol are nearly four times more likely to have abnormal results on liver function tests (3.8, 1.9 to 7.4), but the clinical importance of this effect is uncertain.

CONCLUSIONS: Paracetamol is ineffective in the treatment of low back pain and provides minimal short term benefit for people with osteoarthritis. These results support the reconsideration of recommendations to use paracetamol for patients with low back pain and osteoarthritis of the hip or knee in clinical practice guidelines.

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Conventional Therapy; NSAIDs


Objective: To estimate the analgesic efficacy of non-steroidal anti-inflammatory drugs (NSAIDs), including selective cyclooxygenase-2 (COX-2) inhibitors (coxibs), in patients with osteoarthritis 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 adequate doses of NSAIDs and 3038 received placebo. The mean weight loss baseline pain score was 64.2 mm on 100 mm visual analogue scale (VAS), and average duration of symptoms was 8.2 years. MAIN OUTCOME MEASURE: Change in overall intensity of pain. RESULTS: Methodological quality of trials was acceptable, but 13 trials excluded patients before randomisation 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 -3.1 mm (95% confidence interval 2.4 to 3.8) better than placebo after 2-12 weeks. The results were heterogeneous, and the effect size for pain reduction was 0.23 (0.24 to 0.31) in a random effects model. 10 trials that did not exclude non-responders to NSAID treatment the results were homogeneous, with an effect size for pain reduction of 0.20 (0.21 to 0.23). CONCLUSION: NSAIDs can reduce short term pain in osteoarthritis 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 NSAIDs, only limited use can be recommended. [References: 62]

Conventional Therapy; NSAIDs


Background: Non-steroidal anti-inflammatory drugs (NSAIDs) are the backbone of osteoarthritis pain management. We aimed to assess the effectiveness of different preparations and doses of NSAIDs on osteoarthritis pain in a network meta-analysis.

METHODS: For this network meta-analysis, we considered randomised trials comparing any of the following interventions: NSAIDs, paracetamol, or placebo, for the treatment of osteoarthritis pain. We searched the Cochrane Central Register of Controlled Trials (CENTRAL) and the reference lists of relevant articles for trials published between Jan 1, 1980, and Feb 24, 2015, with at least 100 patients per group. The prespecified primary and secondary outcomes were pain and physical function, and were extracted in duplicate for up to seven timepoints after the start of treatment. We used an extension of multivariable-Bayesian random effects models for mixed-multiple treatment comparisons with a random-effect at the level of trials. For the primary analysis, a random walk of first order was used to account for multiple follow-up outcome data within a trial. Preparations that used different total daily dose were considered separately in the analysis. To assess potential dose-response relation, we used preparation-specific covariates assuming linearity on log relative dose.

RESULTS: We identified 8737 monographs in our search, of which 74 randomised trials with a total of 58 506 patients were included in this analysis. 23 nodes concerning seven different NSAIDs or paracetamol with specific daily dose of administration or placebo were considered. All preparations, irrespective of dose, improved pain estimates of pain symptoms when compared with placebo. For six interventions (diclofenac 150 mg/day, etoricoxib 25 mg/day, 60 mg/day, and 120 mg/day, and rofecoxib 25 mg/day and 50 mg/day), the probability that the difference to placebo is at or below a prespecified minimum clinically important effect for pain reduction (effect size [ES] -0.37) was at least 95%. Among maximally approved daily doses, diclofenac 150 mg/day (ES -0.57, 95% credibility interval [CrI] -0.68 to -0.46) and etoricoxib 60 mg/day (ES -0.58, 95% CrI -0.73 to -0.43) had the highest probability to be the best intervention, both with 100% probability to reach the minimum clinically important difference. Treatment effects increased as drug dose increased, but corresponding tests for a linear dose effect were significant only for celecoxib (p=0.008), diclofenac (p=0.012), and rofecoxib (p=0.062). We found no evidence that treatment effects varied over the duration of treatment. Model fits were good, and between-trial heterogeneity and inconsistency were low in all analyses. All trials were deemed to have a low risk of bias for blinding of patients. Effect estimates did not change in sensitivity analyses with two additional statistical models and accounting for methodological quality criteria in meta-regression analysis.

INTERPRETATION: On the basis of the available data, we see no role for single-agent paracetamol for the treatment of patients with osteoarthritis irrespective of dose. We provide sound evidence that diclofenac 150 mg/day is the most effective NSAID available at present, in terms of improving both pain and function. Nevertheless, in view of the safety profile of these drugs, physicians need to consider our results together with all known safety information when selecting the preparation and dose for individual patients.

Meta-analysis of 23 RCTs of patients with osteoarthritis of the knee comparing NSAIDs to placebo in controlling pain.

- Meta-analysis of 24 carefully selected randomised trials including over 58 000 patients. Search methodology complete. Studies included in meta-analysis were 3 months or less in duration.
- Study identified no benefit from paracetamol. Diclofenac found to be the most effective NSAID. Authors caution on adverse reactions associate with NSAIDs.

A meta analysis of 24 carefully selected randomized trials including over 58,000 patients. Search methodology complete. Studies included in meta analysis were 3 months or less in duration.

- Study identified no benefit from paracetamol. Diclofenac found to be the most effective NSAID. Authors caution on adverse reactions associate with NSAIDs.
OBJECTIVES: To investigate the cardiovascular safety of non-steroidal anti-inflammatory drugs (NSAIDs) and estimate the risk of hospital admission for heart failure with use of individual NSAIDs.

DESIGN: Nested case-control study.

SETTING: Five population based healthcare databases from four European countries (the Netherlands, Italy, Germany, and the United Kingdom).

PARTICIPANTS: Adult individuals (age ≥18 years) who started NSAID treatment in 2000-10. Overall, 32 161 hospital admissions for heart failure were identified and matched with 64 240 controls (matched via risk set sampling according to age, sex, year of cohort entry).

MAIN OUTCOME MEASURES: Association between risk of hospital admission for heart failure and use of 27 individual NSAIDs, including 20 traditional NSAIDs and four selective COX 2 inhibitors. Associations were assessed by multivariable conditional logistic regression models. The dose-response relation between NSAID use and heart failure risk was also assessed.

RESULTS: Current use of any NSAID (use in preceding 14 days) was found to be associated with a 19% increase of risk of hospital admission for heart failure (adjusted odds ratios 1.19; 95% confidence interval 1.17 to 1.22), compared with past use of any NSAIDs (use ≥183 days in the past). Risk of admission for heart failure increased for seven traditional NSAIDs (diltiazem, diclofenac, indomethacin, ketorolac, naproxen, nimesulide, and paracetamol) and two COX 2 inhibitors (paracetamol and rofecoxib). Odds ratios ranged from 1.18 (95% confidence interval 1.07 to 1.27) for naproxen to 1.80 (95% confidence interval 1.66 to 2.02) for ketorolac. Risk of heart failure doubled for diclofenac, ibuprofen, indomethacin, ketorolac, and rofecoxib and at very high doses (≥2 defined daily dose equivalents), although some confidence intervals were wide. Even medium doses (0.5 to 1.2 defined daily dose equivalents) of indomethacin and etoricoxib were associated with increased risk. There was no evidence that celecoxib increased the risk of admission for heart failure at commonly used doses.

CONCLUSIONS: The risk of hospital admission for heart failure associated with current use of NSAIDs appears to vary between individual NSAIDs, and this risk is dose dependent. This risk is associated with the use of a large number of individual NSAIDs reported by this study, which could help to inform both clinicians and health regulators.

Background: The relative efficacy of available treatments of knee osteoarthritis (OA) must be determined for national treatment algorithms to be formulated. PURPOSE: To examine the efficacy of treatments of primary knee OA using a network meta-analysis design, which estimates relative effects of all treatments against each other.

DATA SOURCES: MEDLINE, EMBASE, Web of Science, Google Scholar, Cochrane Central Register of Controlled Trials from inception through 15 August 2014, and unpublished data.

STUDY SELECTION: Randomized trials of adults with knee OA comparing 2 or more of the following: acetaminophen, diclofenac, ibuprofen, naproxen, celecoxib, intra-articular (IA) corticosteroids, IA hyaluronic acid, oral placebo, and IA placebo.

DATA EXTRACTION: Two reviewers independently abstracted study data and assessed study quality. Standardized mean differences were calculated for pain, function, and stiffness at 3-month follow-up.

DATA SYNTHESIS: Network meta-analysis was performed using a Bayesian random-effects model. 137 studies comprising 33,243 participants were identified. All medications outperformed placebo for pain. "All treatments except acetaminophen met the prespecified criteria for clinically significant improvements. Ibuprofen, diclofenac, IA hyaluronic acid, and IA corticosteroids were statistically significantly superior to acetaminophen." Limitations of the article included short term studies and general lack of comparison of medications to each other. Unable to exclude IA placebo effect as reason for apparently superior IA vs oral treatments.

Conclusion: This method allowed comparison of common treatments of knee OA according to their relative efficacy. Intra-articular treatments were superior to oral NSAIDs and hospital admission for heart failure. "Associations were assessed by multivariable conditional logistic regression models. The dose-response relation between NSAID use and heart failure risk was also assessed." Most NSAIDs are associated with congestive heart failure. "There was no evidence that celecoxib increased the risk of admission for heart failure at commonly used doses."
Conservative Therapy, topical NSAID


BACKGROUND: Use of topical non-steroidal anti-inflammatory drugs (NSAIDs) to treat chronic musculoskeletal conditions has become widely accepted because they can provide pain relief without associated systemic adverse events. This review is an update of 'Topical NSAIDs for chronic musculoskeletal pain in adults', originally published in Issue 9, 2012.

OBJECTIVES: To review the evidence from randomised, double-blind, controlled trials on the efficacy and safety of topical applied NSAIDs for chronic musculoskeletal pain in adults.

SEARCH METHODS: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, EMBASE, and our own in-house database; the date of the last search was February 2016. We also searched the references lists of included studies and reviews, and sought unpublished studies by asking personal contacts and searching online clinical trial registers and manufacturers' web sites.

SELECTION CRITERIA: We included randomised, double-blind, active or inert carrier (placebo) controlled trials in which treatments were administered to adults with chronic musculoskeletal pain of moderate or severe intensity. Studies had to meet stringent quality criteria and there had to be at least 30 participants in each treatment arm, with application of treatment at least once daily.

DATA COLLECTION AND ANALYSIS: Two review authors independently assessed studies for inclusion and extracted data. We used numbers of participants achieving each outcome to calculate risk ratios and numbers needed to treat (NNT) or harm (NNH) compared to carrier or other active treatment. We were particularly interested to compare different formulations (gel, cream, plaster) of individual NSAIDs. The primary outcome was 'clinical success', defined as at least a 50% reduction in pain, or an equivalent measure such as a 'very good' or 'excellent' global assessment of treatment, or 'none' or 'right' pain on rest or movement, measured on a categorical scale.

MAIN RESULTS: We identified five new studies for this update, which now have information from 10,631 participants in 39 studies, a 38% increase in participants from the earlier review. 33 studies compared a topical NSAID with carrier. All studies examined topical NSAIDs for treatment of osteoarthritis, and for pooled analyses studies were generally of moderate or high methodological quality, although some considered some at risk of bias from short duration and small size. In studies lasting 6 to 12 weeks, topical diclofenac and topical ketoprofen were significantly more effective than placebo for reducing pain, about 60% of participants had much reduced pain. With topical diclofenac, the NNT for clinical success in six trials (2343 participants) was 4.8 (95% confidence interval [CI] 3.1 to 16) (moderate quality evidence). With topical ketoprofen, the NNT for clinical success in four trials (2370 participants) was 6.9 (5.4 to 9.3) (moderate quality evidence). There was too little information for analysis of other individual topical NSAIDs compared with carrier. Few trials compared a topical NSAID to an oral NSAID, but overall they showed similar efficacy (low quality evidence). These efficacy results were almost completely derived from people with knee osteoarthritis. There was an increase in local adverse events (mostly mild skin reactions) with topical diclofenac compared with carrier or oral NSAIDs, but no increase with topical ketoprofen (moderate quality evidence). Reporting of systemic adverse events (such as gastrointestinal, dermatologic, and headache) was poor.

CONCLUSIONS: Topical diclofenac is effective in pain relief as a treatment of OA. It may also have a potential effect in function improvement, which needs further studies to be explored. Although, some adverse effects were observed in the application of topical diclofenac, none of them was serious.
BACKGROUND: Infection after total knee arthroplasty (TKA) can result in disastrous consequences. Previous research regarding injections and risk of TKA infection have produced conflicting results and in general have been limited by small cohort size.

OBJECTIVE: Therapeutic intraarticular injections are used in the management of hip osteoarthritis (OA). Some studies suggest that their use increases the risk of infection and subsequent revision surgery after primary total hip arthroplasty (THA), while others do not. We undertook this study to clarify the relationship between prior intraarticular injection and the risk of complication in a subsequent primary THA.

METHODS: In a cohort of patients with hip OA who underwent a primary elective THA between 2002 and 2009, we identified those who received ≥1 intraarticular injection performed by a radiologist within 5 years of their THA. Multivariable Cox proportional hazards models were used to determine the relationship between receipt of a presurgical injection (no injection, 1-5 years, ≤1 year) and the occurrence of postsurgical joint infection and revision THA in the following 2 years, while controlling for confounders.

RESULTS: Of 37,881 eligible THA recipients, 2,468 (6.5%) received an intraarticular injection followed by ipsilateral TKA. Postoperative infection within 6 months of TKA was identified using International Classification of Diseases, Ninth Revision (ICD-9) Revision/ICD codes that represent two infectious endpoints: any postoperative surgical site infection (comprises all severities of infection) and operative intervention for TKA infection (surrogate for deep TKA infection). The infection cohort was stratified into 12 subgroups by monthly intervals out to 12 months corresponding to the number of months that had elapsed between injection and TKA.

CONCLUSION: Intraarticular injection in the year preceding THA independently predicted increased risk of infection leading to early revision surgery. Further unadjusted retrospective cohort study of patients with unilateral total knee replacement for osteoarthritis or rheumatoid arthritis who did or did not receive intraarticular corticosteroid injections prior to surgery. Corticosteroid injections within 7 months of surgery were associated with an increased risk of postoperative infection.


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Conservative Therapy; Intra-articular corticosteroids

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Geriatric pre-operative evaluation

BACKGROUND: Knee osteoarthritis is a leading cause of chronic pain, disability, and increased quality of life. Despite the long-standing use of intra-articular corticosteroids, there is an ongoing debate about their benefits and safety. This is an update of a Cochrane review first published in 2005.

OBJECTIVE: To determine the benefits and harms of intra-articular corticosteroids compared with sham or no intervention in people with knee osteoarthritis in terms of pain, physical function, quality of life, and safety.

SEARCH METHODS: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, and EMBASE (from inception to 3 February 2015), checked trial registers, conference proceedings, reference lists, and contacted authors.

SELECTION CRITERIA: We included randomised or quasi-randomised controlled trials that compared intra-articular corticosteroids with sham injection or no treatment in people with knee osteoarthritis. We applied no language restrictions.

DATA COLLECTION AND ANALYSIS: We calculated standardised mean differences (SMDs) and 95% confidence intervals (CIs) for pain, function, quality of life, joint space narrowing, and risk ratios (RRs) for safety outcomes. We combined trials using an inverse-variance random-effects meta-analysis.

MAIN RESULTS: We identified 27 trials (13 new studies) with 1767 participants in this update. We graded the quality of the evidence as ‘fair’ for all outcomes because treatment effect estimates were inconsistent with great variation across trials, pooled estimates were imprecise and did not rule out relevant or irrelevant clinical effects, and because most trials had a high or unclear risk of bias. Intra-articular corticosteroids appeared to be more beneficial in pain reduction than control interventions (SMD −0.19, 95% CI −0.38 to −0.02), which corresponds to a difference in pain scores of 1.0 cm on a 10 cm visual analog scale between corticosteroids and sham injection and translates into a number needed to treat for an additional beneficial outcome (NNTB) of 8 (95% CI 6 to 10).

CONCLUSION: This Cochrane review update demonstrates that intra-articular corticosteroids could reduce cartilage damage associated with synovitis but might have adverse effects on cartilage and periarticular bone.

Objective: To determine the effects of intra-articular injection of 40 mg of triamcinolone acetonide every 3 months on progression of cartilage loss and knee pain.

Design, Setting, and Participants: Two-year, randomized, placebo-controlled, double-blind trial of patients with moderate osteoarthritis and chronic pain who received either intra-articular saline or triamcinolone every 3 months for 2 years with good follow-up. Patients receiving triamcinolone had no clear improvement in symptoms versus those treated with saline that did have greater loss of cartilage.

Main Outcomes and Measures: Annual knee magnetic resonance imaging for quantitative evaluation of cartilage volume (minimal clinically important difference not yet defined), and Western Ontario and McMaster Universities Osteoarthritis Index collected every 3 months (Likert pain subscale range, 0 [no pain] to 20 [extreme pain]; minimal clinically important improvement, 3.94).

Results: Among 140 enrolled patients (mean age, 58 [SD, 8]; 75 women, 65 men), 119 (85%) completed the study. Intra-articular triamcinolone resulted in a reduced knee osteoarthritis in terms of pain, physical function, quality of life, and safety.

Supports the conclusion that long term, chronic use of corticosteroids injections are ineffective in treatment of osteoarthritis of the knee.

Corticosteroids compared with sham or no treatment in people with knee osteoarthritis, Kellgren-Lawrence grades 2 or 3, were enrolled at Tufts Medical Center beginning February 11, 2013; all patients completed the study by January 1, 2015.

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RESULTS: Among 140 enrolled patients (mean age, 58 [SD, 8]; 75 women, 65 men), 119 (85%) completed the study. Intra-articular triamcinolone resulted in significantly greater cartilage volume loss than did saline for a mean change in index compartment cartilage thickness of -0.21 mm vs -0.10 mm (between-group difference, -0.11 mm; 95% CI, -0.20 to -0.03 mm); and no significant difference in people with knee osteoarthritis in terms of pain, physical function, quality of life, and safety.

High-quality systematic review with overall low quality evidence, heterogeneity between trials and "evidence of small study effects."

"Whether there are clinically important benefits of intra-articular corticosteroids after one to six weeks remains unclear.”

B & C, Fitness for Surgery

Geriatric pre-operative evaluation


http://www.surgery.org/content/journals/doi/10.1016/jarchs.2012.05.001/full

Restrict not available

Small remedy: patients with moderate osteoarthritis and chronic pain who received either intra-articular saline or triamcinolone every 3 months for 2 years with good follow-up. Patients receiving triamcinolone had no clear improvement in symptoms versus those treated with saline that did have greater loss of cartilage.

Study did not appear to deal with patients with an acute increase in joint inflammation nor did it measure reduction in pain following steroid injection. Supports the conclusion that long term, chronic use of corticosteroids injections are ineffective in treatment of osteoarthritis of the knee.

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"Whether there are clinically important benefits of intra-articular corticosteroids after one to six weeks remains unclear.”
BACKGROUND: The increase in the number of individuals with an unhealthy high body weight is particularly relevant in the United States. Obesity (body mass index ≥ 30 kg/m2) is a well-documented risk factor for the development of osteoarthritis. Furthermore, an increased prevalence of total knee arthroplasty in obese individuals has been observed in the last decades. The primary aim of this systematic literature review was to determine whether obesity has a negative influence on outcome after primary total knee arthroplasty. METHODS: A search of the literature was performed, and studies comparing the outcome of total knee arthroplasty in different weight groups were included. The methodology of the included studies was scored according to the Cochrane guidelines. Data extraction and pooling were performed. The weighted mean difference for continuous data and the weighted odds ratio for dichotomous variables were calculated. Heterogeneity was calculated using I(2) statistics. RESULTS: Fifteen studies were eligible for data extraction, which involved 8,830 total knee arthroplasties. The pooled data of complication rate showed that obese patients suffered higher rates of complications (RR: 1.68; 95% CI: 1.23 to 2.30; P = 0.0009), dislocation (RR: 2.08; 95% CI: 1.30 to 3.36; P = 0.001), and deep infection (RR: 2.38; 95% CI: 1.28 to 4.55). Revision of the total knee arthroplasty, defined as exchange or removal of the components for any reason, was documented in eleven studies including 5,061 patients (OR: 1.30; 95% CI: 1.02 to 1.67). CONCLUSIONS: Obesity has a negative influence on outcome after total knee arthroplasty.

BACKGROUND AND PURPOSE: Discussion persists as to whether obesity negatively influences the outcomes of total 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 the weighted odds ratio (OR). Heterogeneity was calculated using I(2) statistics. RESULTS: Thirteen studies were eligible for data extraction. In obese patients, dislocation of the hip (OR: 0.54; 95% CI: 0.38-0.75) (10 studies, n = 8,616), deep infection (OR: 0.54; 95% CI: 0.38-0.75) (10 studies, n = 5,500), vein thrombembolism (OR: 0.56; 95% CI: 0.35-0.98) (7 studies, n = 5,716) occurred more often. Concluding very loosening and intraoperative fracture, no statistically significant differences were found, possibly due to low power. Subjective outcome measurements did not allow pooling because of high heterogeneity (I2 > 60%). INTERPRETATION: Obese patients have a negative influence on the outcome of total hip replacement.

BACKGROUND: Whether or not, obesity negatively influencing the outcomes of primary total hip arthroplasty (THA) remains a controversial issue. Though observational studies focused on this topic, the reported conclusions remain inconsistent. Therefore, we performed a meta-analysis of prospective cohort studies to evaluate if obesity negatively affects: (1) the overall complication rate (incidence of dislocation, deep infection and osteolysis); (2) functional outcome; (3) operative time and stay duration in hospitals for the primary THA. METHODS: We searched the PubMed, Embase, Web of Science, and the Cochrane Library until July 2014 to identify the eligible prospective studies. The Newcastle Ottawa Scale (NOS) was used for quality assessment of the included studies. We extracted and pooled the data. As for continuous data, mean difference (MD) was calculated, for dichotomous variables, we calculated a weighted relative risk (RR) with its 95% confidence interval. Heterogeneity was evaluated using I(2) statistics. P ≤ 0.05 was thought to be significant. RESULTS: Fifteen studies were eligible for data extraction, which involved 12,101 total hip arthroplasties. The pooled data of complication rate demonstrated that obese patients suffered higher rates of complications (RR: 1.68; 95% CI: 1.23 to 2.30; P = 0.0009), dislocation (RR: 2.08; 95% CI: 1.30 to 3.36; P = 0.001), and deep infection (RR: 2.38; 95% CI: 1.28 to 4.55; P = 0.001). For the functional result, obese patients acquired relatively lower Harris Hip Score than non-obese patients (MD: -3.75; 95% CI: -4.77 to -2.73; P < 0.001). For the functional result, obese patients acquired relatively lower SF-36 scores (MD: -6.28; 95% CI: -10.94 to -1.62; P = 0.01) compared to non-obese patients. CONCLUSIONS: Our results confirm that obesity has a negative influence on the overall complication rate, dislocation rate, functional outcome and operative time of primary total hip arthroplasty.
Hypothesis: Good preoperative glycemic control (hemoglobin A1c [HbA1c] levels <7%) is associated with decreased infectious complications across a variety of surgical procedures.

METHODS: Bivariate and multivariable analysis was performed on all patients undergoing major noncardiac surgery during the study period. Patients were stratified based on HbA1c levels and surgical risk. The process of care was examined for all patients.

RESULTS: When examining primary THAs referred for revision THA, increasing BMI adversely affected the mean time to revision THA. The percentage of primary THAs revised in 5 years was 77% for a BMI of 18-25, 73% for a BMI of 25-30, 56% for a BMI of 30-35, 73% for a BMI of 35-40, and 75% for a BMI of greater than 40 (P < .001). A significant increase in early revision THA for aseptic loosening/osteolysis in obese patients (BMI ≥ 30 kg/m²) when compared with the nonobese patients (BMI < 30 kg/m²). Patients with a BMI ≥ 30 kg/m² were at a higher risk of lower functional scores and developing complications following primary THA. It appears reasonable to encourage obese patients to lose weight before elective THA.

CONCLUSIONS: Preoperative BMI influences the time of failure of primary THAs and 100%, respectively (P < .001). A significant increase in early revision THA for aseptic loosening/osteolysis in obese patients (BMI ≥ 30 kg/m²) when compared with the nonobese patients (BMI < 30 kg/m²). Patients with a BMI ≥ 30 kg/m² were at a higher risk of lower functional scores and developing complications following primary THA. It appears reasonable to encourage obese patients to lose weight before elective THA.

Abstract: HYPOTHESIS: Good preoperative glycemic control (HbA1c levels <7%) is associated with decreased infectious complications across a variety of surgical procedures. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure. Specifically, obesity increased in the relative risk of failure.
Glycemic Control


BACKGROUND: As the prevalence of diabetes mellitus in the US population over the age of sixty years is expected to increase, the number of diabetic patients undergoing total joint arthroplasty is expected to increase accordingly. In general, patients with diabetes have an increased risk for adverse events following arthroplasty. The goal of the present study was to determine whether the quality of perioperative glycemic control affects complications after surgery. METHODS: From 1984 to 2000, the Nationwide Inpatient Sample recorded over 2 million patients who underwent joint replacement surgery. The present retrospective study compared patients with uncontrolled diabetes mellitus (n = 3570), those with controlled diabetes mellitus (n = 105,485), and those without diabetes mellitus (n = 920,555) 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 1 and Type 2 diabetes. Glycemic control was determined by physician assessment of 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, patients 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 1.63 to 2.34; p < 0.001), pneumonia (adjusted odds ratio = 2.47; 95% confidence interval 1.67 to 3.64; 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 = 1.16; 95% confidence interval 1.04 to 1.36; p = 0.001), wound infection (adjusted odds ratio = 2.29; 95% confidence interval 1.36 to 3.80; p < 0.001), and death (adjusted odds ratio = 3.92; 95% confidence interval 1.87 to 7.95; p < 0.001). Patients with uncontrolled diabetes mellitus had a significantly increased stay (in days) in comparison with patients with controlled diabetes mellitus (p < 0.001). All patients with diabetes had significantly increased infection-adjusted postoperative charges when compared with non-diabetic patients (p < 0.0001). CONCLUSIONS: 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.

Glycemic Control


BACKGROUND: Endpoints of glycemic control in surgical patients are not well defined with regard to the optimal glycemic target (intensive vs. conventional) and definition of perioperative glycemic control. OBJECTIVES: To assess the effects of perioperative glycemic control for diabetic patients undergoing surgery. SEARCH METHODS: Trials were obtained from Searchea of The Cochrane Library, MEDLINE, EMBASE, LILACS, and CINAHL (up to 14 February 2012). SELECTION CRITERIA: We included randomised controlled triall trials that preseopted different targets of perioperative glycemic control (intensive versus conventional or standard care). DATA COLLECTION AND ANALYSIS: Two authors independently extracted data and assessed risk of bias. We summarised studies using meta-analysis or descriptive methods. MAIN RESULTS: Twelve trials randomized 664 diabetic participants to intensive control and 730 diabetic participants to conventional glycemic control. The duration of the intervention ranged from just the duration of the surgical procedure up to 90 days. The number of participants ranged from 13 to 421, and the mean age was 49 years. Comparison of intensive with conventional glycemic control demonstrated the following results for our predefined primary outcome: analysis restricted to studies with low or unclear detection or attrition bias for infectious complications showed a risk ratio of 0.46 (95% confidence interval [CI] 0.18 to 1.18), P = 0.33, 627 participants, 8 trials, moderate-quality evidence of the evidence (GRADE). Evaluation of death from any cause revealed a RR of 1.19 (95% CI 0.89 to 1.60), P = 0.24, 1380 participants, high-quality evidence of the evidence (GRADE). On the basis of a post hoc analysis, there is the hypothesis that intensive glycemic control may increase the risk of complications compared to patients with controlled diabetes. However, there is limited evidence concerning this patients in diabetes mellitus undergoing surgery. CONCLUSIONS: We believe this information important when counseling elderly patients regarding the risks of mortality and PJI after TKA and risk-adjusting publicly reported TKA patient outcomes.

Peripheral vascular disease


BACKGROUND: The impact of specific baseline comorbid conditions on the relative risk of postoperative mortality and periprosthetic joint infection in patients undergoing total joint arthroplasty (TJA) has not been well defined. This meta-analysis includes 29 randomized controlled trials. We calculated the relative risk (RR) of 90-day postoperative mortality and PJI associated with 29 comorbid conditions in Medicare patients undergoing TJA. RESULTS: The independent risk factors for 90-day postoperative mortality (in decreasing order of significance) were congestive heart failure, metastatic cancer, renal disease, peripheral vascular disease, cerebrovascular disease, lymphoma, cardiac arrhythmia, dementia, pulmonary circulation disorders, and diabetes. The independent risk factors for PJI (in decreasing order of significance) were congestive heart failure, chronic pulmonary disease, metastatic tumor, peripheral vascular disease, depression, Parkinson disease, pulmonary circulation disorders, obesity, rheumatoid arthritis, psychosis, metastatic tumor, peripheral vascular disease, and valvular disease. CONCLUSIONS: We believe this information important when counseling elderly patients regarding the risks of mortality and PJI after TKA and risk-adjusting publicly reported TKA patient outcomes.
NUTRITIONAL STATUS


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BACKGROUND: Four nutrition status is considered a risk factor for postoperative complications in the adult population. In elderly patients, who often have a poor nutrition status, this relationship has not been substantiated. Thus, the aim of this systematic review was to assess the impact of preoperative nutrition parameters used to predict postoperative outcome 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 (by organ) or their synonyms: Food Malnutrition, 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 grading. RESULTS: OF 42 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: weight loss and serum albumin. 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 outcome.

SYSTEMATIC REVIEW OF 15 CITATIONS ASSESSING PRE-OPERATIVE NUTRITIONAL STATUS AS A RISK FACTOR FOR COMPLICATIONS IN PATIENTS 65 YEARS OF AGE OR OLDER. DEFINITIONS OF LOW SERUM ALBUMIN IN THIS PAPER INCLUDED THE FOLLOWING CITATIONS: KHALAFLI et al defined low serum albumin as serum albumin <3.5 g/L, FORMIGA et al and GANAI et al as serum albumin <3 g/L, and BOZZETTI et al as serum albumin <3.0 g/L.

--> Supports conclusion that reduced serum albumin and >= 10% weight loss in the previous 6 months predict postoperative complications for elderly general surgery patients.

REDUCED SERUM ALBUMIN


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Low serum albumin may have prognostic value for mortality and morbidity in patients with hip fracture. The primary aim of the study was to evaluate the risk of postoperative complications in elderly patients undergoing instrumented lumbar surgery for lumbar fracture and hip fracture. We reviewed a prospective population-based cohort of 150 hip fracture patients who had preoperative albumin levels measured at hospital admission in one of 3 tertiary hospitals in Northern Alberta, Canada. Patients with a primary diagnosis of hip fracture and 65 years or older were included. The primary outcomes were in-hospital mortality and any pre-defined post-operative complications. None serum albumin level was 3.5-4.5 g/L (n=12), and overall 53% (19/36) of these had a low albumin level. In the in-hospital mortality was 8% (3/36) and rate of any non-fatal post-operative complications rate was 32/5 (89%). Mortality was 13% (5/39) among those with low serum albumin levels and 4% (2/51) for those with normal values (unadjusted odds ratio (OR) 2.64, 95% CI 1.03-6.74). After multivariate adjustment, the association between serum albumin and mortality remained large and statistically significant (adjusted OR=2.44, 95% confidence interval [CI]=1.37-4.52). Low serum albumin levels were also significantly associated with post-operative medical complications (adjusted OR=3.16, 95% CI 1.17-8.68). We conclude that routine measurement of serum albumin provides valuable prognostic information for treating this frail population.

--> Supports the conclusion that patients with low serum albumin and hip fracture are at increased risk for postoperative complications.

Serum albumin


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Liver cirrhosis has high surgical risks due to malnutrition, impaired immunity, coagulopathy, and encephalopathy. However, there is no information in English literature about the role of cirrhotic patients who underwent instrumented lumbar surgery. The purpose of this study is to report the perioperative complications, clinical outcome and determine the surgical risks in cirrhotic patients. Methods: We retrospectively reviewed 29 patients with liver cirrhosis who underwent instrumented lumbar surgery between 1997 and 2009. The hepatic functional reserves of the patients were recorded according to the Child-Turcotte-Pugh scoring system. Results: Of 29 patients, 22 (75%) belonged to Child class A and 7 (25%) belonged to Child class B. Twelve patients developed one or more complications. None of the patients died. The overall incidence of complications was significantly higher in Child class B (6/7 patients (90%)) compared to Child class A (6/22 patients (27.3%, p = 0.001)). In Child class A group, patients with 6 points had statistically higher incidence of complications than those with 5 points (6/22 patients (27.3%)). In Child class B group, patients with 6 points had statistically higher incidence of complications than those with 5 points (6/7 patients (90%), p = 0.001). A similar trend was also noted for the presence of ascites although statistical difference was not reached. Conclusion: The study concludes that patients with liver cirrhosis who undergo instrumented lumbar surgery carry a high risk of developing perioperative complications, especially in those with a Child-Turcotte-Pugh score of 6 or more.

--> Does not support routine screening for HIV, HBV, or HCV in patients without other risk factors undergoing orthopaedic surgery.

> Does not support routine screening for HIV, HBV, or HCV in patients without other risk factors undergoing orthopaedic surgery.
OBJECTIVE: The relationship between arthroplasty and long-term opioid use in patients with lower or hip osteoarthritis is not well studied. We examined the prevalence, patterns and predictors of persistent opioid use after hip or knee arthroplasty.

METHOD: Using claims data (2004-2016) from a US commercial health plan, we identified adults who underwent hip or knee arthroplasty and filled ≥1 opioid prescription within 30 days after the surgery. We defined persistent opioid users in patients who filled ≥1 opioid prescription every month during the 5-year postoperative period based on group-based trajectory models. Multivariable logistic regression was used to determine preoperative predictors of persistent opioid use after surgery.

RESULTS: We identified 57,545 patients who underwent hip or knee arthroplasty. The mean (± SD) age was 61.5 ± 7.8 years and 87.1% had any opioid use preoperatively. Overall, 7.6% persistently used opioids after the surgery. Among patients who used opioids in 80% of the time for 12 months preoperatively (n = 3023), 72.1% became persistent users. In multivariable analysis, knee arthroplasty vs hip, a longer hospitalization stay, discharge to a rehabilitation facility, preoperative opioid use (e.g., a longer duration and greater dosage and frequency), a higher comorbidity score, back pain, rheumatoid arthritis, neuropathy, migraine and smoking, and benzodiazepine use at baseline were strong predictors for persistent opioid use (C-statistic = 0.627).

CONCLUSION: Over 7% of patients persistently used opioids in the year after hip or knee arthroplasty. Given the advance health effects of persistent opioid use, strategies need to be developed to prevent persistent opioid use after this common surgery.

BACKGROUND: There is growing concern about the use of opioids prior to total knee arthroplasty (TKA), and research has suggested that preoperative opioid use may lead to worse postoperative outcomes following surgery. We evaluated the pain relief achieved by TKA in patients who had and those who had not used opioids before the procedure.

METHODS: We aggregated data from a prospective cohort study of THA patients with opioid-use data abstracted from medical records. We collected patient-reported outcomes and demographic data before and 6 months after TKA. We used the Pain Catastrophizing Scale and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) to quantify the pain experience of patients treated with TKA who had a baseline score of ≥20 on the WOMAC pain scale (a 0 to 100-point scale, with 100 being the worst score) who provided follow-up data, and who had not had another surgical procedure within the 2 years prior to TKA. We built a propensity score for preoperative opioid use based on the Pain Catastrophizing Scale score, comorbidities, and baseline use. We used a general linear model, adjusting for the propensity score and baseline pain, to compare the change in the WOMAC pain scale 6 months after TKA between patients who had and those who had not used opioids before TKA.

RESULTS: The cohort included 156 patients with a mean age of 63.7 years (standard deviation [SD] = 8.2 years) and a mean body mass index (BMI) of 31.3 kg/m² (SD = 6.1 kg/m²). 62.9% were female. Preoperatively, 38 patients (24%) had at least 1 opioid prescription. The mean baseline WOMAC pain score was 41.0 points (SD = 12.2) for the group that had not used opioids before TKA and 40.9 points (SD = 37.5) for those who had used opioids (p = 0.12). The mean preoperative WOMAC score was greater among opioid users (15.5 compared with 10.7 points among non-users, p = 0.006). Adjusted analyses showed that the opioid group had a mean 6-month reduction in the WOMAC pain score of 17.0 points (95% confidence interval [CI] = 12.7 to 21.3), compared with 16.4 points (95% CI = 11.4 to 21.5) in the non-opioid group (p = 0.046).

CONCLUSIONS: Patients who used opioids prior to TKA obtained less pain relief from the operation. Clinicians should consider limiting pre-TKA opioid prescriptions to optimize the benefits of TKA. LEVEL OF EVIDENCE: Therapeutic Level III. See Instructions for Authors for a complete description of levels of evidence.

OBJECTIVE: The Washington State Department of Labor & Industries (L&I, or the department) is officially adopting the Interagency Guideline on Opioid Use after Total Hip and Knee Replacement Surgery (IIMAC) to provide standards that ensure the highest quality of care for injured workers in Washington State.

METHODS: The IIMAC is an evidence-based guideline that recommends preoperative management rules, and provides information specific to treating injured workers covered by Washington State workers’ compensation (5). 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 (IIMAC) 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 of expert opinion. The IIMAC’s primary goal is to provide standards that ensure the highest quality of care for injured workers in Washington State.

RESULTS: We identified 57,545 patients who underwent hip or knee arthroplasty. The mean (± SD) age was 61.5 ± 7.8 years and 87.1% had any opioid use preoperatively. Overall, 7.6% persistently used opioids after the surgery. Among patients who used opioids in 80% of the time for 12 months preoperatively (n = 3023), 72.1% became persistent users. In multivariable analysis, knee arthroplasty vs hip, a longer hospitalization stay, discharge to a rehabilitation facility, preoperative opioid use (e.g., a longer duration and greater dosage and frequency), a higher comorbidity score, back pain, rheumatoid arthritis, neuropathy, migraine and smoking, and benzodiazepine use at baseline were strong predictors for persistent opioid use (C-statistic = 0.627).

CONCLUSION: Over 7% of patients persistently used opioids in the year after hip or knee arthroplasty. Given the advance health effects of persistent opioid use, strategies need to be developed to prevent persistent opioid use after this common surgery.
BACKGROUND: Diseara et al. is the most common cause of postpartum and the screening cause of pain and physical disability in older people. Opioids may be a viable treatment option if people have severe pain and if other analgesics are contraindicated. However, the evidence about their effectiveness and safety is contradictory. This is an update of a Cochrane review first published in 2009. OBJECTIVES: To determine the effects on pain, surgery, safety, and symptoms of oral or transdermal opioids compared with placebo or no intervention in people with knee or hip osteoarthritis.

SEARCH METHODS: We searched the Cochrane Central Register of Controlled Trials (CENTRAL); MEDLINE, EMBASE and CINAHL (up to 28 July 2008, with an update performed on 15 August 2012), checked conference proceedings, reference lists, and contacted authors.

SELECTION CRITERIA: We included randomised or quasi-randomised controlled trials that compared oral or transdermal opioids with placebo or no treatment in people with knee or hip osteoarthrits. We excluded studies of tramadol. We applied no language restrictions.

DATA COLLECTION AND ANALYSIS: We extracted data in duplicate. We calculated standardised mean differences (SMDs) and 95% confidence intervals (CIs) for pain and function, and risk ratios for safety outcomes. We combined trials using an inverse variance random-effects meta-analysis.

MAIN RESULTS: We identified 12 additional trials and included 23 trials with 6707 participants in this update. Oral oxycodone was studied in 30 trials, transdermal fentanyl and oral tapentadol in four, oral codeine in three, and oral morphine in two, and transdermal fentanyl and oral hydromorphone in one trial each. All trials were described as double-blind, but the risk of bias of the main outcomes was unclear in several trials due to inadequate reporting.

Overall, 1724 participants were randomised to opioids and 1633 to placebo or no intervention. The overall complications rate was 18% in the opioid group and 52% in the placebo or no intervention group (p=0.0003). The most significant effects of opioid versus placebo or no intervention were seen for serious adverse events (5% vs. 15%, p<0.001), cardiovascular complications (2% vs. 10%, p=0.08), and secondary surgery (4% vs. 15%, p<0.01). The median length of stay was 11 days (range 7-55) in the opioid group and 13 days (8-65) in the placebo or no intervention group. Significant effects were seen for wound-related complications (5% vs. 31%, p=0.001), cardiovascular complications (0% vs. 10%, p=0.08), and secondary surgery (4% vs. 15%, p<0.01). An assessor, who was masked to the intervention, registered the occurrence of cardiopulmonary, renal, neurological, or surgical complications and duration of hospital admittance. The main outcome was the overall complication rate. The findings were similar when we stratified the data by osteoarthritis of the hip or knee, with the exception of the more serious complications.

CONCLUSIONS: Preoperative smoking cessation intervention reduces postoperative morbidity, and we recommend, on the basis of our results, this programme be adopted universally. Controlled trial combining complications following hip and knee replacement in a control group of smokers versus patients treated with smoking intervention that resulted in either smoking cessation or at least 50% reduction in smoking. The smoking intervention group had fewer complications when intervention was initiated 6-8 weeks prior to surgery. Supports the conclusion that smoking intervention prior to surgery reduces postoperative morbidity.

Objectives: To determine whether an intervention with smoking cessation starting 6-8 weeks before general and orthopedic surgery would reduce the frequency of postoperative complications compared with placebo or no intervention. The primary outcome was 30 days. Eligibility criteria were active daily smokers, aged 18 to 79 years. Of the 238 patients assessed, 76 refused participating, and we recommend, on the basis of our results, this programme be adopted universally. Controlled trial combining complications following hip and knee replacement in a control group of smokers versus patients treated with smoking intervention that resulted in either smoking cessation or at least 50% reduction in smoking. The smoking intervention group had fewer complications when intervention was initiated 6-8 weeks prior to surgery. Supports the conclusion that smoking intervention prior to surgery reduces postoperative morbidity.

Download the full version of this article.  Note: study relates to discontinuation of smoking rather than discontinuation of opioids.
BACKGROUND: Several countries are discussing new legislation regarding the ban on smoking in public places, based on the growing evidence of vascular structure and function among never smokers. 

OBJECTIVES: The objectives of this study are to assess the relationship between secondhand smoke (SHS) exposure, measured objectively by serum cotinine level, and the parameters used to assess vascular structure and function among never smokers in North China. From January 2008 to August 2008, 402 adults aged 20-70 years were enrolled. Brachial artery pulse wave velocity (baPWV), ankle-brachial index, and carotid intrathymic thickness measurements were performed in all patients. All participants were required to respond to an interviewer-led questionnaire including medical histories and demographic data and to receive blood tests on smoking status, biomarkers, and other confounders.

METHODS: Three statistical models were applied by using samples available in a cross-sectional design: (i) cotinine levels by categories combining smoking status with arterial stiffness but did not study clinical outcomes. 

RESULTS: This study strengthens the evidence for the benefits of a smoking ban in public places. 

CONCLUSIONS: There is clear evidence that not only tobacco smoking but also involuntary exposure increases cotinine levels. 

IMPACT: Smoking cessation has been shown to be associated with early arterial damage. 

Study performed in an environment with a high rate of exposure to tobacco smoke. Cohort was self-selected participants who declared they were nonsmokers. Serum cotinine levels were correlated with arterial stiffness as judged by brachial-ankle pulse wave velocity. 

- Supports the conclusion that second hand smoking is positively associated with arterial stiffness but did not study clinical outcomes.

- Supports the conclusion that second hand smoking increases serum cotinine levels in nonsmokers.

- Supports the conclusion that second hand smoking among nonsmokers to serum cotinine levels. Nonsmoking Study performed in an environment with a high rate of exposure to tobacco smoke. Cohort was self-selected participants who declared they were nonsmokers. Serum cotinine levels were correlated with arterial stiffness as judged by brachial-ankle pulse wave velocity. 

- Supports the conclusion that second hand smoking is positively associated with arterial stiffness but did not study clinical outcomes.

- Supports the conclusion that second hand smoking increases serum cotinine levels in nonsmokers.
BACKGROUND: Unhealthy alcohol use is prevalent but under-diagnosed in primary care settings. OBJECTIVE: To validate, in primary care, a single-item screening test for unhealthy alcohol use recommended by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). DESIGN: Cross-sectional study. PARTICIPANTS: Adult English-speaking patients recruited from primary care waiting rooms. MEASUREMENTS: Participants were asked the single screening question: “How many times in the past year have you had 5 or more drinks in a day?”, where 5 is for men and 4 for women, and a response of 1 or greater (corrected) is considered positive. Unhealthy alcohol use was defined as the presence of an alcohol use disorder, as determined by a standardized diagnostic interview, or risky consumption, as determined using a validated 30-day calendar method. MAIN RESULTS: Of 394 eligible primary care patients, 286 (73%) completed the interview. The single-screen question was 81.8% sensitive (95% confidence interval [CI] 72.8% to 88.9%) and 79.2% specific (95% CI 73.1% to 84.4%) for the detection of unhealthy alcohol use. It was slightly more sensitive (87.9%, 95% CI 73.7% to 91.2%) but was less specific (66.8%, 95% CI 60.8% to 72.3%) for the detection of a current alcohol use disorder. Test characteristics were similar to that of a commonly used three-item screen, and were affected very little by subject demographic characteristics. CONCLUSION: The single screening question recommended by the 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.

Supports the conclusion that patients with dementia undergoing surgical procedures have a higher rate of postoperative complications.

Supports the conclusion that patients with dementia have worse outcomes following surgery.

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Risk Reduction Initiatives

Delirium & Adverse
Screening for Dementia; 

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Pre-operative Exam; 

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Not available without a subscription.

OBJECTIVE: The objective of this study was to review existing dementia screening tools with a view to informing and recommending suitable interventions to general practitioners (GPs) based on their performance and practicability for general practice. METHOD: A systematic search of pre-MEDLINE, MEDLINE, PsychINFO, and the Cochrane Library Database was undertaken. Only available full-text articles about dementia screening instruments written in English or with an English version were included. Articles using a translation of an English language instrument were excluded unless validated in a general practice, community, or population sample. RESULTS: The General Practitioner Assessment of Cognitive Function (GPAF), Mini-Cog, and Memory Impairment Screen (MIS) were chosen as most suitable for routine dementia screening in general practice. The GPCOG, Mini-Cog, and MIS were all validated in community, population, or general practice samples, easy to administer, and have administration times of 5 minutes or less. They also have positive predictive validity and classification rates which do not differ significantly from those of the Mini-Mental Status Examination. CONCLUSION: It is recommended that GPs consider using the GPCOG, Mini-Cog, or MIS when screening for cognitive impairment or for care diagnosis.

The Montreal-Cognitive Assessment (MoCA) is a brief instrument developed for the screening of milder forms of cognitive impairment, having surpassed the well known limitations of the Mini-Mental Status Examination (MMSE). The aim of the present study was to validate the MoCA in a cognitive screening test for behavioral variant frontotemporal dementia (bv-FTD) by examining its psychometric properties and diagnostic accuracy. Three matched subgroups of participants were considered for FTD (n = 50), Alzheimer’s disease (n = 50), and a control group of healthy adults (n = 50). Compared with the MMSE, the MoCA demonstrated consistently superior psychometric properties and discriminant capacity, providing comprehensive information about the patients’ cognitive profile. The diagnostic accuracy of MoCA for FTD was comparable to long-terms scores under the curve AUC (MoCA): 0.93 vs. 0.94, 95% CI: 0.87-0.97 (MoCA): 0.72, 95% CI: 0.55-0.87 (MoCA). With a cutoff below 17 points, the MoCA results for sensitivity, specificity, positive predictive value, and negative predictive value, and classification accuracy were significantly superior to those of the MMSE. The MoCA is a sensitive and accurate instrument for screening the patients with FTD and represents a better option than the MMSE.

Objective: The objective of this study was to review existing dementia screening tools with a view to informing and recommending suitable interventions to general practitioners (GPs) based on their performance and practicability for general practice. Method: A systematic search of pre-MEDLINE, MEDLINE, PsychINFO, and the Cochrane Library Database was undertaken. Only available full-text articles about dementia screening instruments written in English or with an English version were included. Articles using a translation of an English language instrument were excluded unless validated in a general practice, community, or population sample. Results: The General Practitioner Assessment of Cognitive Function (GPAF), Mini-Cog, and Memory Impairment Screen (MIS) were chosen as most suitable for routine dementia screening in general practice. The GPCOG, Mini-Cog, and MIS were all validated in community, population, or general practice samples, easy to administer, and have administration times of 5 minutes or less. They also have positive predictive validity and classification rates which do not differ significantly from those of the Mini-Mental Status Examination. Conclusion: It is recommended that GPs consider using the GPCOG, Mini-Cog, or MIS when screening for cognitive impairment or for care diagnosis.

Validation study comparing MoCA with MMSE.

Validation study comparing MoCA with MMSE.

Mini-Cog compares favorably with other tests for use in screening for dementia.

Objective: The objective of this study was to review existing dementia screening tools with a view to informing and recommending suitable interventions to general practitioners (GPs) based on their performance and practicability for general practice. Method: A systematic search of pre-MEDLINE, MEDLINE, PsychINFO, and the Cochrane Library Database was undertaken. Only available full-text articles about dementia screening instruments written in English or with an English version were included. Articles using a translation of an English language instrument were excluded unless validated in a general practice, community, or population sample. Results: The General Practitioner Assessment of Cognitive Function (GPAF), Mini-Cog, and Memory Impairment Screen (MIS) were chosen as most suitable for routine dementia screening in general practice. The GPCOG, Mini-Cog, and MIS were all validated in community, population, or general practice samples, easy to administer, and have administration times of 5 minutes or less. They also have positive predictive validity and classification rates which do not differ significantly from those of the Mini-Mental Status Examination. Conclusion: It is recommended that GPs consider using the GPCOG, Mini-Cog, or MIS when screening for cognitive impairment or for care diagnosis.
Care partner

An act relating to hospital discharge planning with lay caregivers.

A society guideline discussing preoperative evaluation.


To determine the effect of integrating informal caregivers into discharge planning on postdischarge cost and resource use in older adults.

A systematic review and meta-analysis of randomized controlled trials that examine the effect of discharge planning with caregiver integration began before discharge on healthcare cost and resource use-outcomes. MEDLINE, EMBASE, and the Cochrane Library databases were searched for all English-language articles published between 1966 and April 2016.

HOSPITAL: Hospital or skilled-nursing facility.

PARTICIPANTS: Older adults with informal caregivers discharged to a community setting.

MEASUREMENTS: Readmission rates, length of and time to post-discharge rehospitalizations, costs of postdischarge care.

RESULTS: Of 10,715 abstracts identified, 35 studies met the inclusion criteria. Eleven studies provided sufficient detail to calculate readmission rates for treatment and control participants. Discharge-planning interventions with caregiver integration were associated with a 25% fewer readmissions at 90 days (relative risk [RR] = 0.75, 95% confidence interval [CI] = 0.62-0.91), and 24 fewer readmissions at 180 days (RR = 0.76, 95% CI = 0.64-0.90). The majority of studies reported statistically significant shorter time to readmission, shorter rehospitalization, and lower costs of postdischarge care among discharge-planning interventions with caregiver integration.

CONCLUSION: For older adults discharged to a community setting, the integration of caregivers into the discharge-planning process reduces the risk of hospital readmission.

Advance Directives

An act relating to hospital discharge planning with lay caregivers.

Statute specifies offering "an opportunity for the patient to designate a lay caregiver." This Washington state statute specifies offering the opportunity to the patient to designate a lay caregiver. Tools include contact information, necessary aftercare tasks, participation in discharge planning, instructions or training provided to the patient including medication management. Designated lay caregiver should be notified of patient's discharge or transfer.

Designated lay caregiver is a family member, legal guardian, friend, or other trusted individual designated to be involved in discharge planning and post discharge care. Lay caregivers are responsible for communicating care needs with hospital staff, understanding the medications, treatments, and follow-up care provided to the patient. The care plan should outline the expectations for the caregiver and the hospital staff.

There are several tools available to support the role of the caregiver, including:

- A designated lay caregiver should be notified of the patient's discharge or transfer.
- The patient's discharge summary should include information about the caregiver, including contact information for the caregiver, instructions or training provided to the caregiver, and the aftercare tasks to be performed.
- The hospital staff should provide education to the caregiver about the patient's medical condition, medications, treatments, and follow-up care.
- The patient's medical record should include documentation of the caregiver's involvement in discharge planning.

Facts for Surgery, Cardiopulmonary Fitness


This guideline is intended to provide recommendations for patients undergoing noncardiac surgery who have a cardiovascular disease. It is based on the ACC/AHA guidelines and provides evidence-based recommendations for patients with a history of cardiovascular disease. The guideline includes sections on preoperative assessment, perioperative management, and postoperative care. It also provides suggestions for the management of specific cardiovascular conditions, such as hypertension, hyperlipidemia, and diabetes.

The guideline is intended to provide a comprehensive approach to the management of cardiovascular disease in the perioperative setting. It is designed to help healthcare providers make informed decisions about the care of patients undergoing noncardiac surgery, taking into account the patient's medical history, current condition, and the potential risks and benefits of different interventions. The guideline is intended to be used in conjunction with other clinical guidelines and patient preferences to develop a personalized care plan for each patient.
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 of a universal prescreening program for the preoperative detection and eradication of both methillin-resistant and methillin-sensitive Staphylococcus aureus nasal carriers among 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 soaps 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, 7019 patients underwent preoperative screening for surgical site infection, for a successful screening rate of 95.1%. Only 115 (1.6%) positive nasal cultures were identified. No difference in incidence of surgical site infection was noted during the study period, for an institutional infection rate of 1.0%. This was significantly lower than that observed during the control period (4.0%, twenty-four cases of surgical site infection among 617 patients) (P < .0001). CONCLUSIONS: Implementation of an institution-wide prescreening program for the identification and eradication of methillin-resistant and methillin-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 II. See Instructions to Authors for a complete description of levels of evidence.

The purpose of this study was to compare nasal povidone-iodine swab for total joint arthroplasty (TJA) with 3- to 5-day follow-up and 2 controls. Concurrent controls (n = 2384) were patients of participating surgeons who underwent TJA the previous year. Prior to intervention, nasal screening was performed among all patients in the event that a nasal swab was positive for S. aureus. After intervention, S. aureus nasal carriers (323/1285 [25%]) used intranasal mupirocin and chlorhexidine baths as outpatient. Staphylococcus S5a was obtained from 30% (151) of the participants who underwent TJA the previous year. In control patients, 33% (118) of the participants who underwent TJA the previous year had positive S. aureus nasal cultures. In intervention patients, 10% (11) of participants had positive S. aureus nasal cultures. Overall S. aureus nasal cultures decreased from 3.1% (33/118) in controls to 1.0% (11/1180) in intervention patients. In-hospital mortality between the two groups. The time to the onset of nosocomial infection was shorter in the placebo group than in the intervention group (P = .012). The effect of mupirocin-chlorhexidine treatment was most pronounced for deep surgical-site infections (relative risk, 0.21; 95% CI, 0.10 to 0.47). 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 intervention group than in the control group (P = .006). CONCLUSION: The number of surgical-site S. aureus infections acquired in the hospital can be reduced by rapid screening and decontamination of nasal carriers of S. aureus on admission. (Current Controlled Trials number, ISRCTN56186788.)

We quantified surgical site infections (SSI) after preoperative screening/selective decolonization before elective total joint arthroplasty (TJA) with 3- to 5-day follow-up and 2 controls. Concurrent controls (n = 2384) were patients of participating surgeons who underwent TJA the previous year. Prior to intervention, nasal screening was performed among all patients in the event that a nasal swab was positive for S. aureus. After intervention, S. aureus nasal carriers (323/1285 [25%]) used intranasal mupirocin and chlorhexidine baths as outpatient. Staphylococcus S5a was obtained from 30% (151) of the participants who underwent TJA the previous year. In control patients, 33% (118) of the participants who underwent TJA the previous year had positive S. aureus nasal cultures. In intervention patients, 10% (11) of participants had positive S. aureus nasal cultures. Overall S. aureus nasal cultures decreased from 3.1% (33/118) in controls to 1.0% (11/1180) in intervention patients. (P = .001). Preoperative screening/selective decontamination was associated with fewer SSIs after elective TJA.

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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 (few: <25 total knee arthroplasty per year; high: >40 to >75 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 (0.20% - 2.8% higher), procedure time (145 min versus 125 min), longer length of stay (0.4 - 2.1 days longer), transfusion rate (13% versus 4%), and worse patient reported outcomes. CONCLUSIONS: Findings suggest a trend towards better outcomes for higher volume surgeons, but results must be interpreted with caution.

Cycle 3: Surgical Repair of the Osteoarthritic Joint

1

2

3

4

Professional society guideline related to surgical management of osteoarthritis
of the knee.

Recommendations relate primarily to specifics of surgery.


General Surgical Guidelines


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Surgical Management of Osteoarthritis of the Knee: Evidence-based Guideline is based on a systematic review of the current scientific and clinical research. The guideline contains 38 recommendations pertaining to the preoperative, perioperative, and postoperative care of patients with osteoarthritis (OA) of the knee who are considering surgical treatment. The purpose of this clinical practice guideline is to help improve surgical management of patients with OA of the knee based on current best evidence. In addition to guideline recommendations, the work group highlighted the need for better research on the surgical management of OA of the knee.
BACKGROUND: Increasing evidence supports the finding that patients undergoing a total knee arthroplasty with high-volume physicians and hospitals achieve better outcomes. Unfortunately, the existing definitions for high-volume surgeons and hospitals are highly variable and entirely arbitrary. The aim of this study was to identify a set of meaningful hospital and surgeon total knee arthroplasty volume thresholds.

METHODS: Using 289,076 patients undergoing primary total knee arthroplasty from an administrative database, we applied stratum-specific likelihood ratio (SSLR) analysis of a receiver operating characteristic (ROC) curve to generate sets of volume thresholds most predictive of adverse outcomes. The outcomes considered for surgeon volume included 90-day complication and 2-year revision. For hospital volume, we considered 30-day complications and 90-day mortality.

RESULTS: SSLR analysis of the ROC curves for 90-day complication and 2-year revision rates by surgeon volume identified four volume categories: 0 to 12, 13 to 59, 60 to 145, and ≥146 total knee arthroplasties per year. Complication rates decreased significantly (p < 0.05) in progressively higher-volume categories. Revision rates followed a similar pattern, but did not decrease between surgeons performing 60 to 145 arthroplasties per year and those performing ≥146 arthroplasties per year. SSLR analysis of 90-day complication and 90-day mortality rates by hospital volume also identified four volume categories: 0 to 90, 90 to 235, 236 to 644, and ≥645 total knee arthroplasties per year. Complication rates decreased significantly (p < 0.05) in progressively higher-volume categories, but the rates did not decrease between hospitals performing 236 to 644 arthroplasties per year and those performing ≥645 arthroplasties per year. Mortality rates for hospitals with ≥645 total knee arthroplasties per year were significantly lower (p < 0.05) than those below the threshold.

CONCLUSION: A relation between provider volume and outcome of total knee replacement has not been demonstrated in Canada. Given the recent increase in THR, changing patient characteristics and small size of previous Ontario studies, we reassessed whether adverse outcomes of THR are related to hospital and surgeon procedure volumes.

METHODS: We included all Ontarians aged 20 years and older who underwent a unilateral elective primary total hip replacement (THR) or total knee replacement (TKR) between April 2000 and March 2004. The main data sources were hospital discharge abstract and physician billing records. We defined provider volume as the average annual number of primary and revision procedures performed by hospitals and surgeons during the study period. We assessed the association between procedure volumes and outcomes of hospital day LOS and between volume and rates of surgical complications during the index admission; death within 90 days of operation; readmission for amputation; failure or revision within 1 year; and revision arthroplasty within 1 year. We adjusted for age, sex, comorbidity, arthritis type, teaching hospital status and discharge disposition. The analyses of hospital volume were adjusted for surgeon volume and vice versa.

RESULTS: We included 20,290 patients who received THR and 27,217 who received TKR. Patient age, sex and comorbidity were significant predictors of complications and mortality. There were no associations between provider volume and mortality. Findings for other outcomes were mixed. Surgeon procedure volume was related to rates of revision THR but not to rates of revision TKR. Shorter LOS was associated with male sex, younger age. Fewer comorbidities, discharge to a rehabilitation unit or facility and greater surgeon volume. Patients with higher complication rates within 30 days after THR and TKR and death within 90 days after THR and TKR had significantly higher volume across the entire study period. The corresponding cut-points for TKR were: 2–35, 36–40, 41–45, 46–50, 51–70 and 71 or more procedures per annum. Authors calculated "little consistent evidence for an important relation between provider volumes and early outcomes of elective primary THR and TKR. The corresponding cut points for THR were: 2–10, 11–25, 26–59, 60–110, 111–150, 151–225, >225 and ≥250 total knee arthroplasties per year. SSLR analysis of 90-day complication and 90-day mortality rates by hospital volume also identified four volume categories: 0 to 90, 90 to 235, 236 to 644, and ≥645 total knee arthroplasties per year. Complication rates decreased significantly (p < 0.05) in progressively higher-volume categories. Mortality rates for hospitals with ≥645 total knee arthroplasties per year were significantly lower (p < 0.05) than those below the threshold. This supports the conclusion that surgeon and hospital volume are associated with lower rates of complications.
BACKGROUND: The Center for Medicare and Medicaid Services (CMS) is transitioning Medicare from a fee-for-service program into a value-based pay-for-performance program. In order to accomplish this goal, CMS initiated 3 programs that attempt to define quality and seek to reward high-performing hospitals and penalize poor-performing hospitals. These programs include (1) penalties for hospital-acquired conditions (HACs), (2) penalties for excess readmissions for certain conditions, and (3) performance on value-based purchasing (VBP). The objective of this study was to determine whether high-volume total joint hospitals perform better in these programs than their lower-volume counterparts.

METHODS: We analyzed data from the New York Statewide Planning and Research Cooperative System database on total New York State hospital discharges from 2013 to 2015 for total knee and total hip arthroplasties. This was compared to data from Hospital Compare on HACs, excess readmissions, and VBP. From these databases, we identified 123 hospitals in New York, which participated in all 3 Medicare pay-for-performance programs and performed total joint replacements.

RESULTS: Over the 3 year period spanning 2013-2015, hospitals in New York State performed an average of 13,365.9 total joint replacement surgeries and achieved a mean readmission penalty of 0.000909. The correlation coefficient between surgery volume and combined performance score was 0.277. Of these correlations, surgery volume and VBP performance, and surgery volume and combined performance showed statistical significance (F < 0.001).

CONCLUSION: Our study demonstrates that there is a positive association between joint replacement volumes and overall hospital quality, as well as joint volume replacements and VBP performance, specifically. These findings are consistent with previously reported associations between patient outcomes and procedure volumes. However, a relationship between joint replacement volume and HAC scores or readmission penalties could not be demonstrated.

Three large hospital systems (University of Michigan Hospitals, Dartmouth-Hitchcock, Johns Hopkins) have told U.S. News they plan to impose minimums on themselves on total hip and total knee:  Hospital minimum 50; physician minimum 25. In May, the Centers for Medicare and Medicaid Services (CMS) issued a call for comments on its value-based purchasing (VBP) program, which aims to reward high-performing hospitals and penalize poor-performing ones. The CMS has identified 123 hospitals in New York, which participated in all 3 Medicare pay-for-performance programs and performed total joint replacements. Over the 3 year period spanning 2013-2015, these hospitals performed an average of 13,365.9 total joint replacement surgeries and achieved a mean readmission penalty of 0.000909. The correlation coefficient between surgery volume and combined performance score was 0.277. Of these correlations, surgery volume and VBP performance, and surgery volume and combined performance showed statistical significance (F < 0.001).

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OBJECTIVE: To examine the association between surgical start time and morbidity and mortality for nonemergency procedures. SUMMARY BACKGROUND DATA: Patients require medical services 24 hours a day. Several studies have demonstrated a difference in 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 14,740 nonemergency general and vascular surgical procedures performed within the VA Medical System 2000-2004 and entered into the National Surgical Quality Improvement Program Database. Operation start time was the independent variable of interest. Logistic regression was used to adjust for patient and procedural characteristics and to determine the association between start time and, in 2 independent models, mortality and morbidity. RESULTS: Unadjusted later start time was significantly associated with higher surgical mortality and morbidity. After adjustment for patient and procedure characteristics, mortality was not significantly associated with start time. However, after appropriate adjustment, operations starting between 4 pm and 6 pm were associated with an elevated risk of morbidity (OR = 1.23, P = 0.035) over those starting between 7 pm and 4 am as were operations starting between 6 pm and 11 pm (OR = 1.68, P = 0.04). CONCLUSIONS: When considering a nonemergency program, surgeons must be in mind that cases that start after routine "business" hours within the VAM system may face an elevated risk of complications that warrants further evaluation.

BACKGROUND: Surgical care is delivered around the clock. Elective cases within the VAM system reflect the effects of day, evening, night, and weekend surgery, which is most likely related to patient and procedural risks. The relationship between operation start time and patient outcomes in elective cases is not described in private-sector hospitals or for emergency cases. STUDY DESIGN: We performed a retrospective cohort study of 56,630 general and vascular surgical procedures performed from October 2001 through September 2004, and entered into the National Surgical Quality Improvement Program database. Operation start time was the independent variable of interest. Random-effects, hierarchical logistic regression models adjusted for patient, operation, and facility characteristics. Two independent models determined associations between start time and mortality or morbidity. Subset analysis was performed for emergency and nonemergency cases. RESULTS: After adjustment for patient and procedural characteristics, mortality had a moderately strong association with start time, but only the nonemergency cases starting between 9:30 am to 7:30 pm (OR = 1.75, p = 0.028, reference 7:30 am to 6:30 pm) influenced morbidity. More morbidly appeared to be associated with a later surgery start time, but those starting 9:30 am to 7:30 pm demonstrated a strong effect on morbidity (OR = 3.02, p = 0.0001). Subgroup analysis showed this effect was largely a result of elevated risk of morbidity in emergency cases from the overnight period (OR = 1.48, p = 0.001). CONCLUSIONS: Surgical start times are associated with risk-adjusted patient outcomes. In terms of facility operations management and resource allocation, consideration should be given to the capacity to accommodate cases with differences in risk during different time periods.

BACKGROUND: There is growing support in the literature that patient outcomes are adversely affected by physician fatigue in operator-dependent cognitive and technical tasks. Recent increases in total joint arthroplasty caseloads have resulted in longer operative days and operating rooms. The relationship between start time and patient outcomes is yet undefined. METHODS: We performed a retrospective cohort study of 144,740 nonemergent general and vascular surgical procedures performed within the VA Medical System 2000-2004 and entered into the National Surgical Quality Improvement Program Database. Operation start time was the independent variable of interest. Logistic regression was used to adjust for patient and procedure characteristics. RESULTS: The risk of postoperative complications was significantly related to the time of surgery: patients operated upon after 7:30 am were at increased risk of complications that warrants further evaluation.

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American College of Surgeons Statements on Principles. Section D - The Operation: Interoperative Responsibility of the Primary Surgeon: Concurrent Simultaneous Operations and Overlapping Operations

Concurrent or Simultaneous Operations: Concurrent or simultaneous operations occur when the critical or key components of the procedure for which the primary attending surgeon is responsible are occurring all or in part at the same time. The critical or key components of an operation are determined by the primary attending surgeon. A primary attending surgeon’s involvement in concurrent or simultaneous surgeries on two or more patients in two different rooms is inappropriate.

Overlapping Operations: Overlap of two distinct operations by the primary attending surgeon occurs in two general circumstances. The first and most common scenario is when the key or critical elements of the first operation have been completed, and there is no reasonable expectation that the primary attending surgeon will need to return to that operation. In this circumstance, a second operation is started in another operating room while a qualified practitioner performs noncritical components of the first operation—for example, wound closure—allowing the primary surgeon to initiate the second operation. In this situation, a qualified practitioner must be actively present in the operating room of the first operation. The second and less common scenario is when the key or critical elements of the first operation have been completed and the primary attending surgeon is performing key or critical portions of a second operation in another room. In this scenario, the primary attending surgeon must assign immediate availability in the first operating room to another attending surgeon.

The patient needs to be informed in either of these circumstances. The performance of overlapping procedures should not negatively affect the safety and timely flow of either procedure.

Professional society guidelines on overlapping surgery and concurrent surgery. Overlapping surgery should not occur at the patient’s request. The primary attending surgeon should be present for critical components of the operation.

Supports use of saphenous nerve block to reduce pain without interfering with the motor blockade.

Supports the use of adductor nerve block to improve post-operative function.

supports the policy that the primary attending surgeon should be present for critical components of the operation.

Supports the use of saphenous nerve block to reduce pain with or without interfering with the motor blockade.

Supports use of ultrasound-guided nerve block to reduce pain without interfering with early mobilization.

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

Uses of ultrasound-guided nerve block to reduce pain without interfering with early mobilization.

Uses of ultrasound-guided nerve block to reduce pain without interfering with early mobilization.

June 13, 2017
BACKGROUND: Adductor canal blocks have shown promise in reducing postoperative pain in total knee arthroplasty patients. No randomized controlled trials evaluating the opioid-sparing benefits of a continuous 0.2% ropivacaine adductor canal block for primary total knee arthroplasty in the outpatient setting have been published. We hypothesized that a continuous adductor canal block would decrease postoperative opioid consumption. METHODS: Eighty subjects were randomized to receive either a single-shot or a continuous adductor canal block with 0.2% ropivacaine on the surgical side. All subjects received a preservative-free single-injection femoral nerve block with spinal anesthesia as standard of care at our institution. Cumulative postoperative morphine consumption within 48 hours after surgery was evaluated with analysis of covariance, adjusted for baseline characteristics. Secondary outcomes included mean pain scores (numeric rating scale), peak pain scores during physical therapy on postoperative days 1 and 2, quadriceps maximum voluntary contraction, distance ambulated during physical therapy, postoperative nausea and vomiting, and satisfaction with strategy. RESULTS: Eighty subjects were randomized, and 76 completed the study per-protocol. The least-square mean difference in cumulative morphine consumption over 48 hours (block - sham) was 16.60 mg (95% confidence interval: -29.78 to -3.93; P = 0.013). Total morphine use within 24 and 48 hours (after predicted femoral nerve block resolution) also differed by least-square mean -111.7 mg (95% confidence interval: -193.9 to -22.4; P = 0.013). Intent-to-treat analysis was similar to the per-protocol results. Functional outcomes revealed subjects in the adductor canal block group had better quadriceps strength (P = 0.031) and further distance ambulated (P = 0.046 on postoperative day 2). CONCLUSIONS: A continuous adductor canal block is effective in reducing postoperative opioid consumption compared with that of placebo in the first 48 hours after surgery. Other outcomes including quadriceps strength, distance ambulated, and pain scores all show benefit from an adductor canal catheter after total knee arthroplasty but require further study before being concluded as evidence-based.

In conclusion, the study supports the use of adductor canal blocks in reducing postoperative pain following total knee arthroplasty. This approach offers advantages in terms of reduced opioid consumption and improved patient outcomes. Further research is needed to establish its efficacy and optimal use in various clinical settings.
Tranexamic acid


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 ation. 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 < 0.02). Moreover, the use of tranexamic acid reduces the costs associated with surgery. CONCLUSIONS: The administration of 5 gram of intravenous tranexamic acid is a safe and effective means of reducing operative blood loss and transfusion rates in patients undergoing hip and knee replacements.

Tranexamic acid

Panchmatia JR, Chegini S, Lobban D, Shah G, Stapleton C, Smallman JM, Ho KM, Ismail H. Use of intravenous tranexamic acid to reduce allogeneic blood 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 ation. 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 < 0.02). Moreover, the use of tranexamic acid reduces the costs associated with surgery. CONCLUSIONS: The administration of 5 gram of intravenous tranexamic acid is a safe and effective means of reducing operative blood loss and transfusion rates in patients undergoing hip and knee replacements.

Tranexamic acid

Table 2: Meta-analysis of 12 clinical trials

<table>
<thead>
<tr>
<th>Study</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Hallstrom et al.</td>
<td>Supports use of tranexamic acid to reduce surgical blood loss.</td>
</tr>
<tr>
<td>Panchmatia et al.</td>
<td>Supports use of tranexamic acid to decrease transfusions and blood loss without increasing thromboembolic complications.</td>
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Note: The table above summarizes the findings of the meta-analysis. The study favors the use of TXA in total joint replacement. Study shows the efficacy of tranexamic acid in reducing blood loss and transfusion requirements in total hip and knee arthroplasty.


METHODS: We retrospectively reviewed the records on 1179 consecutive total joint arthroplasty patients who received warfarin sodium prophylaxis after total hip arthroplasty and 2100 consecutive total joint arthroplasty patients who received warfarin sodium prophylaxis after total knee arthroplasty. Patients were assigned to one of two thromboprophylaxis regimens on the basis of an assessment of their bleeding risk and their risk for venous thromboembolism. The thromboprophylaxis regimen that protects patients from thromboembolism while minimizing bleeding complications was determined. The absolute difference in the incidence of thromboembolic complications between the groups was compared with the use of the two one-sided test procedure. The absolute difference in the incidence of symptomatic and fatal events was 4.57% (95% confidence interval [CI], 1.15-7.99). The relative risk of venous thromboembolism developing in control patients, compared with patients assigned to extended thromboprophylaxis was 9.4 (95% CI, 1.2-73.5). The number needed to treat was 22. Major bleeding developed in 1 patient who was randomized to the extended thromboprophylaxis group (0.5%), 5 (0.3%) in the control group. CONCLUSION: Extending prophylaxis with warfarin for a few more weeks beyond the hospital stay has the potential to considerably improve the outcome of patients who undergo hip arthroplasty.

METHODS: Consecutive patients who had received warfarin sodium prophylaxis after total hip arthroplasty were randomized to stop taking the drug at the time of hospital discharge or to continue taking it for 4 more weeks. The rate of symptomatic and asymptomatic venous thromboembolic events (as shown by compression ultrasonography of the proximal veins or by a rise in the preoperative venous-occlusion pressure) occurring during the study period was compared between the groups. The study was prematurely terminated after the inclusion of the first 184 patients because a statistically significant and clinically relevant superiority of extended over short-term thromboprophylaxis was observed. RESULTS: Objectively confirmed venous thromboembolic complications were recorded in 10 patients (5.1%) in the group of 176 control patients, and 1 (0.5%) in the group of 184 patients who continued the warfarin treatment. The absolute difference in the incidence of events was 4.6% (95% confidence interval [CI], 1.1-7.9). The relative risk of venous thromboembolism developing in control patients, compared with patients assigned to extended thromboprophylaxis was 9.4 (95% CI, 1.2-73.5). The number needed to treat was 22. Major bleeding developed in 1 patient who was randomized to the extended thromboprophylaxis group (0.5%), 5 (0.3%) in the control group. CONCLUSION: Extending prophylaxis with warfarin for a few more weeks beyond the hospital stay has the potential to considerably improve the outcome of patients who undergo hip arthroplasty.

METHODS: We randomly assigned prophylaxis replacement with either continued warfarin or graduated mechanical thromboprophylaxis (Grade 1B). For patients with isolated lower-extremity injuries requiring leg immobilization, we suggest no prophylaxis (Grade 2B). For patients undergoing knee arthroplasty without a history of VTE, we suggest no thromboprophylaxis (Grade 2B). CONCLUSION: Optimal strategies for thromboprophylaxis after major orthopedic surgery include pharmacologic and mechanical approaches.

METHODS: Consecutive patients who had received warfarin sodium prophylaxis after total hip arthroplasty and 2100 consecutive total joint arthroplasty patients who received warfarin sodium prophylaxis after total knee arthroplasty. Patients were assigned to one of two thromboprophylaxis regimens on the basis of an assessment of their bleeding risk and their risk for venous thromboembolism. The thromboprophylaxis regimen that protects patients from thromboembolism while minimizing bleeding complications was determined. The absolute difference in the incidence of thromboembolic complications between the groups was compared with the use of the two one-sided test procedure. The absolute difference in the incidence of symptomatic and fatal events was 4.57% (95% confidence interval [CI], 1.15-7.99). The relative risk of venous thromboembolism developing in control patients, compared with patients assigned to extended thromboprophylaxis was 9.4 (95% CI, 1.2-73.5). The number needed to treat was 22. Major bleeding developed in 1 patient who was randomized to the extended thromboprophylaxis group (0.5%), 5 (0.3%) in the control group. CONCLUSION: Extending prophylaxis with warfarin for a few more weeks beyond the hospital stay has the potential to considerably improve the outcome of patients who undergo hip arthroplasty.

METHODS: We retrospectively reviewed the records on 1179 consecutive total joint arthroplasty patients who received warfarin sodium prophylaxis after total hip arthroplasty and 2100 consecutive total joint arthroplasty patients who received warfarin sodium prophylaxis after total knee arthroplasty. Patients were assigned to one of two thromboprophylaxis regimens on the basis of an assessment of their bleeding risk and their risk for venous thromboembolism. The thromboprophylaxis regimen that protects patients from thromboembolism while minimizing bleeding complications was determined. The absolute difference in the incidence of thromboembolic complications between the groups was compared with the use of the two one-sided test procedure. The absolute difference in the incidence of symptomatic and fatal events was 4.57% (95% confidence interval [CI], 1.15-7.99). The relative risk of venous thromboembolism developing in control patients, compared with patients assigned to extended thromboprophylaxis was 9.4 (95% CI, 1.2-73.5). The number needed to treat was 22. Major bleeding developed in 1 patient who was randomized to the extended thromboprophylaxis group (0.5%), 5 (0.3%) in the control group. CONCLUSION: Extending prophylaxis with warfarin for a few more weeks beyond the hospital stay has the potential to considerably improve the outcome of patients who undergo hip arthroplasty.

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Anticoagulation

Bohl DD, Maltenfort MG, Huang R, Parvizi J, Lieberman JR, Della Valle CJ.

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INTRODUCTION: Stratification of patients into different risk categories for pulmonary embolism (PE) after total joint arthroplasty (TJA) may allow clinicians to individualize prophylaxis versus thrombembolism based on a specific risk-benefit scale. METHODS: Patients undergoing primary total hip arthroplasty (THA) or total knee arthroplasty (TKA) as part of the American College of Surgeons National Surgical Quality Improvement Program were identified. Independent risk factors for PE within 30 days of surgery were identified and used to develop a point-scoring system to estimate the relative risk for PE. For validation, the system was tested on patients undergoing TJA at a single institution. RESULTS: A total of 118,473 patients were identified, including 71,873 (60.7%) undergoing THA and 46,590 (39.3%) undergoing TKA. The incidence of PE within 30 days of the index arthroplasty was 0.5%. The risk factors associated with PE were age >70 years, female gender, higher body mass index (>25-30 kg/m2) and ≥30 kg/m2), and TKA. CONCLUSION: The point scores derived for each of these factors were as follows: anemic (-2); female -1; body mass index 25-30 kg/m2 (+2); body mass index ≥30 kg/m2 (+4); age >70 years +4; THA -4. The point-scoring system was then applied to 17,384 patients from a single institution. Single-institution patients categorized at low risk using the point-scoring system had a 0.46%-0.80% risk for PE (0.5%-0.80% medium risk, 1.1%-1.8% high risk). For each additional point, the risk increased by 0.5%-1.0%. The point-scoring system predicts risk for PE after TJA and may help surgeons to optimize selection of prophylactic therapy.

Authors applied a multivariate analysis to the NSQIP registry to estimate risk of thromboembolic event using patient characteristics and surgical factors. Some patients lost to follow up. When applied to patients in a single institution, the authors noted a differential trend between risk groups.

Supports the conclusion that risk stratification can be used to predict risk in patients undergoing arthroplasty.

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Background: Venous thromboembolism (VTE) after total joint arthroplasty (TJA) is a potentially fatal complication. Currently, a standard protocol for postoperative VTE prophylaxis is used that makes little distinction between patients at varying risks of VTE. We sought to develop a simple scoring system to individualize VTE prophylaxis in patients at higher risk for VTE in whom more potent anticoagulation may need to be administered.

METHODS: Utilizing the National Inpatient Sample Database, 1,711,865 patients undergoing TJA were identified, among whom 15,775 (0.9%) developed VTE after index arthroplasty. Among the cohort, all known potential risk factors for VTE were assessed. An initial logistic regression model was developed and a risk stratification system was created. The risk stratification system was validated on a separate cohort of patients.

CONCLUSION: We believe individualization of VTE prophylaxis after TJA can improve the efficacy of preventing VTE while removing unwarranted risk associated with anticoagulation.

Author used a logistic regression model updated to the National Inpatient Sample data registry to develop predictions of VTE in patients undergoing total joint arthroplasty. The authors noted no differences in accuracy of VTE but favored episodes of major bleeding. Major bleeding included hematomas or sepsis without further definition. Rehospitalizations for complications attributable to anticoagulation therapy were noted in the two groups.

Study has some limitations but suggests that proportion of patients undergoing anticoagulation can be safely treated with less aggressive prophylaxis.

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This study's purpose was to present the use of a risk stratification protocol for postoperative VTE prophylaxis in patients with "routine" risk factors (age ≥70 years or female gender) and "high risk" patients (either those with a prior history of VTE or those who are "medically/technically contra-indicated" for postoperative VTE prophylaxis).

Methods: A risk-stratified multi-modal VTE prophylaxis protocol was developed using a simple scoring system for postoperative VTE prophylaxis in patients undergoing TJA. The risk stratification system was validated on a separate cohort of patients.

CONCLUSION: We believe individualization of VTE prophylaxis after TJA can improve the efficacy of preventing VTE while removing unwarranted risk associated with anticoagulation.

Authors applied a multivariate analysis to the NSQIP registry to estimate risk of thromboembolic event using patient characteristics and surgical factors. Some patients lost to follow up. When applied to patients in a single institution, the authors noted a differential trend between risk groups.

Supports the conclusion that risk stratification can be used to predict risk in patients undergoing arthroplasty.

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Parvizi J, Rosen MA, Brown J, Della Valle CJ. Optimizing versus thrombembolism prophylaxis after total joint arthroplasty: a risk stratified multi-modal VTE prophylaxis protocol reduces 30 day all cause re-admissions and 90 day VTE events.

Methods: A risk stratified multi-modal VTE prophylaxis protocol was developed and adopted by consensus. VTE risk factors and bleeding risk were assessed. An initial logistic regression model was developed and a risk stratification system was created. The risk stratification system was validated on a separate cohort of patients.

CONCLUSION: We believe individualization of VTE prophylaxis after TJA can improve the efficacy of preventing VTE while removing unwarranted risk associated with anticoagulation.

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Supports the conclusion that risk stratification can be used to predict risk in patients undergoing arthroplasty.

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June 13, 2017
6 / 8 / 5 Glycemic Control


OBJECTIVE: Evaluate the association of perioperative hyperglycemia and postoperative infections (POG) in patients who had undergone general surgery.

BACKGROUND: Intensive glucose control leads to less postoperative infections (POG) in critically ill surgical patients, but the relationship of hyperglycemia and POG in a general surgical population remains unknown.

METHODS: A retrospective study of 885 patients who had undergone general and vascular surgery investigated the association of perioperative acute hyperglycemia and risk of 30-day POG over a 12-month period. The primary predictor of interest was postoperative glucose (POG). Bivariate analyses determined the association of each independent variable with POG. Factors significant at \( P \leq 0.05 \) were used in multivariable logistic regression models.

RESULTS: In bivariate analysis, preoperative blood glucose (\( P = 0.023 \)), POG (\( P = 0.019 \)), age (\( P = 0.032 \)), diabetes (\( P = 0.04 \)), American Society of Anesthesiology Classification (ASA) (\( P = 0.001 \)), operation length (\( P = 0.02 \)), and blood transfusions (\( P < 0.01 \)) were significant predictors of POG. In multivariate analyses, only POG (OR = 1.3, [1.03-1.64]), ASA (OR = 1.9, [1.29-2.82]), and emergency status (OR = 2.2, [1.29-3.80]) remained significant predictors of POG. Postoperative hyperglycemia increased the risk of POG by 30\% with every 40 point increase from normoglycemia (<110 mg/dL). Longer hospitalization was also observed for patients with POG from 110 mg/dL (OR = 1.4, [1.1-1.7]) and 200 mg/dL (OR = 1.9, [1.4-2.6]).

CONCLUSION: The increased risk of POG and length of hospitalization posed by postoperative hyperglycemia is independent of diabetic status and needs further evaluation to assess for possible benefits of glycemic control in patients who have undergone general surgery.

6 / 8 / 5 Glycemic Control


METHODS: Although multiple studies have cited diabetes mellitus as a risk factor decreased functional outcomes, increased infectious complications, and overall increased readmission rate following degenerative lumbar spinal surgery, few have investigated how perioperative glycemic control influences such complications.

PURPOSE: The primary goal of the present study was to use a national database to evaluate the association of perioperative glycemic control as demonstrated by hemoglobin A1c levels in patients with diabetes undergoing primary, single level decompression without concurrent fusion with the incidence of deep postoperative infection requiring operative intervention and debridement. Our secondary objective was to calculate a threshold level of HbA1c above which the risk of postoperative infection after lumbar decompression increases significantly in patients with diabetes.

STUDY DESIGN/SETTING: Retrospective case control database study, Level II Evidence PATIENT SAMPLE: This study comprised private-payer patients with diabetes mellitus undergoing single level lumbar decompression with a hemoglobin A1c lab value recorded in the database within 3 months before or after their surgical date. Study included all patients with diabetes mellitus undergoing primary, single-level lumbar decompression surgery. Study relates elevation in hemoglobin A1c to risk of postoperative deep infection.

OUTCOME MEASURES: The outcome examined in this study was deep infection following primary single level lumbar decompression requiring surgical intervention. Postoperative infection within one year of the index primary single level lumbar decompression was assessed using Current Procedural Terminology procedure codes and International Classification of Diseases, 9th Revision diagnostic codes.

METHODS: The Humana private-payer dataset from the PearlDiver database was used for this study. The database was queried for patients with diabetes mellitus undergoing primary, single level lumbar decompression surgery using Current Procedural Terminology codes. Patients with a diagnosis of diabetes mellitus who had an HbA1c level drawn within 3 months before or after their surgical date were then selected to form the study group using International Classification of Diseases, 9th Revision diagnostic codes. Patients were then grouped into groups based on their HbA1c level by increments of 0.5 mg/dL. The incidence of deep infection requiring operative intervention within 1 year for each HbA1c group was determined.

RESULTS: In bivariate analyses, preoperative blood glucose (\( P = 0.012 \)), POG (\( P = 0.033 \)), age (\( P = 0.012 \)), diabetes (\( P = 0.04 \)), American Society of Anesthesia Classification (ASA) (\( P = 0.001 \)), operation length (\( P = 0.02 \)), and blood transfusions (\( P < 0.01 \)) were significant predictors of POG. In multivariate analyses, only POG (OR = 1.3, [1.03-1.64]), ASA (OR = 1.9, [1.29-2.82]), and emergency status (OR = 2.2, [1.29-3.80]) remained significant predictors of POG. Postoperative hyperglycemia increased the risk of POG by 30\% with every 40 point increase from normoglycemia (<110 mg/dL). Longer hospitalization was also observed for patients with POG from 110 mg/dL (OR = 1.4, [1.1-1.7]) and 200 mg/dL (OR = 1.9, [1.4-2.6]).

CONCLUSION: The increased risk of POG and length of hospitalization posed by postoperative hyperglycemia is independent of diabetic status and needs further evaluation to assess for possible benefits of glycemic control in patients who have undergone general surgery.

6 / 8 / 5 Glycemic Control


Retrospective cohort study of patients undergoing general and vascular surgery relating perioperative hyperglycemia with postoperative infection. A multivariate analysis indicated postoperative glucose, ASA classification and emergency status were predictors of postoperative infection. Study did not involve non-emergency, orthopedic surgeries.

Identifies correlation between perioperative glucose and postoperative infections.
Cycle 4 Post-operative Care and Return to Function

218 NV Discharge Process

Research shows that 20 percent of patients in the U.S. are rehospitalized within 30 days of discharge. Although some patients are readmitted for medical reasons, many of the patients are readmitted for social, economic, or system-related issues, and for medical issues. Effective strategies to reduce readmissions must incorporate both social and medical factors in order to be successful. Poorly executed transitions in care negatively affect the patient’s health and well-being, family resource, and unnecessarily increase the costs incurred by the health care system. WSHA is working with all the health care agencies involved in the continuum of patient care from hospital to home to ensure that patients do not end up back in the hospital.

219 NV Discharge Process

We reviewed 90-day readmission rates for 9150 patients with a primary total hip or knee arthroplasty performed between April 2001 and December 2004. Patients with an American Society of Anesthesiologists score of 3 or greater or with perioperative complications were excluded. We correlated the readmission rate with discharge disposition to either skilled nursing facilities (SNF) or home. 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 data 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 Institute of Health, Lung, and Blood Institute, National Institutes of Health.

220 R/C Surgical implant registry

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 milestones. At ten years, 44.0% of all primary total hip and 24.2% all primary total knee prostheses combinations have greater than 95% survivorship. An entirely new area of analysis for the Registry included in this Report examines the effect of the average number of procedures performed by a surgeon each year on the outcome of both primary total hip and primary total knee replacement. Four groups of surgeons were identified, surgeons averaging 10 or less procedures per year, more than ten but less than or equal to 25, more than 25 but less than or equal to 70 and more than 70. Comparing outcomes of the four groups demonstrated a relationship between the number of procedures a surgeon averages and the subsequent rate of revision. In general, the group of surgeons averaging more than 70 procedures per year have the best outcomes. There is however, a complex interaction between the average number of procedures performed and the prostheses used.

Registry of the Australian Orthopaedic Association.

--> Reflected use and outcomes related to various implants.
Abstract: Both chemical and mechanical methods of prophylaxis have reduced the incidence of thromboembolic complications following total knee replacement. Only a few studies have shown that mobilization on the first post-operative day further reduces the incidence of thromboembolic phenomena. We conducted a prospective study to verify if early mobilization already does, but not whether the distance mobilized on the first post-operative day after THR reduced the incidence of thromboembolic complications. The incidence of deep venous thrombosis and pulmonary embolism were compared in 50 consecutive patients who underwent THR from July 2006 following a change in the mobilization protocol to 50 consecutive patients who underwent THR before the protocol was instigated. The mobilization protocol changed from strict bed rest for the first post-operative day to mobilization on the first post-operative day. Mobilization was defined as sitting out of bed or walking for at least 15-30 min twice a day. The distance mobilized was accurately recorded by the physiotherapists. All patients underwent duplex scans of both lower limbs on the fourth post-operative day. There was a significant reduction in the incidence of thromboembolic complications in the mobilization group (seven in total) compared with the control group (16 in total) (P = 0.001). Furthermore, in the mobilization group the odds of developing a thromboembolic complication was significantly reduced the greater the distance the patient mobilized (10% squared hazard ratio = 0.180, P < 0.001). Early mobilization in the first 24 h after THR is a cheap and effective way to reduce the incidence of post-operative deep-vein thrombosis.

Abstract: To investigate fast-track rehabilitation concept in terms of a measurable effect on the early recovery after total knee arthroplasty (TKA). This was an open, randomized, prospective clinical study, comparing the fast-track rehabilitation pathway with the standard rehabilitation protocol; if study were repeated with similar results, evidence grade would be B. The fast-track rehabilitation patients received a group therapy, early mobilization (same day as surgery), and 1:1 physiotherapy (2 h/day). Patient monitoring occurred over 3 months (1 pre- and 4 post-operative visits). The standard rehabilitation group received individual postoperative care according to the existing protocol, with 1:2 physiotherapy (1 h/day). The cumulative American Knee Score (AKSS) was the primary evaluation variable, used to detect changes in joint function and perception of pain. The secondary evaluation variables were WOMAC index score, analgesic drug consumption, length of stay (LOS), and safety. RESULTS: After TKA, patients in the fast-track rehabilitation group showed enhanced recovery compared with the standard rehabilitation group, as based on the differences between the groups for the cumulative AKSS (P = 0.0001), WOMAC index score (P < 0.0001), reduced intake of concomitant analgesic drugs, reduced LOS (5.75 vs. 12.30 d, P < 0.0001), and lower number of adverse events. CONCLUSION: For TKA, implementation of pathway-controlled fast-track rehabilitation is achievable and beneficial as based on the AKSS and WOMAC score, reduced intake of analgesic drugs, and reduced LOS.

Abstract: We carried out an audit on the result of achieving early walking in total knee replacement after instituting a new rehabilitation protocol; if study were repeated with similar results, evidence grade would be B. The accelerated group were discharged home versus 62% in POD1 group. Our results support the use of an accelerated rehabilitation protocol.

Abstract: Pathway-controlled early recovery program (Joint Care) with standard postoperative rehabilitation care, after THR. Overall, 147 patients had THR (N = 75 standard rehabilitation). The fast-track rehabilitation patients received a group therapy, early mobilization (same day as surgery), and 1:1 physiotherapy (2 h/day). Patient monitoring occurred over 3 months (1 pre- and 4 post-operative visits). The cumulative American Knee Score (AKSS) was the primary evaluation variable, used to detect changes in joint function and perception of pain. The secondary evaluation variables were WOMAC index score, analgesic drug consumption, length of stay (LOS), and safety. RESULTS: After THR, patients in the fast-track rehabilitation group showed enhanced recovery compared with the standard rehabilitation group, as based on the differences between the groups for the cumulative AKSS (P = 0.0001), WOMAC index score (P < 0.0001), reduced intake of concomitant analgesic drugs, reduced LOS (6.75 vs. 13.20 days, P < 0.0001), and lower number of adverse events. CONCLUSION: For THR, implementation of pathway-controlled fast-track rehabilitation is achievable and beneficial as based on the AKSS and WOMAC score, reduced intake of analgesic drugs, and reduced LOS.

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One-to-One Therapy Is Not Superior to Group or Home-Based Therapy After Total Knee Arthroplasty: A Randomized, Superiority Trial. Ko, Victoria; Naylor, Michael; Cameron, Tim; Cameron, Ross. Journal of Bone & Joint Surgery, American Volume (J BONE JOINT SURG (AM)), 2011. p. 125.

Physiotherapy rehabilitation improves hip abductor strength, gait speed and cadence in people who have been discharged from hospital after total hip replacement. Physiotherapist-directed rehabilitation exercises appear to be similarly effective whether they are performed unsupervised at home or supervised by a physiotherapist in an outpatient setting.

Randomised controlled trial comparing individual, group and home-based self-administered physical therapy treatment programs. Beginning two weeks post-surgery, individual and group treatment programs met twice weekly with a physical therapist. The home-monitored treatment program included two physiotherapy sessions at two and four weeks after surgery. Good follow-up with intention to treat analysis. Outcomes were similar for all three treatment groups, although patients in the monitored group reported "the frequency of supervised sessions was insufficient." Only two patients in the home-monitored treatment group required a single additional physical therapist visit each. 8% of patients either didn't complete protocol or were lost to follow-up. Large change of patients excluded, primarily due to inability to comprehend English.

Supports the conclusion that following a home-monitored treatment program can have equivalent outcomes as patients receiving individualized or group physical therapy.

Physiotherapist-directed rehabilitation exercises in the outpatient or home setting improve strength, gait speed and cadence after elective total hip replacement: a systematic review. Coulter, Gintina L; Barwell, Julian M; Newham, Teresa M; Smith, Paul N. Journal of Physiotherapy (J PHYSIOTHER), Dec; 59(6): 239-26.

Meta-analysis of five moderate-quality trials including 214 participants, evaluating benefit of physiotherapy after total hip replacement, as well as the generalizability of similar trials.

--> Physiotherapy rehabilitation improves hip abduction strength, gait speed and cadence in people who have been discharged from hospital after total hip replacement. Physiotherapist-directed rehabilitation exercises appear to be similarly effective whether they are performed unsupervised at home or supervised by a physiotherapist in an outpatient setting.


Total knee arthroplasty is an effective means for relieving the symptoms associated with degenerative arthritis of the knee. Rehabilitation is necessary adjacent to surgery and is important in regaining optimum function. Access to high quality rehabilitation services is not always possible, especially for those who live in rural or remote areas. The aim of this study was to evaluate the equivalence of an Internet-based telerehabilitation program compared with conventional outpatient physical therapy for patients who have had a total knee arthroplasty.

Randomised controlled trial comparing individual, group and home-based self-administered physical therapy technology versus face-to-face physical therapy. Results showed equivalence of these two formats. Each format included a weekly 45-minute visit with a physical therapist, either face-to-face or telephone-based. All patients were instructed to exercise twice daily. Therapy was initiated for all patients approximately one week after discharge. Patient satisfaction was greater in the telemedicine group. Telemedicine care occurred in a hospital-based simulated "home" environment for this study.

--> Supports the conclusion that application of telemedicine technology produces equivalent results to face-to-face physical therapy following knee arthroplasty.

BACKGROUND: Physiotherapy has long been a routine component of patient rehabilitation following hip joint replacement. The purpose of this systematic review was to evaluate the effectiveness of physiotherapy exercise after discharge from hospital on function, walking, range of motion, quality of life and muscle strength, for osteoarthritic patients following elective primary total hip arthroplasty.


SELECTION: Trials comparing physiotherapy exercise versus usual/standard care, or comparing two types of relevant exercise physiotherapy, following discharge from hospital after elective primary total hip replacement for osteoarthritis were reviewed.

OUTCOMES: Functional activities of daily living, walking, quality of life, muscle strength and range of hip joint motion. Trial quality was extensively evaluated. Narrative synthesis plus meta-analytic summaries were performed to summarise the data. RESULTS: Eight trials were identified. Trial quality was mixed. Generally poor trial quality, quantity and diversity prevented explanatory meta-analysis. The results were synthesised and meta-analytic summaries were used where possible to provide a formal summary of results. Results indicate that physiotherapy exercise after discharge following total hip replacement has the potential to benefit patients. CONCLUSIONS: Insufficient evidence exists to establish the effectiveness of physiotherapy exercise following primary hip replacement for osteoarthritis. Further welldesigned trials are required to determine the value of post discharge exercise following this increasingly common surgical procedure.


INTRODUCTION: Fast-track surgery is the combination of optimised clinical and organisational factors aiming at reducing convalescence and perioperative morbidity including the functional recovery resulting in reduced hospitalization. As the previous nationwide studies have demonstrated substantial variations in length of stay (LOS) following standardised operations such as total hip and knee arthroplasty (THA and TKA), this nationwide study was undertaken to evaluate the implementation process of fast-track THA and TKA in Denmark. MATERIAL AND METHODS: All hospitals in Denmark report to the National Patient Registry, linking the type of surgery and LOS with a unique individual social security number. This study is based on primary THA and TKA from a 5.5 million population from 2000 to the end of 2009. RESULTS: The number of performed primary unilateral THA and TKA has increased from around 7,200 in 2000 to 13,000 in 2009 with a concomitant reduction in LOS from median 10-15 days in 2000 to 4 days in 2009. CONCLUSION: Fast-track surgery has been successfully implemented in the orthopaedic departments in Denmark through a multi-disciplinary educational and multi-institutional effort. These implementation principles may be transferred to other countries and other specialties.

Systematic review of 8 trials testing the functional activity following hip replacement with or without postoperative physiotherapy. Poor study quality prevented meta-analysis. Findings suggested potential benefit of post discharge PT but insufficient data to reach a definitive conclusion. — Findings do not support benefit of post hospitalization physical therapy to increase function in patients following hip surgery.

Favors use of standardized operations to reduce length of stay for total knee and total hip replacement.