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| Search request date:  | 27 May 2011 |
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| Search completed by:  | Richard Bridgen |

**Search details**

Infection risk of using single shot femoral nerve block in elective hip replacements

**Resources searched**

NHS Evidence; TRIP Database; Cochrane Library; EMBASE; MEDLINE; Google Scholar;

**Database search terms**

"hip replacement"; ARTHROPLASTY, REPLACEMENT HIP; THR; "hip arthroplasty"; hip adj3 (arthroplasty OR replacement); SURGICAL PROCEDURES, ELECTIVE; elective; scheduled; planned; surgery; surgical; procedure*; operation*; "single shot femoral nerve block"; SSFNB; exp NERVE BLOCK; FEMORAL NERVE; “femoral nerve”; “nerve block”; “regional anaesthesia”; “regional anesthesia”; “single shot”; single-shot; singleshot; infection adj2 risk; infection; “femoral nerve block”; “conduction anaesthesia”; “conduction anesthesia”; nerve block anaesthesia”; “nerve block anesthesia”; “block anaesthesia”; “block anesthesia”; REGIONAL ANESTHESIA; INTRAVENOUS REGIONAL ANESTHESIA; “joint replacement”; analgesia; anaesthesia; anesthesia; “pain relief”; “peripheral nerve blockade" PNB; ARTHROPLASTY; “joint arthroplasty”; PROSTHESIS INFECTION; “compartment block”; block; hip

**Google search string**

**Summary**

There is some research on the use of femoral nerve blocks in hip replacement, however most of it concerns continuous rather than single-shot application and I have not been able to find any research that discusses infection risk, besides one study, 0 which covers continuous infusions rather than single shot femoral nerve block. Due to the paucity of results I did broaden the search to include arthroplasty more generally, on the basis that femoral nerve blocks seem to be used within knee replacements as well.

**Guidelines**
Femoral nerve blocks in combination with intravenous opioids are superior to intravenous opioids alone in the treatment of pain from a fractured neck of femur …plus other references, although infection risk is not mentioned.

Evidence-based reviews
None found.

Published research

✓ 0. Continuous intra-articular infusion of ropivacaine after unilateral total knee arthroplasty.
   Author(s): Reeves M, Skinner MW
   Citation: Anaesthesia & Intensive Care, November 2009, vol./is. 37/6(918-22), 0310-057X:0310-057X (2009 Nov)
   Publication Date: November 2009
   Abstract: Intra-articular infusion of local anaesthetic after joint arthroplasty is attractive in that it is simple and will not cause motor block. However the efficacy of the technique has yet to be established. We enrolled 66 patients scheduled for unilateral total knee arthroplasty under general anaesthesia and single-shot femoral and sciatic nerve blocks. All patients had an intra-articular Painbuster device sited at the end of the procedure. Patients were then randomised to control or one of two treatment arms - low-dose and high-dose ropivacaine. In the control group the balloon was filled with saline, in the low-dose group with 0.2% ropivacaine and in the high-dose group 0.375% ropivacaine. The catheters were infused continuously for 48 hours and then removed. Patients were followed up daily for three days to determine pain scores, opioid consumption and subjective assessment of the analgesic efficacy of the catheter Data were analysed for 30 controls and 31 in the treatment arms. Both groups were similar There were no significant differences between the control and treatment groups at all time points after adjustment for age. Patients in the high-dose group had higher pain scores and higher opioid consumption than the control groups from 24 to 48 hours. There were two cases of infection, both in the treatment groups. No positive benefit of intra-articular infusion of local anaesthetic after total knee arthroplasty could be identified. On the contrary there may be negative effects in terms of expense, pain and possibly infection risks.
   Source: MEDLINE
   Full Text: Available in fulltext at EBSCO Host

☐ 1. Psoas compartment block for acute postoperative pain management after hip surgery in pediatrics: A comparative study with caudal analgesia
   Author(s): Omar A.M., Mansour M.A., Kamal A.S.
   Citation: Regional Anesthesia and Pain Medicine, March 2011, vol./is. 36/2(121-124), 1098-7339 (March-April 2011)
   Publication Date: March 2011
   Abstract: Background: Lower-limb peripheral nerve blocks in pediatrics have gained much more popularity in the last few decades. Our purpose of this study was to compare the postoperative analgesic effects between psoas compartment block (PCB) and caudal block in small children undergoing open hip reduction/osteotomies. Methods: Forty American Society of Anesthesiologists physical status I-II children aged 1 to 6 years planned to
undergo open hip reduction/osteotomies were administered general anesthesia and then randomly assigned to receive 1 of 2 regional anesthetics: caudal block (group C, n = 20) or PCB (group P, n = 20). Ropivacaine 0.25% with epinephrine (5 μg/mL) was used in both blocks. The primary outcome of the study was the total consumption of morphine in the first 24 postoperative hrs. Secondary outcomes included dose of intraoperative fentanyl, occurrence of intraoperative hypotension or bradycardia, postoperative pain scores, time to first morphine analgesia, and occurrence of postoperative vomiting or urine retention.

Results: The cumulative dose of morphine administered in the ward in the first postoperative 24 hrs and the time to first rescue morphine dose were higher in group C than in group P (P < 0.001). There were no differences between the 2 groups regarding intraoperative and postoperative complications except for the incidence of urine retention, which was higher in group C than in group P (P = 0.037). Conclusions: Use of single-shot PCB is superior to single-shot caudal block regarding length of postoperative analgesia and cumulative dose of morphine in small children undergoing open hip reduction/osteotomies.

Source: EMBASE

2. The association between lower extremity continuous peripheral nerve blocks and patient falls after knee and hip arthroplasty

Author(s): Ilfeld B.M., Duke K.B., Donohue M.C.

Citation: Anesthesia and Analgesia, December 2010, vol./is. 111/6(1552-1554), 0003-2999 (December 2010)

Publication Date: December 2010

Abstract: Background: Continuous peripheral nerve blocks (CPNB) may induce muscle weakness, and multiple recently published series emphasize patient falls after postarthroplasty CPNB. However, none have included an adequate control group, and therefore the relationship between CPNB and falls remains speculative. Methods: We pooled data from 3 previously published, randomized, triple-masked, placebo-controlled studies of CPNB involving the femoral nerve after knee and hip arthroplasty. Results: No patients receiving perineural saline (n = 86) fell (0%; 95% confidence interval [CI] = 0%-5%), but there were 7 falls in 6 patients receiving perineural ropivacaine (n = 85; 7%; 95% CI = 3%-15%; Fisher's exact test P = 0.013). Conclusions: Our analysis suggests that there is a causal relationship between CPNB and the risk of falling after knee and hip arthroplasty. Copyright 2010 International Anesthesia Research Society.

Source: EMBASE

3. 3-In-1 femoral nerve block and fascia iliaca block as methods of postoperative analgesia for traumatic hip surgery

Author(s): Mirea L., Ungureanu R., Grintescu I.

Citation: Regional Anesthesia and Pain Medicine, September 2010, vol./is. 35/5(E137-E138), 1098-7339 (September-October 2010)

Publication Date: September 2010

Abstract: Background and aims: Postoperative pain after traumatic hip surgery can be difficult to control. Regional techniques can block or reduce pain anywhere from several hours to several days, depending on the technique that is used. Aim of the study was the evaluation of analgesic efficacy and side effects of 3-in-1 femoral nerve block and fascia iliaca compartment block after major orthopedic surgery. Methods: After approval of the ethics committee, this prospective, randomized, three parallel groups study was performed on 97 patients, aged 25-85 years, ASA status I-IV under spinal anesthesia with 15-20 mg Levo-bupivacaine 0.5%. In first group(n=33) we use 3-in-1 femoral nerve block at the end of the operation with Levobupivacaine 0.125%-30 ml. In the second group(n=32) a fascia iliaca compartment block were performed at the end of the operation also with Levobupivacaine 0.125%-30 ml. The third group(n=32) was the control group. Level ofpain
(visual analog scale-VAS), opioid consumption and adverse effects were recorded during the first 48 h of postoperative period. Supplemental postoperative analgesia was standardized: 1 g of IV paracetamol, followed by 10 mg of subcutaneous nalbuphine, if VAS remained unchanged after 30 min. Results: The opioid requirement was significantly lower in group 1 14.1 +/-2.3 subcutaneous mg nalbuphine in 48 h, but similar in group 2 and control (25+/-10.9 vs 27+/-5); p< 0.05 (Mann-Whitney U Test, Chi Square Test). No significant difference in VAS score between the three groups. VAS at rest 2.9+/-0.65 in group 1, 3.52+/-1.1 in group 2, respectively 3.6+/-1.5 in group 3. VAS at mobilization 3.1+/-0.65 in group 1, 3.9+/-0.95 in group 2, respectively 4.1 +/-0.98 in group 3. No serious adverse effects related with postoperative analgesia were recorded. Conclusion: 3-in-1 femoral nerve block is an effective method for postoperative analgesia following traumatic hip surgery, decreases opioids requirement and is easy to use with low complication rate.

Source: EMBASE

4. Peripheral nerve blockade without motor block after total hip arthroplasty

Author(s): Andersen H.L.

Citation: Regional Anesthesia and Pain Medicine, September 2010, vol./is. 35/5(E63), 1098-7339 (September-October 2010)

Publication Date: September 2010

Abstract: Background and aims: Many patients undergoing total hip arthroplasty (THA) have high pain scores post-operatively not easily treated with opioids without developing considerable side effects. Traditional use of femoral or sciatic as well as central nerve blocks have the disadvantage of motorblockade that interferes with early mobilisation. Good alternatives are not at present described in the literature. This case series presents an alternative method of peripheral nerve blockade for these patients, to reduce pain and opioid requirements in a multimodal setting. Methods: The ultrasound guided transversalis fascia plane block recently described by P. D. Hebbard is a volume block of the subcostal, iliohypogastrical and ilioinguinal nerves before they give off their lateral cutaneous branches to the greater trochanter region. The lateral femoral cutaneous nerve may also be blocked while sparing the femoral nerve. One injection only in this fascial plane could potentially anaesthetise the entire cutaneous region of the hip. 7 consecutive patients received general anaesthesia for THA and received an ultrasound guided transversalis fascia blockade postoperatively in the PACU with 30 ml of Ropicavaine 0,2%-0,38%. Prior to the blockade all the patients had VAS scores between 7-9. Results: All patients, except one, had significantly reduced pain VAS scores, to less than 3, within 15-30 min after the block. All had sensory loss over the proximal part of the trochanter region corresponding to the L1 dermatome. None had motor block of the quadriceps femoris muscle only one had sensory block over the distal lateral femur in the area of the lateral femoral cutaneous nerve. All patients were mobilised within 4 hours and needed only minor doses of opioids during the following 12-14 hours. Conclusion: The transversalis fascia plane blockade reduced pain scores considerably in this group of patients after THA. Further investigation is needed to delineate this method’s potential in a multimodal post-operative setting.

Source: EMBASE

5. Is better continuous subarachnoid blockade than single shot one for anaesthetic management in hip fracture surgery?

Author(s): Martinez Navas A., Ortiz De La Tabla Gonzalez R., Echevarria Moreno M.

Citation: Regional Anesthesia and Pain Medicine, September 2010, vol./is. 35/5(E132), 1098-7339 (September-October 2010)

Publication Date: September 2010

Abstract: Background and aims: Subarachnoid anesthesia have more benefits than general anesthesia in the elderly patient with fracture of the hip, although arterial hypotension because of sympatetic block may be harmful for these patients. So the
administration of very low doses of local anesthetic through a catheter may to reduce haemodynamic repercussion(1). Our objective was to compare the incidence of arterial hypotension between two anesthetic techniques in the elderly patient with hip fracture. Methods: Patients programmed for surgery with hip fracture were randomized in two groups: Group 1: Single shot subarachnoid anesthesia with 0.5% isobaric bupivacaine and Group 2: Subarachnoid catheter (Epilong set) with 0.15% or 0.25% hypobaric bupivacaine. The main analyzed variable was the incidence of intraoperative arterial hypotension. Other secondary variables were: Severe arterial hypotension, dose of the anesthetic and ephedrine administered. The statistical analysis was made using SPSS 12.0. P value was considered significant < 0.05. Results: 30 patients were included (Group 1: 15; Group 2: 15). The incidence of arterial hypotension was significantly higher in group 1 (52.8% versus 20%; p = 0.034). All the cases of severe arterial hypotension were registered in group 1. The average dose of the anesthetic (8.5 versus 4.5 mg; p = 0.005) and ephedrine (87.3 versus 0.3; p = 0.014) administered was significantly lower in group 2. Conclusions: Continuous subarachnoid blockade has produced significantly lower incidence of arterial hypotension than single shot one in patient with hip fracture and it has been used lower local anesthetic and ephedrine dose.

Source: EMBASE

6. Survey of post operative pain relief after major joint replacement surgery

Author(s): Kuthanur Natarajan S., Manickam B.

Citation: Regional Anesthesia and Pain Medicine, September 2010, vol./is. 35/5(E123-E124), 1098-7339 (September-October 2010)

Publication Date: September 2010

Abstract: Background and aims: Pain management after total hip (THR) or total knee replacements (TKR) is vital for early mobilisation and physiotherapy. Traditionally PCA, spinal opioids or continuous epidural were used to provide postoperative pain relief. Recent evidences show that multimodal approaches including use of pre-emptive analgesia, nerve blocks or use of local infiltration techniques minimize narcotic consumption, hasten recovery and provide better patient satisfaction. We undertook a survey in the North East region of UK to evaluate the current practice. Methods: An online survey was conducted among the anaesthetists in the north east region of UK, about the perioperative pain relief routinely practiced for THR and TKR using Survey Monkey Software tool. We received 140 responses in total (>75% response). Results: For both THR and TKR about two third of the anaesthetists prefer spinal anaesthesia and about one third of them prefer general anaesthesia. Intrathecal opioids are used in 75% of spinals and diamorphine is the preferred choice in 82% of spinals where intrathecal opioids are used. 29% use nerve blocks for THR and 54% use nerve blocks for TKR. Femoral is the most commonly used nerve block for both THR and TKR. For post operative pain relief, 65% of them prefer PCA morphine over oral long acting opioids (25%) followed by local anaesthetic infiltration techniques (5%). Less than 1% use epidural or continuous nerve blockade. Conclusions: Spinal anaesthesia with or without femoral nerve block and PCA morphine seems to be the technique of choice for perioperative pain relief. Other multimodal approaches for pain relief, are not routinely practiced in the north east region of UK. The authors feel that further literature on critical evaluation of current evidence and specific randomised trials comparing the different pain relief techniques is necessary to bring about change in practice.

Source: EMBASE

7. Analgesia following artificial joint replacement joint replacement: Nerve block based on gait analysis

Author(s): Zhang H.-H., Yan S.-H., Li X., Jin Y., Liu Z.-C.

Citation: Journal of Clinical Rehabilitative Tissue Engineering Research, May 2010, vol./is. 14/22(4018-4022), 1673-8225 (28 May 2010)

Publication Date: May 2010
Abstract: BACKGROUND: Analgesia following artificial joint replacement commonly utilizes patient-controlled method, which has many side effects. Continuous peripheral nerve block analgesia is safe and effective, but it may affect activity of patients following artificial joint replacement due to local numbness. Currently, studies are few regarding gait analysis used to evaluate effect of different analgesia methods on early activities of patients following artificial joint replacement. OBJECTIVE: To compare the effect of continuous nerve block (including femoral nerve block and fascia iliaca compartment block) and patient-controlled intravenous analgesia (PCIA) for postoperative pain control on gait after total hip and knee replacement. METHODS: A total of 17 volunteer subjects were selected including 7 injected with PCIA after operation, 6 with femoral nerve block and 4 with fascia iliaca compartment block. Subjects were asked to walk at their own paces with barefoot on a 10 m walkway with a 0.5m footscan plate (footscan from RSscan International, Olen, Belgium). Barefoot walking gaits were compared before and after replacement. RESULTS AND CONCLUSION: There were no significant differences between continuous nerve block and PCIA for postoperative pain control in the parameters (P > 0.05). The parameter changes in patients undergoing fascia iliaca compartment block were less than PCIA patients (P < 0.05). Of 17 patients, effects of fascia iliaca compartment block were superior over PCIA, and femoral nerve block was similar to PCIA following artificial joint replacement.

Source: EMBASE

8. Lower limb nerve blocks

Author(s): Grant C.R.K.

Citation: Anaesthesia and Intensive Care Medicine, March 2010, vol./is. 11/3(105-108), 1472-0299 (March 2010)

Publication Date: March 2010

Abstract: Peripheral nerve blocks are increasingly used for a wide range of surgical procedures involving the lower limb. A number of techniques can be used to provide anaesthesia and highly effective postoperative analgesia - in particular following lower limb arthroplasty - that may result in improved functional recovery and shorter in-patient stay. Ultrasound-guided nerve localization offers several potential advantages when performing femoral, popliteal and distal sciatic nerve block; however, neurostimulation remains a useful and widely used aid to lower limb regional anaesthesia practice. 2010 Elsevier Ltd. All rights reserved.

Source: EMBASE

9. Ultrasound-guided femoral nerve blocks in elderly patients with hip fractures

Author(s): Beaudoin F.L., Nagdev A., Merchant R.C., Becker B.M.

Citation: American Journal of Emergency Medicine, January 2010, vol./is. 28/1(76-81), 0735-6757 (January 2010)

Publication Date: January 2010

Abstract: Objectives: The primary objective of this study was to determine the feasibility of ultrasound-guided femoral nerve blocks in elderly patients with hip fractures in the emergency department (ED). The secondary objective was to examine the effectiveness of this technique as an adjunct for pain control in the ED. Methods: This prospective observational study enrolled a convenience sample of 13 patients with hip fractures. Ultrasound-guided femoral nerve block was performed on all participants. To determine feasibility, time to perform the procedure, number of attempts, and complications were measured. To determine effectiveness of pain control, numerical rating scores were assessed at baseline and at 15 minutes, 30 minutes, and hourly after the procedure for 4 hours. Summary statistics were calculated for feasibility measures. Wilcoxon matched-pairs signed-rank tests and Friedman analysis of variance test were used to compare differences in pain scores. Results: The median age of the participants was 82 years (range, 67-94 years); 9 were female. The median time to perform the procedure was 8 minutes (range, 7-
11 minutes). All procedures required only one attempt; there were no complications. After the procedure, there were 44% and 67% relative decreases in pain scores at 15 minutes (P <= .002) and at 30 minutes (P <= .001), respectively. Pain scores were unchanged from 30 minutes to 4 hours after the procedure (P <= .77). Conclusions: Ultrasound-guided femoral nerve blocks are feasible to perform in the ED. Significant and sustained decreases in pain scores were achieved with this technique. 2010.

Source: EMBASE


Author(s): Segado Jimenez MI, Bayon Gago M, Arias Delgado J, Casas Garcia ML, Dominguez Hervella F, Lopez Perez A, Izquierdo Gutierrez C

Citation: Revista Espanola de Anestesiologia y Reanimacion, December 2009, vol./is. 56/10(590-7), 0034-9356;0034-9356 (2009 Dec)

Publication Date: December 2009

Abstract: OBJECTIVES: The treatment of pain after surgery to repair a hip fracture is essential for an early start of rehabilitation and for reducing morbidity and mortality. Given that patients are elderly and have multiple medical conditions, local-regional analgesia can be an effective approach. Our aim was to compare the efficacy of obturator and femoral cutaneous nerve blocks and total intravenous analgesia in terms of level of patient satisfaction, complications, start of rehabilitation, and cost.

PATIENTS AND METHODS: Prospective study of 75 patients undergoing surgery to repair hip fractures. Patients were randomized to receive intravenous analgesia only, blockade of both nerves, or blockade of only the obturator nerve. In each group we recorded visual analog scale (VAS) pain scores, satisfaction with postoperative analgesia, time elapsed until start of rehabilitation, need for postoperative analgesics, side effects, and the cost of drugs.

RESULTS: Analgesia was significantly more effective in patients with nerve blocks than in those who received only intravenous analgesia (mean [SD] VAS scores, 2.6 [1.4] and 5.6 [0.7], respectively). Patients with nerve blocks also had a pain-free period of more than 24 hours (P < .001), needed fewer doses of supplementary analgesics or other drugs, had fewer side effects (P < .01), started rehabilitation earlier (32.6 [5.4] hours vs 45.7 [8.2] hours), generated less expenditure (2.6 Euros [1.5 Euros]/patient vs 7.0 Euros [0.4 Euros]/patient). The tested techniques had no complications.

CONCLUSIONS: The nerve blocks were effective, easy to perform, and safe. They afforded numerous advantages: extended period of postoperative analgesia, fast recovery, lower costs, and no complications.

Source: MEDLINE

11. Multimodal pain management after total hip and knee arthroplasty at the Ranawat Orthopaedic Center.

Author(s): Maheshwari AV, Blum YC, Shekhar L, Ranawat AS, Ranawat CS

Citation: Clinical Orthopaedics & Related Research, June 2009, vol./is. 467/6(1418-23), 0009-921X;1528-1132 (2009 Jun)

Publication Date: June 2009

Abstract: Improvements in pain management techniques in the last decade have had a major impact on the practice of total hip and knee arthroplasty (THA and TKA). Although there are a number of treatment options for postoperative pain, a gold standard has not been established. However, there appears to be a shift towards multimodal approaches using regional anesthesia to minimize narcotic consumption and to avoid narcotic-related side effects. Over the last 10 years, we have used intravenous patient-controlled analgesia (PCA), femoral nerve block (FNB), and continuous epidural infusions for 24 and 48 hours with and without FNB. Unfortunately, all of these techniques had shortcomings, not the least of which was suboptimal pain control and unwanted side effects. Our practice has
currently evolved to using a multimodal protocol that emphasizes local periarticular injections while minimizing the use of parenteral narcotics. Multimodal protocols after THA and TKA have been a substantial advance; they provide better pain control and patient satisfaction, lower overall narcotic consumption, reduce hospital stay, and improve function while minimizing complications. Although no pain protocol is ideal, it is clear that patients should have optimum pain control after TKA and THA for enhanced satisfaction and function. Level of Evidence: Level V, expert opinion. See the Guidelines for Authors for a complete description of levels of evidence.

Source: MEDLINE

12. The effects of two different multimodal analgesic regimens in total hip replacement surgery [Turkish] Total kalça protezi operasyonlarında iki multimodal analjezi yonteminin etkinliği

Author(s): Inan N., Takmaz S.A., Iltar S., Yazici I., Basr H.

Citation: Agri, April 2009, vol./is. 21/2(69-74), 1300-0012 (April 2009)

Publication Date: April 2009

Abstract: Objectives: This study evaluated the effectiveness of two different multimodal analgesia protocols in terms of postoperative pain relief, tramadol consumption during patient-controlled analgesia (PCA) and side effects after total hip replacement surgery. Methods: Group F (n=18) received general anesthesia after a 3-in-1 femoral nerve block (FNB) was applied using 40 ml of bupivacaine 0.25%. Group FD (n=18) received general anesthesia after the same block and dexketoprofen p.o. was given. All patients received intravenous tramadol at the end of surgery via a PCA device. Group FD was given dexketoprofen 75 mg/day for 48 hours postoperatively. Pain scores were evaluated at 0, 1/2, 1, 4, 8, 12, 24 and 48h at rest and on movement of the hip. Side effects and global satisfaction scores in both groups were also evaluated in this setting. Results: Total tramadol consumption was lower in Group FD (377.7±137.4) than in Group F (593.9±132.3) (p<0.05). Visual analogue scale (VAS) scores were <=3 in all follow-up periods in both groups. While in Group FD, 6 patients had nausea, 3 vomiting and 1 sedation, in Group F, 5 patients had nausea, 3 vomiting and 2 sedation. Patient global satisfaction scores in Group F were very good in 14 patients and good in 4 patients, and in Group FD were very good in 13 patients and good in 5 patients. Conclusion: Both analgesia protocols were effective in pain relief in total hip replacement patients, with similar side effects. The effect of additional dexketoprofen was to reduce postoperative tramadol consumption. Dexketoprofen; multimodal analgesia; postoperative pain.

Source: EMBASE

13. Analgesia for total hip arthroplasty - Role of Psoas compartment block

Author(s): Byreddy R., Harper M.

Citation: Pain Practice, March 2009, vol./is. 9/(141), 1530-7085 (March 2009)

Publication Date: March 2009

Abstract: Aim: To evaluate the efficacy of the Psoas compartment block in patients undergoing total hip arthroplasty. Methods: Our study included 100 patients prospectively, who received single shot Psoas compartment block for total hip arthroplasty. Patients were monitored in post anesthetic care unit (PACU) for initial 4-hour duration prior to discharge to the ward. Pain scores and morphine requirements were recorded in all patients. Results: One hundred patients received psoas compartment block for total hip arthroplasty. None of the patients required supplemental morphine intraoperatively. Eighty-one percent of patients had no pain and did not require any morphine in the initial 4-hour period in PACU, 9% received <5 mg morphine, and 10% >5 mg morphine. Cumulative morphine used by these patients is 95.5 mg. (Figure Presented) (Morphine Requirements) Conclusion: Our study concluded that significant proportion of the patients in our study required no morphine or minimal morphine postoperatively in the initial 4-hour period. It also demonstrated...
improved patient satisfaction and minimal opioid-induced side effects. This supports the current evidence that single shot Psoas compartment block is effective and has low morphine consumption and pain scores compared to other techniques eg, femoral nerve block and patientcontrolled analgesia. We recommend Psoas compartment block as an effective technique of analgesia for total hip arthroplasty.

Source: EMBASE

14. A nurse-led service for pre-operative pain management in hip fracture

Author(s): Layzell M.

Citation: Nursing times, January 2009, vol./is. 105/3(16-18), 0954-7762 (2009 Jan 27-Feb 2)

Publication Date: January 2009

Abstract: This article follows an In-depth piece published in last week's issue, which explored issues around pain management in older people following fractured neck of femur. It also discussed using femoral nerve block for pain relief in this group of patients. This Changing Practice article outlines the establishment of a nurse-led service to improve pre-operative pain management using femoral nerve block.

Source: EMBASE

15. Ultrasound Guided Fascia Iliaca Block: A Comparison With the Loss of Resistance Technique

Author(s): Dolan J., Williams A., Murney E., Smith M., Kenny G.N.C.

Citation: Regional Anesthesia and Pain Medicine, November 2008, vol./is. 33/6(526-531), 1098-7339 (November/December 2008)

Publication Date: November 2008

Abstract: Background and Objectives: The aim of this study was to compare the efficacy of fascia iliaca block, performed by loss of resistance and ultrasound guidance techniques. Methods: Eighty patients undergoing either unilateral hip or knee joint replacement surgery were randomly assigned to undergo fascia iliaca compartment block by either loss of resistance or ultrasound guidance. Sensation in the anterior (femoral nerve), lateral (lateral cutaneous nerve) and medial (femoral and variable contribution from obturator nerve) aspects of the thigh were assessed prior to block placement. Femoral motor block (knee extension) was also evaluated. Obturator motor block (hip adduction) was measured using a sphygmonanometer. Sensation and motor function were reassessed after block placement. Results: Using ultrasound guidance, there was a statistically significant increase in the incidence of sensory loss in the medial aspect of the thigh from 60% to 95% (P = .001). Complete loss of sensation in the anterior, medial, and lateral aspects of the thigh increased from 47% to 82% of patients using ultrasound (P = .001). Ultrasound-guided fascia iliaca block resulted in a statistically significant increase in the incidence of femoral (P = .006) and obturator (P = .033) nerve motor block. Conclusions: Ultrasound-guided fascia iliaca block increased the frequency of sensory loss in the medial aspect of the thigh. Ultrasound guidance also increased the frequency of femoral and obturator motor block. 2008 American Society of Regional Anesthesia and Pain Medicine.

Source: EMBASE

16. A pilot randomised clinical trial of 3-in-1 femoral nerve block and intravenous morphine as primary analgesia for patients presenting to the emergency department with fractured hip

Author(s): Graham C.A., Baird K., McGuffie A.C.

Citation: Hong Kong Journal of Emergency Medicine, October 2008, vol./is. 15/4(205-211),
**Abstract:** Background: Fractured neck of femur (NOT) is a leading cause of morbidity and mortality in the elderly. Published clinical guidelines suggest early adequate analgesia as a key management aim. The femoral nerve '3-in-1 block' has previously been shown to provide effective analgesia for these patients in the peri- and post-operative phase of care. The aim of this study was to examine the use of the '3-in-1' femoral nerve block as primary analgesia for patients with a fractured NOT presenting to the emergency department.

Methods: This was a single centre pragmatic randomised controlled open-label trial comparing femoral nerve block (using a '3-in-1' technique) with intravenous (IV) morphine. A convenience sample of patients presenting to the emergency department of a district general hospital with a clinically or radiologically suspected fractured NOT were recruited. They were randomised to receive either 0.1 mg/kg IV bolus of morphine or a '3-in-1' femoral nerve block with 30 ml of 0.5% plain bupivacaine. Visual analogue pain scores were noted prior to treatment and at 30 minutes, 2 hours, 6 hours and 12 hours after treatment. Immediate complications such as vascular puncture or the requirement for naloxone were noted. Results: Forty patients were recruited, 22 patients were randomised to IV morphine and 18 patients were randomised to '3-in-1' femoral nerve block. Complete data were available for 33 patients. There was no significant difference in initial median pain score (p=0.45). Analysis using the Wilcoxon test showed a significant decrease in pain score for the morphine group (p=0.01) and the nerve block group (p<0.01) at 30 minutes compared with baseline. Analysis using the Mann-Whitney U test between median pain scores at each time point showed a significant lower pain score in the nerve block group at 30 minutes (p=0.046). There were no immediate complications in either group. Conclusion: Our results suggest that a '3-in-1' femoral nerve block is at least as effective as IV morphine when used as primary analgesia for patients with fractured NOF. Our results suggest that the femoral nerve block may provide better analgesia at 30 minutes. Further larger scale randomised trials are warranted.

**Source:** EMBASE

17. Lumbar plexus block via a femoral approach for total hip arthroplasty dislocation reduction: a report of 2 cases.

**Author(s):** Sheth M, Liles CH, Phillips WJ, Lerant A

**Citation:** European Journal of Emergency Medicine, August 2008, vol./is. 15/4(226-30), 0969-9546;1473-5695 (2008 Aug)

**Publication Date:** August 2008

**Abstract:** The incidence of hip dislocation can vary based on factors including age and patient co-morbidities. Prosthetic hip dislocations present a particularly difficult challenge. Although many cases are treated in the emergency setting using procedural sedation for reduction, some may require general anesthesia. We report two cases in which lumbar plexus blockade was used as the primary means for successful hip prosthesis dislocation reduction.

**Source:** MEDLINE

18. The efficacy of the psoas compartment block versus the intrathecal combination of morphine, fentanyl and bupivacaine for postoperative analgesia after primary hip arthroplasty: a randomized single-blinded study.

**Author(s):** Frassanito L, Rodola F, Concina G, Messina A, Chierichini A, Vergari A

**Citation:** European Review for Medical & Pharmacological Sciences, March 2008, vol./is. 12/2(117-22), 1128-3602;1128-3602 (2008 Mar-Apr)

**Publication Date:** March 2008

**Abstract:** PURPOSE: Intrathecal morphine and psoas compartment block represent two
accepted techniques to provide postoperative analgesia after hip arthroplasty. We designed a prospective, randomized, single-blinded study to compare these two techniques.

METHODS: Forty patients scheduled for primary hip arthroplasty under general anesthesia were randomized to receive either an intrathecal administration of 0.1 mg morphine, 0.015 mg fentanyl and 15 mg hyperbaric bupivacaine (Group I, n = 20) or a psoas compartment block with ropivacaine 0.475% 25 mL (Group II, n = 20). Pain scores, morphine consumption, associated side-effects were assessed for 48 hr postoperatively. In addition, patient's satisfaction and acceptance of the postoperative analgesic technique were also recorded.

RESULTS: During the first 24 hr, pain scores (12 +/- 27 vs 24 +/- 25 at H + 12, 12 +/- 46 vs 20 +/- 26 mm at H + 24, 16 +/- 19 vs 20 +/- 29 mm at H + 36) and tramadol consumption (30 +/- 70 vs 210 +/- 400 mg at H + 12, 180 +/- 120 vs 320 +/- 100 mg at H + 24) were slightly lower in Group I than in Group II, but there were no statistically significant differences. Itching was the most frequent side-effect occurring in 45% of cases in Group I vs 10% in Group II (P < 0.05). No major complication occurred. There was no difference in satisfaction scores between the two groups.

CONCLUSION: Intrathecal administration of a combination of morphine, fentanyl and bupivacaine and single-shot psoas compartment block both provide very good postoperative analgesia after primary hip arthroplasty.

Source: MEDLINE

19. Epidural analgesia compared with peripheral nerve blockade after major knee surgery: a systematic review and meta-analysis of randomized trials.

Author(s): Fowler SJ, Symons J, Sabato S, Myles PS

Citation: British Journal of Anaesthesia, February 2008, vol./is. 100/2(154-64), 0007-0912;1471-6771 (2008 Feb)

Publication Date: February 2008

Abstract: The relative analgesic efficacy and side-effect profile of peripheral nerve blockade (PNB) techniques compared with lumbar epidural analgesia for major knee surgery is unclear. We undertook a systematic review and meta-analysis of all randomized trials comparing epidural analgesia with PNB for major knee surgery. Eight studies were identified that had enrolled a total of 510 patients of whom 464 (91%) had undergone total knee joint replacement. All were small trials and none was blinded (Jadad score 1-3). PNB technique was variable: in addition to a femoral catheter (n=5), femoral single shot (n=2), or lumbar plexus catheter (n=1) techniques, sciatic blockade was performed in three trials. There was no significant difference in pain scores between epidural and PNB at 0-12 or 12-24 h, WMD 0.22 (95% CI: -0.36, 0.81), 0.05 (-1.01, 0.91), respectively, and no clinically significant difference at 24-48 h, WMD -0.35 (-0.64, -0.02). There was also no difference in morphine consumption (mg) at 0-24 h, WMD -6.25 (-18.35, 5.86). Hypotension occurred more frequently among patients who received epidurals [OR 0.19 (0.08, 0.45)], but there was no difference in the incidence of nausea and vomiting. Two studies reported a higher incidence of urinary retention in the epidural group. Patient satisfaction was higher with PNB in two of three studies which measured this, although rehabilitation indices were similar. PNB with a femoral nerve block provides postoperative analgesia which is comparable with that obtained with an epidural technique but with an improved side-effect profile and is less likely to cause a severe neuraxial complication.

Source: MEDLINE

20. Controlling Pain After Total Hip and Knee Arthroplasty Using a Multimodal Protocol With Local Periarticular Injections. A Prospective Randomized Study

Author(s): Parvataneni H.K., Shah V.P., Howard H., Cole N., Ranawat A.S., Ranawat C.S.

Citation: Journal of Arthroplasty, September 2007, vol./is. 22/6 SUPPL.(33-38), 0883-5403 (September 2007)

Publication Date: September 2007
Abstract: In this prospective randomized study, patients undergoing total hip (THA) or knee arthroplasty (TKA) were randomized to either a study group receiving periarticular injections or a control group receiving patient-controlled analgesia with or without femoral nerve block (TKA patients). All patients received a comprehensive multimodal perioperative protocol. Pain, recovery of functional milestones, and overall satisfaction were assessed. The THA study group demonstrated significantly lower average pain scores and higher overall satisfaction than the control group. There was no significant difference in pain scores between the study and control groups in the TKA cohort. Both study groups demonstrated lower narcotic usage and side effects as well as improved early functional recovery. Periarticular injection with a multimodal protocol was shown to safely provide excellent pain control and functional recovery and can be substituted for conventional pain control modalities. 2007.

Source: EMBASE


Author(s): Contreras-Dominguez V.A., Carbonell-Bellolio P.E., Ojeda-Greciet A.C., Sanzana E.S.

Citation: Revista Brasileira de Anestesiologia, July 2007, vol./is. 57/4(356-365), 0034-7094;1806-907X (Jul 2007)

Publication Date: July 2007

Abstract: BACKGROUND AND OBJECTIVES: Continuous femoral nerve block (CFNB) is used in postoperative analgesia of hip and knee replacement surgeries with good results. The objective of this study was to evaluate the usefulness of CFNB, comparing 3 administration schedules of bupivacaine in the arthroscopic anterior cruciate ligament (ACL) repair of the knee. METHODS: A prospective, controlled study with 90 stable patients, physical status ASA I and II was undertaken. Patients were divided in three groups: Group 1 (n = 30): continuous infusion (CI) at a rate of 10 mL.h⁻¹ of 0.125% bupivacaine + clonidine 1 mug.ml⁻¹ (B+C); Group 2 (n = 30): CI at a rate of 5 mL.h⁻¹ + PCA with 2.5 ml of B+C every 30 minutes; Group 3 (n = 30): PCA with 5 mL.h⁻¹ of B+C every 30 minutes. Patients underwent spinal anesthesia. Postoperative pain at 2, 4, 6, 24, and 48 hours, using the Visual Analogue Scale (VAS), and consumption of morphine and bupivacaine were recorded. RESULTS: There were no statistically significant differences regarding the demographic data in both groups. The postoperative VAS between 2 and 48 hours did not show any differences. Morphine consumption between 4 and 48 hours was similar in all 3 groups (p = 0.07). The consumption of bupivacaine was significantly lower in the group that used only PCA (p < 0.001). CONCLUSIONS: Continuous femoral nerve block is a useful technique to manage postoperative pain after ACL repair. A rate of 5 mL.h⁻¹ in CI or PCA boluses assures excellent postoperative analgesia. Sociedade Brasileira de Anestesiologia, 2007.

Source: EMBASE

22. Pain management: setting up a nurse-led femoral nerve block service

Author(s): Layzell M.

Citation: British journal of nursing (Mark Allen Publishing), June 2007, vol./is. 16/12(702-705), 0966-0461 (2007 Jun 28-Jul 11)

Publication Date: June 2007

Abstract: Managing pain following a fractured neck of femur is challenging for a number of reasons. This group of patients are typically older people and frail with multiple co-morbidities and are often on numerous medications. In addition to a hip fracture, they
commonly present with acute medical problems. Fractures cause significant pain, which can be difficult to manage safely and effectively with the traditional analgesics. A femoral nerve block has been shown to be a safe and effective preoperative intervention for managing pain in this patient group while they wait for surgery. This article describes how an acute pain team have developed protocols and training to establish a nurse-led service for providing preoperative femoral nerve blocks to patients with fractured neck of femur.

Source: EMBASE

23. Assuring a painless total hip arthroplasty: a multimodal approach emphasizing peripheral nerve blocks.

Author(s): Pagnano MW, Hebl J, Horlocker T

Citation: Journal of Arthroplasty, June 2006, vol./is. 21/4 Suppl 1(80-4), 0883-5403;0883-5403 (2006 Jun)

Abstract: A highly effective comprehensive multimodal pain protocol has evolved at our institution for both primary and revision hip and knee arthroplasty. At the center of this protocol are peripheral nerve blocks to deliver postoperative pain relief. Total hip arthroplasty patients receive a lumbar plexus block with an indwelling catheter. Total knee arthroplasty patients receive a femoral nerve block with an indwelling catheter and also get a single-shot sciatic nerve block. Before surgery, patients are given a long-acting oral narcotic medication and a nonsteroidal anti-inflammatory. After surgery, oral medications are given on a set schedule and include acetaminophen, a nonsteroidal anti-inflammatory, and a long-acting oral narcotic. Outstanding pain control is achieved without parenteral narcotics and allows early physical therapy, early return to self-care, and improved patient satisfaction.

Source: MEDLINE


Author(s): Ambulkar R., Shankar R.

Citation: Anaesthesia, May 2006, vol./is. 61/5(507), 0003-2409;1365-2044 (May 2006)

Source: EMBASE

25. Treating pain after a total joint replacement.

Author(s): D'arcy Y

Citation: Nursing, May 2006, vol./is. 36/5(26, 28), 0360-4039;0360-4039 (2006 May)

Source: MEDLINE


Author(s): Kaya M., Ozalp G., Tuncel G., Canoler O., Turgut S., Savli S., Kadiogullari N.

Citation: Anestezi Dergisi, 2006, vol./is. 14/1(43-47), 1300-0578 (2006)

Publication Date: 2006
Abstract: Objective: After total hip arthroplasty, it is difficult to control pain at rest or during movement. In the present study, we compared the analgesic efficacy of psoas compartment block by posterior approach and three in one block by anterior approach during patient controlled lumbar plexus analgesia. Method: Forty-four ASA I-III patients scheduled for unilateral hip arthroplasty were allocated for the study. The patients were randomly assigned two groups as psoas compartment (P, n=22) and three in one block (F, n=22). Before standardized general anaesthesia, the catheters were placed following contraction of the quadriceps muscle was obtained with a stimulus of 0.5 mA or less in both groups. Thereafter, all patients received 40 ml bupivacaine 0.25 % with adrenaline through the catheter and the distribution of the sensory block was evaluated. The patient controlled analgesia device, which was planned to continue for 48 hr, was set up to deliver 10 ml bupivacaine 0.125 % boluses with a lock-out time of 60 min. The postoperative pain (at rest and during physiotherapy), distribution of sensory block, additional analgesic requirement, bupivacaine consumption, patient satisfaction and side effects were recorded. Results: Sufficient analgesia and patient satisfaction were obtained in both groups during the first postoperative 48 hr. Pain scores, distribution of sensory block, patient satisfaction, bupivacaine consumption and additional analgesic requirement were found to be similar. Conclusion: Psoas compartment and three in one block techniques provide similar efficacy during patient controlled lumbar plexus analgesia after total hip arthroplasty.

Source: EMBASE

27. Regional anesthesia in hip surgery.

Author(s): Indelli PF, Grant SA, Nielsen K, Vail TP

Citation: Clinical Orthopaedics & Related Research, December 2005, vol./is. 441/(250-5), 0009-921X;0009-921X (2005 Dec)

Publication Date: December 2005

Abstract: Historically, general anesthesia has been the "gold standard" for surgeons and patients when major hip surgery is being done. The recent introductions of improved techniques and catheters for continuous peripheral nerve blocks have made regional anesthesia more attractive to patients and surgeons. We focus on current trends and future directions in perioperative pain management for major orthopaedic procedures done on the hip. The use of epidural or spinal anesthesia during major hip surgery has been linked to a reduced risk of perioperative complications like deep venous thrombosis, less deterioration of cerebral and pulmonary functions in patients who are at high risk for complications, and overall reduced blood loss. In addition, continuous peripheral nerve blocks showed effective and safe postoperative pain control, allowing for lower opioids consumption, improved and earlier rehabilitation, and high patient satisfaction. Accurate patient selection and patient education are fundamental for the success of any regional anesthesia technique. Modern regional anesthesia for major hip surgery includes the use of a single shot and continuous epidural injections, single-shot and continuous spinal injection, continuous lumbar plexus blockade, and continuous peripheral blockade of the femoral and sciatic nerves. Continuous peripheral nerve blocks represent an adjunctive, effective, and safe technique for postoperative pain control after total hip arthroplasty. Future directions in postoperative pain control include the creation of a comprehensive system that supervises the use of continuous peripheral nerve blocks outside the acute inpatient setting for few days following the surgical procedure. Level of Evidence: Therapeutic study, Level V (expert opinion). See the Guidelines for Authors for a complete description of levels of evidence.

Source: MEDLINE

28. Nurse-administered femoral nerve block after hip fracture

Author(s): Cole A.

Citation: Nursing times, September 2005, vol./is. 101/37(34-36), 0954-7762 (2005 Sep 13-19)
Publication Date: September 2005

Abstract: Hip fracture is a common injury that predominantly affects older people. Pain following fracture of the neck of the femur is present throughout the illness trajectory, including the preoperative and postoperative periods. This article describes how nurses at one trust implemented an innovative nurse-administered femoral nerve block service.

Source: EMBASE

29. In with the new, out with the old? Comparison of two approaches for psoas compartment block.

Author(s): Mannion S, O'Callaghan S, Walsh M, Murphy DB, Shorten GD

Citation: Anesthesia & Analgesia, July 2005, vol./is. 101/1(259-64, table of contents), 0003-2999;0003-2999 (2005 Jul)

Publication Date: July 2005

Abstract: We compared the approaches of Winnie and Capdevila for psoas compartment block (PCB) performed by a single operator in terms of contralateral spread, lumbar plexus blockade, and postoperative analgesic efficacy. Sixty patients underwent PCB (0.4 mL/kg levobupivacaine 0.5%) and subsequent spinal anesthesia for primary joint arthroplasty (hip or knee) in a prospective, double-blind study. Patients were randomly allocated to undergo PCB by using the Capdevila (group C; n = 30) or a modified Winnie (group W; n = 30) approach. Contralateral spread and lumbar plexus blockade were assessed 15, 30, and 45 min after PCB. Contralateral spread (bilateral from T4 to S5) and femoral and lateral cutaneous nerve block were evaluated by sensory testing, and obturator motor block was assessed. Bilateral anesthesia occurred in 10 patients in group C and 12 patients in group W (P = 0.8). Blockade of the femoral, lateral cutaneous, and obturator nerves was 90%, 93%, and 80%, respectively, for group C and 93%, 97%, and 90%, respectively, for group W (P > 0.05). No differences were found in PCB procedure time, pain scores, 24-h morphine consumption, or time to first morphine analgesia.

Source: MEDLINE

30. Femoral nerve blockade as pain relief in hip fractures [Swedish]

Femoralnervsblockad som smartlindring vid hofffraktur: Bra alternativ i perioperativ behandlingsarsenal visar prospektiv studie

Author(s): Kullenberg B., Ysberg B., Heilman M., Resch S.

Citation: Lakartidningen, June 2004, vol./is. 101/24(2104-2107), 0023-7205 (10 Jun 2004)

Publication Date: June 2004

Abstract: Almost 25 % of all patients with hip fracture experience temporary confusion pre- and directly postoperatively due to trauma, advanced age, transport between units, and the use of analgesics. 35-50 % of the patients suffer temporary or chronic decubitus. Analgesics often lead to nausea. A femoral nerve block can interrupt sensory impulses from the hip joint and provide complete pain relief without affecting the CNS, thus making preoperative care easier and postoperative rehabilitation can be started earlier. 80 consecutive patients with hip fracture were randomized to femoral nerve block or pharmacological treatment only. Paracetamol and tramadol were the standard analgesics used. All patients were followed up with regard to pain, duration of the block, number of analgesics doses, temporary confusion and time for postoperative mobilization. Pain was estimated by the patients using the visual analogue scale (VAS). A nerve block was performed to block the femoral nerve, the lateral femoral cutaneous nerve and the obturator nerve with 30 ml of ropivacaine 7,5 mg/ml. Mental status was evaluated with Pfeiffer-test. All patients experienced relatively intense pain on admission with an average VAS of 6. After nerve block the VAS was 2. Pain relief was the same in the control group. Pain relief was sustained for 15 hours. The time for mobilization after surgery was significantly lower, 23 hours compared to 36 for the control group. There was a lower number of patients
temporarily confused in the block group compared to the control group, however no significant differences were seen. Femoral nerve block provides adequate pain relief, equivalent to pharmacological treatment in most patients. The time for postoperative mobilization was shorter and less temporary confusion was seen. There were no complications in this group, making nerve block a good alternative to traditional pharmacological preoperative treatment for patients with hip fractures.

Source: EMBASE

31. Postoperative analgesia after total-hip arthroplasty: Comparison of intravenous patient-controlled analgesia with morphine and single injection of femoral nerve or psoas compartment block. a prospective, randomized, double-blind study.

Author(s): Biboulet P, Morau D, Aubas P, Bringuier-Branchereau S, Capdevila X

Citation: Regional Anesthesia & Pain Medicine, March 2004, vol./is. 29/2(102-9), 1098-7339;1098-7339 (2004 Mar-Apr)

Publication Date: March 2004

Abstract: BACKGROUND: The authors compared the analgesic effects and quality of rehabilitation of three analgesic techniques after total-hip arthroplasty in a double-blind, randomized trial.METHODS: Forty-five patients were assigned to 1 of 3 groups, patient-controlled analgesia with morphine (PCA), femoral nerve block (FNB), or psoas compartment block (PCB). At the end of the procedure performed under general anesthesia, nerve blocks using 2 mg/kg of 0.375% bupivacaine and 2 microg/kg of clonidine were performed in the FNB (n = 16) and PCB (n = 15) groups. In the recovery room, all 3 groups received initial intravenous morphine titration if their pain score was higher than 30 on a 100-mm visual analog scale (VAS), and then a PCA device was initiated. Morphine consumption was the primary end point to assess postoperative analgesia.RESULTS: After extubation (H0), morphine titration was higher in the PCA group (P <.05). During the first 4 postoperative hours (H0 to H4), morphine consumption per hour and VAS pain score were lower in the PCB group (P <.05). After H4, there was no difference in morphine consumption and VAS among groups, either at rest or during mobilization. After H4, morphine consumption remained lower than 0.5 mg/h, and VAS remained lower than 30 mm in the 3 groups. In 4 patients of the PCB group, an epidural diffusion was noted. Hip mobility and length of stay in the rehabilitation center were not different among the groups.CONCLUSIONS: PCA is an efficient and safe analgesia technique. FNB and PCB should not be used routinely after total-hip arthroplasty.

Source: MEDLINE

32. Do femoral nerve blocks improve acute pain control in adults with isolated hip fractures?

Author(s): Hurley K.

Citation: Canadian Journal of Emergency Medicine, 2004, vol./is. 6/6(441-443), 1481-8035 (2004)

Publication Date: 2004

Source: EMBASE

33. Intrathecal morphine provides better postoperative analgesia than psoas compartment block after primary hip arthroplasty.

Author(s): Souron V., Delaunay L., Schifrine P.

Citation: Canadian Journal of Anesthesia, June 2003, vol./is. 50/6(574-579), 0832-610X (Jun 2003)
Publication Date: June 2003

Abstract: Purpose: Intrathecal morphine and psoas compartment block represent two accepted techniques to provide postoperative analgesia after hip arthroplasty. We designed a prospective, randomized, single-blinded study to compare these two techniques. Methods: Patients scheduled for primary hip arthroplasty under general anesthesia were randomized to receive either an intrathecal administration of 0.1 mg morphine (Group I, n = 27) or a psoas compartment block with ropivacaine 0.475% 25 mL (Group II, n = 26). Pain scores, morphine consumption, associated side-effects were assessed for 48 hr postoperatively. In addition, patient's acceptance and satisfaction of the postoperative analgesic technique were also recorded. Results: During the first 24 hr, pain scores (3.3 +/- 9.6 mm vs 22.8 +/- 27.1 at H+6, 3.3 +/- 8.3 mm vs 25 +/- 26.7 mm at H+12, 7 +/- 14.9 mm vs 21.9 +/- 29 mm at H+18) and morphine consumption (0.56 +/- 2.12 mg vs 9.42 +/- 10.13 mg) were lower in Group I than in Group II. Urinary retention was the more frequent side-effect occurring in 37% of cases in Group I vs 11.5% in Group II (P < 0.05). No major complication occurred. Despite better analgesia provided by the use of intrathecal morphine, there was no difference in the satisfaction scores between groups. Conclusion: 0.1 mg intrathecal morphine administration provides better postoperative analgesia than single-shot psoas compartment block after primary hip arthroplasty.

Source: EMBASE

34. Steady state bupivacaine plasma concentrations and safety of a femoral "3-in-1" nerve block with bupivacaine in patients over 80 years of age

Author(s): Snoeck M.M.J., Vree T.B., Gielen M.J.M., Lagerwerf A.J.

Citation: International Journal of Clinical Pharmacology and Therapeutics, March 2003, vol./is. 41/3(107-113), 0946-1965 (01 Mar 2003)

Publication Date: March 2003

Abstract: Objectives: Fracture of the upper femur is a common injury in the elderly. Several anesthetic techniques exist for surgery of traumatic hip fracture. The aim of this investigation was to study plasma concentrations and safety of 2 mg/kg bupivacaine in a femoral "3-in-1" nerve block in patients older than 80 years of age. Subjects and methods: A 3-in-1 femoral nerve block, combined with a general anesthetic was used in 10 elderly patients aged over 80 years. They were undergoing emergency surgery for stabilization of their fractured femur. Bupivacaine plasma concentrations of radial artery blood samples were assessed over a 6-hour period after a femoral 3-in-1 injection of 2 mg/kg bupivacaine 0.375% with epinephrine (1 : 400,000). Results: No toxic reactions to bupivacaine were seen. In 8 of the 10 patients per- and postoperative analgesia were adequate as a result of the nerve block. Patients experienced loss of sensation and analgesia for 26.6 +/- 4.6 hours (mean +/- SD). This was inversely related to the apparent steady state concentration of bupivacaine. The mean of the individual peak plasma concentrations of bupivacaine (C_{max}) was 0.74 +/- 0.64 mug/ml. The highest plasma concentration was 1.83 mug/ml. Large variations in plasma concentrations were detected in these patients. Bupivacaine metabolites were not detected. Conclusions: A femoral 3-in-1 nerve block, using 2 mg/kg bupivacaine with epinephrine, provides prolonged pain relief without local anesthetic toxicity in elderly patients. It is a satisfactory supplementary analgesic technique for hip and knee surgery in the elderly.

Source: EMBASE

35. Comparative study between the analgesic efficacies of nerve stimulator-guided 3-in-1 block, ultrasonographic-guided 3-in-1 block and posterior approach lumbar plexus block following total hip arthroplasty


Citation: Egyptian Journal of Anaesthesia, January 2003, vol./is. 19/1(39-44), 1110-1849 (Jan 2003)
Publication Date: January 2003

Abstract: Background: The purpose of this study was to compare between the efficacy of nerve stimulator-guided 3-in-1 extended femoral nerve sheath block, ultrasonographic-guided 3-in-1 block and posterior approach lumbar plexus block for postoperative pain relief after total hip arthroplasty (THA). Methods: Sixty patients scheduled for total hip arthroplasty (THA) were randomly allocated into three equal groups. The technique used in groups I and II entailed the insertion of a 10-cm, 23-gauge sterile bevelled needle just lateral to the femoral artery, being directed and advanced with an angle of 45-30 degree to the skin until twitches of quadriceps muscle were elicited. In group I, the technique was nerve stimulator-guided, whereas in group II, it was ultrasonographic-guided. In the third group, lumbosacral plexus block via a posterior approach was carried out. All patients received 0.4 ml/kg of 0.5% bupivacaine with epinephrine 1/200,000. Pain scores (VAS), requirement of supplemental analgesia, and the extent of sensory block were recorded. Results: Groups II and III did not differ significantly regarding the pain score, while it was significantly higher in group I (P < 0.01). This was reflected by the requirement of supplementary analgesia in the three groups. Group I patients experienced more evanescent sensory block when compared with patients of the other two groups. Sensory block of the obturator nerve was more successful in group III patients when compared with group II patients subjectively throughout the study and statistically at 8 and 10 hours of the block (P < 0.05). Conclusion: Ultrasonographic-guided 3-in-1 block provided better analgesia following THA than nerve stimulator-guided 3-in-1 block. However, posterior approach lumbar plexus block provided better sensory block of the obturator nerve when compared with 3-in-1 block whether it is nerve stimulator or ultrasonographic-guided.

Source: EMBASE

36. Extended femoral nerve sheath block after total hip arthroplasty.

Author(s): Kampe S

Citation: Anesthesia & Analgesia, September 2001, vol./is. 93/3(804), 0003-2999;0003-2999 (2001 Sep)

Publication Date: September 2001

Source: MEDLINE

37. Loco-regional anaesthesia of the lower limbs [Italian] Anestesia loco-regionale dell’arto inferiore

Author(s): Di Benedetto P., Borghi B., Ricci A., van Oven H.

Citation: Minerva anestesioligica, September 2001, vol./is. 67/9 Suppl 1(56-64), 0375-9393 (Sep 2001)

Publication Date: September 2001

Abstract: Lumbar plexus and sacral plexus are responsible for sensory and motor innervation of the whole inferior limb and their blockade can be used as a single technique or integrated with general anaesthesia for hip-, femur-, knee-, lower leg-, ankle- and foot surgery. For the performance of the blocks, knowledge of peripheral and central percourse of the nerves and their anatomical relationships to bone-, muscle-, vessel and skin structures is important. In case of the sciatic nerve, a cutaneous projection of the percourse of the nerve is possible (the so-called sciatic line) formed by a virtual line from the midpoint of the line between great trochanter and ischial tuberosity to the apex of the popliteal fossa. Peripheral blocks used for the above mentioned types of surgery are: lumbar plexus block, sacral plexus block, femoral nerve block, obturator nerve block, lateral cutaneous femoral nerve block and sciatic nerve block. Regarding the last one, the following approaches are possible, depending on the anatomical site of performance: classic proximal posterior block, parasacral proximal block, lithotomic posterior proximal block, subgluteal posterior proximal block, anterior proximal block, lateral medio femoral popliteal proximal block, block distal from the poplitea, subcalcaneal block. The terms distal and proximal are in relation to
the small trochanter. All blocks have to be performed using a nerve stimulator, teflon insulated needles of various measures depending on the kind of block, variable stimulation from 1.5 mA (when evoking muscle contraction) to 0.5-0.3 mA (injection of local anaesthetic) with frequencies of 2 Hz/0.1 ms.

Source: EMBASE

38. Extended femoral nerve sheath block after total hip arthroplasty: continuous versus patient-controlled techniques.

Author(s): Singelyn FJ, Vanderelst PE, Gouverneur JM

Citation: Anesthesia & Analgesia, February 2001, vol./is. 92/2(455-9), 0003-2999;0003-2999 (2001 Feb)

Publication Date: February 2001

Abstract: We assessed the efficacy of patient-controlled analgesia (PCA) techniques for extended femoral nerve sheath block after total hip arthroplasty. Forty-five patients were divided into three groups of 15. Over 48 h, all patients received 0.125% bupivacaine with clonidine 1 microg/mL and sufentanil 0.1 microg/mL via a femoral nerve sheath catheter as a continuous infusion at 10 mL/h in Group 1, as PCA boluses only of 10 mL/h in Group 2, or as PCA boluses of 5 mL per 30 min in Group 3. Pain scores, sensory block, supplemental analgesia, bupivacaine consumption, side effects, and satisfaction scores were recorded. Pain scores at rest and supplemental analgesia were comparable in the three groups. At 48 h, pain relief on movement was significantly better in Group 3 than in Group 1 (P = 0.01). Bupivacaine consumption was significantly less in Groups 2 and 3 than in Group 1 (P < 0.001). Side effects were comparable in the three groups. Satisfaction scores were significantly higher in Group 3 than in the other groups (P < 0.01). We conclude that, to maintain extended femoral nerve sheath block after total hip arthroplasty, PCA techniques reduce the local anesthetic consumption without compromise in patient satisfaction or visual analog scale scores. Of the two PCA techniques tested, PCA boluses (5 mL per 30 min) of 0.125% bupivacaine with clonidine 1 microg/mL and sufentanil 0.1 microg/mL are associated with the smallest local anesthetic consumption and the most patient satisfaction.

Source: MEDLINE

39. Extended femoral nerve sheath block after total hip arthroplasty (7) [multiple letters]

Author(s): Kampe S., Singelyn F.

Citation: Anesthesia and Analgesia, 2001, vol./is. 93/3(804), 0003-2999 (2001)

Publication Date: 2001

Source: EMBASE

40. The effects of the single or multiple injection technique on the onset time of femoral nerve blocks with 0.75% Ropivacaine

Author(s): Casati A., Fanelli G., Beccaria P., Cappelleri G., Berti M., Aldegheri G., Torri G.

Citation: Anesthesia and Analgesia, July 2000, vol./is. 91/1(181-184), 0003-2999 (Jul 2000)

Publication Date: July 2000

Abstract: We evaluated the effect of the injection technique on the onset time and efficacy of femoral nerve block performed with 0.75% ropivacaine. A total of 30 patients undergoing arthroscopic knee surgery were randomly allocated to receive femoral nerve blockade with 0.75% ropivacaine by using either a single injection (Single group, n = 15) or multiple
injection (Multiple group, n = 15). Nerve blocks were placed by using a short-beveled, Teflon-coated, stimulating needle. The stimulation frequency was set at 2 Hz, and the intensity of stimulating current, initially set at 1 mA, was gradually decreased to <0.5 mA after each muscular twitch was observed. In the Single group, 12 mL of 0.75% ropivacaine was slowly injected, as soon as the first muscular twitch was observed. In the Multiple group, the stimulating needle was inserted and redirected, eliciting each of the following muscular twitches: contraction of vastus medialis, vastus intermedius, and vastus lateralis. At each muscular twitch, 4 mL of the study solution was injected. Placing the block required 4.2 +/- 1.7 min (median, 5 min; range, 2-8 min) in the Multiple group and 3.4 +/- 2.2 min (median, 3 min; range, 1-5 min) in the Single group (P = 0.02). Onset of nerve block (complete loss of pinprick sensation in the femoral nerve distribution with concomitant inability to elevate the leg from the operating table with the hip flexed) required 10 +/- 3.7 min in the Multiple group (median, 10 min; range, 5-20 min) and 30 +/- 11 min in the Single group (median, 30 min; range, 10-50 min) (P < 0.0005). Propofol sedation was never required to complete surgery; although 0.1 mg fentanyl at trocar insertion was required in two patients of the Multiple group (13%) and nine patients of the Single group (60%) (P = 0.02). We conclude that searching for multiple muscular twitches shortened the onset time and improved the quality of femoral nerve block performed with small volumes of 0.75% ropivacaine.

Source: EMBASE


Author(s): Bichel T., Debry F., Joris J., Treggiari-Venzi M., Lamy M.

Citation: Cahiers d'Anesthesiologie, October 1998, vol./is. 46/5(311-316), 0007-9685 (Oct 1998)

Publication Date: October 1998

Abstract: The pain management, neuroendocrine and metabolic responses to surgery were compared in two groups of patients undergoing a total hip arthroplasty; one receiving epidural anaesthesia (EPI, n = 12) and the other a femoral nerve block (FNB n = 12). The general anaesthesia protocol was similar for the two groups. The epidural or femoral catheters were used for intraoperative analgesia and to provide postoperative pain relief during the first 24 hours. On the second postoperative day the epidural or the femoral catheter was withdrawn and a Patient Controlled Analgesia (PCA) using piritramide was started. The neuroendocrine and metabolic reactions were larger in the FNB compared to the EPI group, with an increase of the postoperative cortisol plasma level and of the cortisol and nitrogen urinary excretion in the former group (P < 0.01). Intraoperative blood loss, transfused blood volumes and the number of transfused patients were similar in the two groups. Intraoperative fluid administration was also comparable. Isoflurane consumption was identical in the two groups. A good postoperative analgesia was achieved, with a trend towards a smaller intravenous opiate consumption in the FNB group, particularly during the first eight hours after the onset of the PCA (P > 0.02). These results indicate that the femoral nerve block may be a safe and effective technique for pain management after a total hip arthroplasty. It ensures good analgesia without entire suppression of the stress response. Femoral analgesia is not associated with haemodynamic changes or motor blockade allowing early mobilisation. However the impact on morbidity remains to be evaluated.

Source: EMBASE

42. "3-in-1" femoral block.

Author(s): Singer T, Bird P, Borgeat A

Citation: Canadian Journal of Anaesthesia, October 1998, vol./is. 45/10(1032-3), 0832-610X;0832-610X (1998 Oct)
43. Postoperative analgesia with "3-in-1" femoral nerve block after prosthetic hip surgery.

Author(s): Fournier R, Van Gessel E, Gaggero G, Boccovi S, Forster A, Gamulin Z

Citation: Canadian Journal of Anaesthesia, January 1998, vol./is. 45/1(34-8), 0832-610X;0832-610X (1998 Jan)

Abstract: PURPOSE: To evaluate the efficacy of a single shot "3-in-1" femoral nerve block for prosthetic hip surgery in association with general anaesthesia on post-operative analgesia. METHODS: Forty patients, ASA 1 to 3, received sham block or "3-in-1" femoral nerve block, following Winnie's landmarks with a nerve stimulator, and 40 ml bupivacaine 0.5% with epinephrine were injected after induction of anaesthesia. Vecuronium, 0.1 mg.kg⁻¹, was added after performing the block and anaesthesia was maintained with isoflurane, oxygen 40% and nitrous oxide 60%. Fentanyl, 1.5 microgram.kg⁻¹, was administered before incision to all patients. Heart rate, blood pressure, fentanyl requirements and FETiso were measured throughout surgery. During the post-operative period, 75 mg diclofenac i.m. and/or 0.1 mg.kg⁻¹ morphine s.c. were administered when pain score was > 3/10 and repeated when necessary. Pain scores at first analgesic intervention, at 24 hr and 48 hr as well as diclofenac and morphine requirements after surgery were recorded. RESULTS: There was no difference in anaesthetic requirements during surgery. The time from performance of sham or "3-in-1" femoral nerve block to the first analgesic intervention (261 +/− 49 min versus 492 +/− 40 min, P < 0.05) and time from extubation to the first analgesic intervention (61 +/− 44 min vs 298 +/− 39 min, P < 0.05) were prolonged in the study group. However, pain scores and the analgesic requirements in the postoperative periods (24 and 48 hr) were similar. CONCLUSION: There is a short-term benefit during the first few postoperative hours in using a single shot "3-in-1" femoral nerve block to complement general anaesthesia for elective hip surgery.

Source: MEDLINE

44. Postoperative analgesia with '3-in-1' femoral nerve block after prosthetic hip surgery

Author(s): Fournier R., Van Gessel E., Gaggero G., Boccovi S., Forster A., Gamulin Z.

Citation: Canadian Journal of Anaesthesia, January 1998, vol./is. 45/1(34-38), 0832-610X (Jan 1998)

Abstract: To evaluate the efficacy of a single shot '3-in-1' femoral nerve block for prosthetic hip surgery in association with general anaesthesia on post-operative analgesia. Methods: Forty patients, ASA 1 to 3, received sham block or '3-in-1' femoral nerve block, following Winnie's landmarks with a nerve stimulator, and 40 ml bupivacaine 0.5% with epinephrine were injected after induction of anaesthesia. Vecuronium, 0.1 mg kg⁻³, was added after performing the block and anaesthesia was maintained with isoflurane, oxygen 40% and nitrous oxide 60%. Fentanyl, 1.5 mg kg⁻³, was administered before incision to all patients. Heart rate, blood pressure, fentanyl requirements and F(ET)iso were measured throughout surgery. During the post-operative period, 75 mg diclofenac im and/or 0.1 mg kg⁻¹ morphine sc were administered when pain score was > 3/10 and repeated when necessary. Pain scores at first analgesic intervention, at 24 hr and 48 hr as well as diclofenac and morphine requirements after surgery were recorded. Results: There was no difference in anaesthetic requirements during surgery. The time from performance of sham or '3-in-1' femoral nerve block to the first analgesic intervention (261 +/− 49 min versus 492 +/− 40 min, P < 0.05) and time from extubation to the first analgesic intervention (61 +/− 44 min vs 298 +/− 39 min, P < 0.05) were prolonged in the study group. However, pain scores
and the analgesic requirements in the postoperative periods (24 and 48 hr) were similar.

Conclusion: There is a short-term benefit during the first few postoperative hours in using a single shot '3-in-1' femoral nerve block to complement general anaesthesia for elective hip surgery.

Source: EMBASE

45. [The "3-in-1" block: myth or reality?]. [French] Le bloc "trois-en-un": mythe ou réalité?

Author(s): Cauhepe C, Oliver M, Colombani R, Railhac N

Citation: Annales Francaises d Anesthesie et de Reanimation, 1989, vol./is. 8/4(376-8), 0750-7658;0750-7658 (1989)

Publication Date: 1989

Abstract: The technique described by Winnie in 1973 is supposed to provide a regional block of the femoral, femoral cutaneous, and obturator nerves by a single injection within the femoral nerve sheath. This study aimed to assess the diffusion spaces for the local anaesthetic solution used in this technique. The anatomical study included the dissection of 2 adult and 1 foetal cadavers. It was associated with a radiographic study in adult volunteers. About 20 to 60 ml of an isotonic radiographic contrast (iopamidol 150) were injected into the femoral nerve sheath located with the help of a nerve stimulator. Standard pelvic radiographs and computerised tomographic scans were carried out at the time of injection, and 30 min later. Two different unpredictable distributions were found; which were independent of the injected volume. One type consisted in an internal diffusion towards the psoas major muscle, the liquid thus reaching the three nerves. The other type was an external diffusion, in front of the iliacus muscle, the liquid never reaching the internal side of the psoas major muscle, and therefore the obturator nerve. The "3 in 1" block would therefore seem to be useful for those surgical acts requiring only a block of the femoral and femoral cutaneous nerves, i.e. those involving the anterior aspect of the thigh and knee, the femoral shaft, and the patella. On the other hand, its usefulness for surgery of the hip (dislocation, fractured neck of femur) is rather uncertain.

Source: MEDLINE

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