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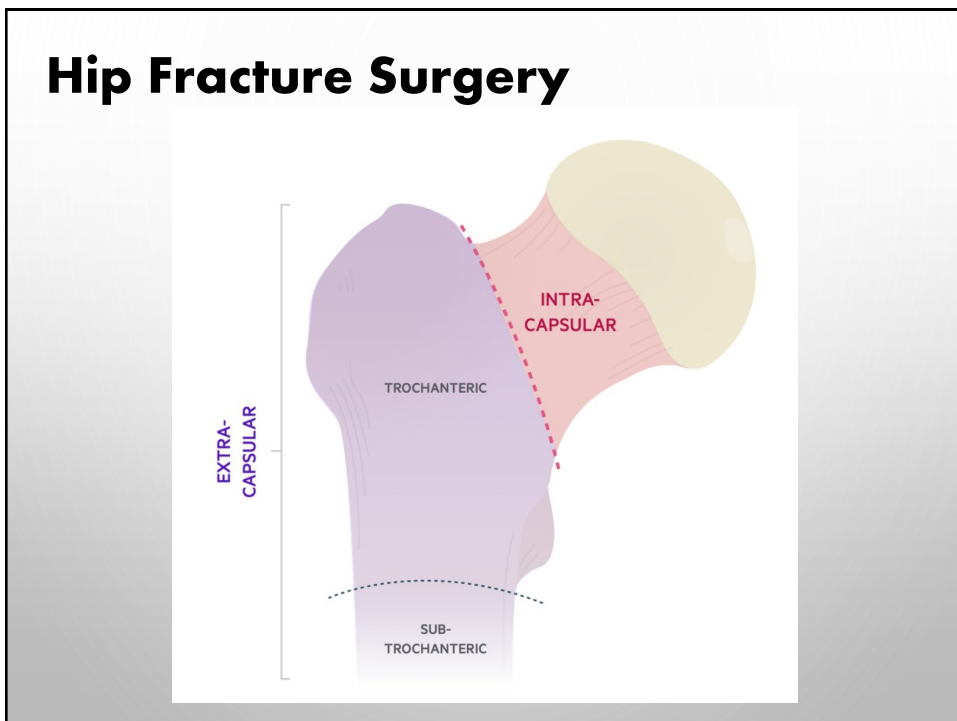
Hip Fractures

- Most common reason for older people to require emergency surgery
- 77210 in UK and Ireland in 2018
- £1bn annual cost to the NHS (excluding social care)

2

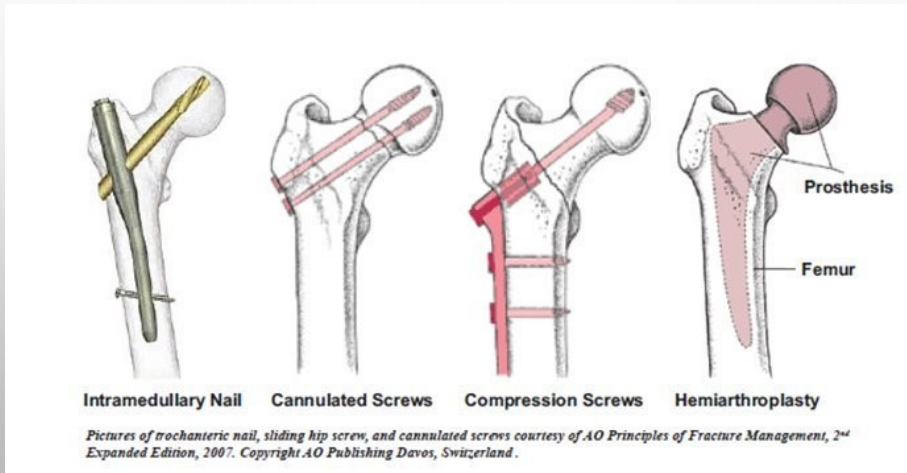


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Hip Fracture Surgery



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Hip Fracture Surgery

Operation	Fracture	Patient position	Approximate 'skin-to-skin' operating time (min)	Typical incision
Cannulated hip screws	Minimally displaced intracapsular*	Supine; high traction table	45	Lateral
Dynamic (sliding) hip screw	Simple intertrochanteric	Supine; high traction table	45	Lateral
Intramedullary nail	Complex intertrochanteric or subtrochanteric	Supine; high traction table	60	High lateral; small distal incision for locking screw
Hemiarthroplasty	Displaced intracapsular	Lateral or supine; low table	60	Lateral
Total hip replacement	Displaced intracapsular in fit patients	Lateral or supine; low table	90	Lateral; may curve posteriorly

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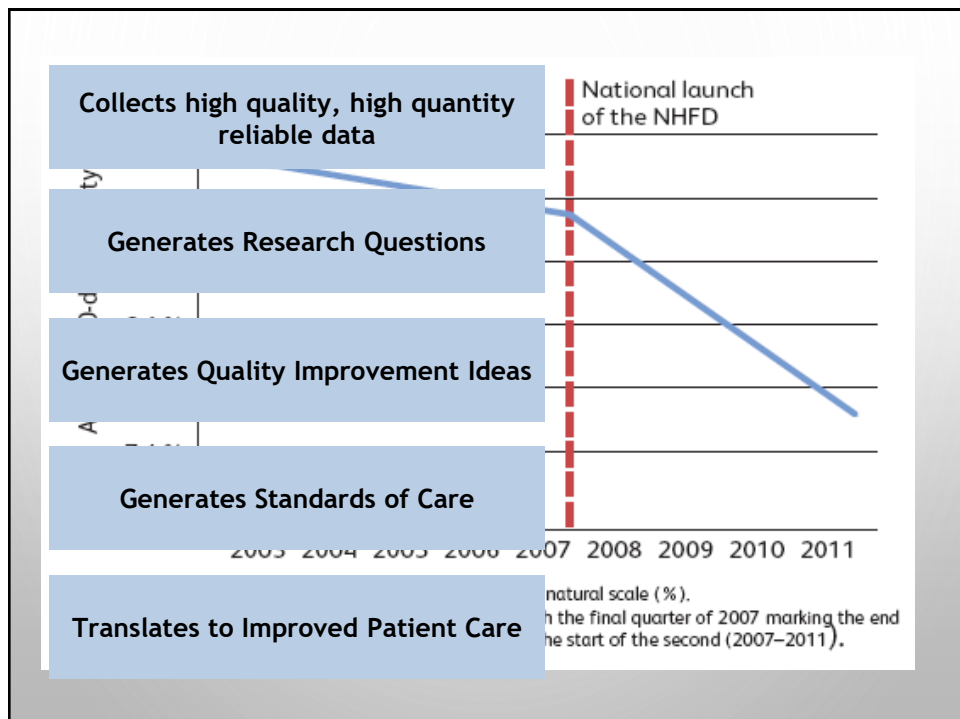


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Mortality

- 6.1% mortality at one month (2018)
- 33% mortality at one year

9



10



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Best Practice Tariffs

- Criteria that, if achieved, result in additional payment to a healthcare organisation

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Best Practice Tariffs

Table 1 English and Irish BPT clinical criteria.^{1,3}

England	Ireland
Time to surgery within 36 h of presentation	Admission to an acute orthopaedic ward (or operating theatre) within 4 h of presentation
Assessed by a geriatrician within 72 h	Surgery within 48 h of admission and within normal working hours
Preoperative cognitive test using the abbreviated mental test score	Does not develop a new Grade 2 or higher pressure ulcer during admission
Assessment for bone protection	Reviewed by a geriatrician at any point during admission
Specialist falls assessment Nutritional assessment on admission	Bone health assessment Specialist falls assessment
Postoperative delirium assessment using the 4AT	
Assessed by a physiotherapist on the day of or the day after surgery	

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Best Practice Tariffs

Table 1 English and Irish BPT clinical criteria.^{1,3}

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Best Practice Tariffs

Assessment for bone protection

Reviewed by a geriatrician at any point during admission

Specialist falls assessment
Nutritional assessment on admission

Bone health assessment
Specialist falls assessment

Postoperative delirium assessment using the 4AT

Assessed by a physiotherapist on the day of or the day after surgery

15

4AT Delirium assessment tool

(65 years and over)

Has your patient been more **confused, sleepy or drowsy**? Place this sticker in the notes and complete to assess for delirium.

	Circle score for each section
1 Alertness	
Normal (fully alert, but not agitated)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4
2 AMT4 Ask your patient the following: age, date of birth, name of hospital/building, current year	
No mistakes	0
1 mistake	1
2 or more mistakes or untestable	2
3 Attention Ask your patient to list the months of the year backwards	
7 months or more correctly	0
Starts, but scores <7 months/refuses to start	1
Untestable (cannot start because unwell, drowsy)	2
4 Acute change or fluctuating course Evidence of significant change or fluctuation in alertness, cognition, other mental function arising over the last 2 weeks and still evident in last 24 hours	
No	0
Yes	4

4 or above - possible delirium - use the Delirium pathway

Total score

1-3 - possible cognitive impairment

0 - delirium or severe cognitive impairment unlikely (but delirium still possible if 4 information incomplete)

Adapted from MacLulich A (2014). See full delirium guideline on intranet.

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4AT Delirium assessment tool (65 years and over)

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17

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Adapted from MacLulich A (2014). See full delirium guideline on intranet.

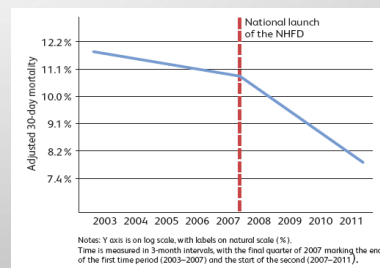
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Mortality

- Early mortality has improved
- Focus now on reducing morbidity
- The BPT and NHFD is being used to collect data on this

Key Aims of Future QI

- Restoring function
- Prevention of cognitive impairment
- Reducing future dependency



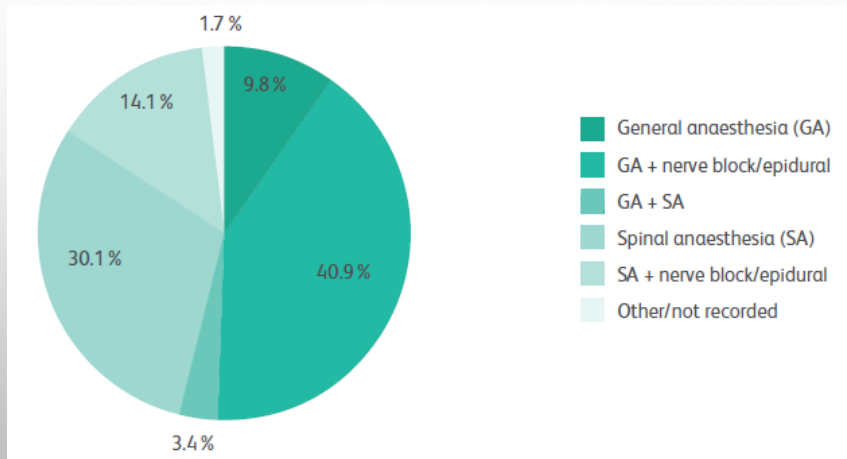
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The Role of the Anaesthetist



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General vs Spinal Anaesthesia



National Hip Fracture Database: Anaesthesia Sprint Audit of Practice 2014

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General vs Spinal Anaesthesia



**Cochrane
Library**

Cochrane Database of Systematic Reviews

Anaesthesia for hip fracture surgery in adults (Review)

Parker MJ, Handoll HHG, Griffiths R

Authors' conclusions

Overall, there was insufficient evidence available from trials comparing regional versus general anaesthesia to rule out clinically important differences. Regional anaesthesia may reduce acute postoperative confusion but no conclusions can be drawn for mortality or other outcomes.

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Evidenced Based Interventions

- Decision to proceed with surgery
- Enabling timely hip fracture repair
- Avoiding hypotension
- Peripheral nerve blocks
- Avoiding cognitive complications

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Surgical management or conservative management

- High risk
- Often told unfit for elective surgery (including THR)
- Risk of surgery must be balanced against the risk of doing nothing

NHFD Data

- 48.6% of patients with a hip fracture who did not have surgery died in hospital compared with 6.6% of patients who had surgery
- Mortality rate of ASA 5 patients undergoing surgery: 24.8%
- Surgery provides effective analgesia so may even be deemed palliative

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Timely Surgery



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Timely Surgery

- Pain and immobility lead to complications
- BPT in England sets a standard of operating within 36 hours of presentation

NHFD Data

- 9.4% relative increase in 30-day mortality when surgery occurred more than 24 hours after presentation
- Delaying surgery more than one day increases the risk of delirium twofold in patients with mild-moderate cognitive impairment

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THE LANCET

Volume 395, Issue 10225, 29 February–6 March 2020, Pages 698–708



Articles

Accelerated surgery versus standard care in hip fracture (HIP ATTACK): an international, randomised, controlled trial

- Accelerated (median 6 hours) vs Standard (median 24 hours)
- No benefit to 90-day mortality or major complications
- Risk of delirium, time to mobilisation and time to discharge were significantly lower in the accelerated group

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Hypotension

Anaesthesia 2016, 71, 506-514

doi:10.1111/anae.13415

Original Article

Secondary analysis of outcomes after 11,085 hip fracture operations from the prospective UK Anaesthesia Sprint Audit of Practice (ASAP-2)

S. M. White,¹ I. K. Moppett,² R. Griffiths,³ A. Johansen,⁴ R. Wakeman,⁴ C. Boulton,⁴ F. Plant,⁵ A. Williams,⁶ K. Pappenheim,⁷ A. Majeed,⁸ C. T. Currie⁹ and M. P. W. Grocott¹⁰

- No mortality benefit when comparing spinal or GA
- Statistically significant increase in 5 and 30 day mortality with incremental decreases in lowest recorded MAP

30

BJA

British Journal of Anaesthesia, 121 (4): 706–721 (2018)

doi: 10.1016/j.bja.2018.04.036
Advance Access Publication Date: 20 June 2018
Review Article

CARDIOVASCULAR

Intraoperative hypotension and the risk of postoperative adverse outcomes: a systematic review

E. M. Wesselink^{1,*}, T. H. Kappen¹, H. M. Torn¹, A. J. C. Slooter² and W. A. van Klei¹

¹Department of Anesthesiology, Utrecht, The Netherlands and ²Department of Intensive Care Medicine, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands

*Corresponding author. E-mail: e.m.wesselink-5@umcutrecht.nl

This article is accompanied by an editorial: Making sense of the impact of intraoperative hypotension: from populations to the individual patient by Ke et al., *Br J Anaesth* 2018;121:689–691, doi: 10.1016/j.bja.2018.07.003.

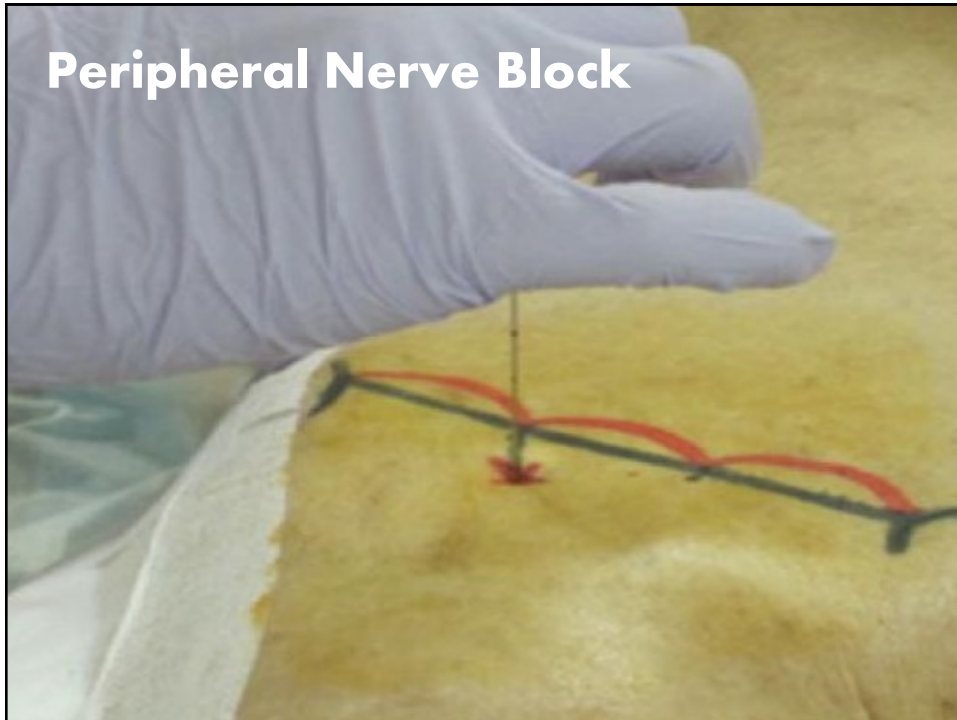
- Mortality risk increases with a MAP < 80 mmHg for > 10 minutes

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Hypotension

- Avoidance of hypotension
- Use lower doses of anaesthesia (regional or general)
- Treat with vasopressors or fluids as appropriate
- Consider invasive arterial monitoring in patients at risk
- Be vigilant for and proactive in the treatment of Bone Cement Implantation Syndrome

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Peripheral Nerve Block

- Multimodal pain management includes regional anaesthesia
- FICB, femoral nerve block and 3-in-1 block are all effective
- Analgesia is incomplete as innervation of the hip joint arises from both lumbar and sacral plexuses
- Blocks can be repeated after 6 hours (AAGBI recommendation)
- LCNT should be blocked for surgery
- NICE Guidance also exists


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Hip fracture: management

Clinical guideline
Published: 22 June 2011
[nice.org.uk/guidance/cg124](https://www.nice.org.uk/guidance/cg124)
Last updated 2017

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Ensure analgesia is sufficient to allow movements necessary for investigations (as indicated by the ability to tolerate passive external rotation of the leg), and for nursing care and rehabilitation.

Consider adding nerve blocks if paracetamol and opioids do not provide sufficient preoperative pain relief, or to limit opioid dosage.

Consider intraoperative nerve blocks for all patients undergoing surgery.

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Cognitive Impairment

1/3 at presentation

Only 53% return home within 30 days

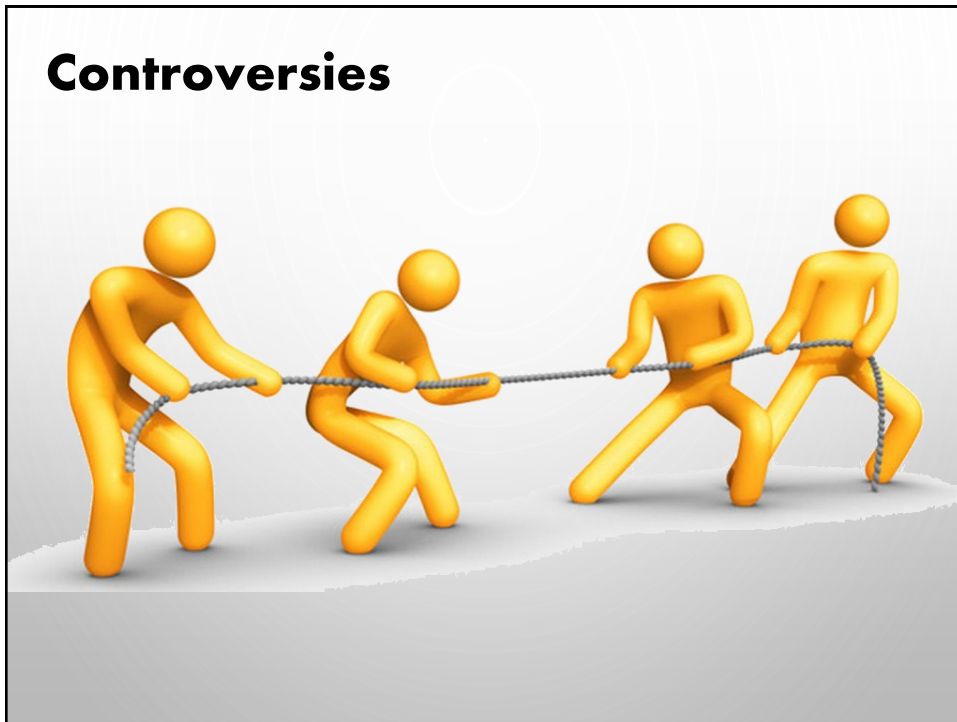


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Reducing Cognitive Complications

- Early surgery
- Avoidance of brain hypoperfusion
- Avoidance of certain drugs: opioids and central anticholinergic drugs (cyclizine, prochlorperazine, atropine)

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Controversies

- Type of anaesthetic
- Delay and optimisation
- Anaemia and blood transfusion
- New cardiac murmurs
- Antiplatelet, anticoagulants and spinal anaesthesia

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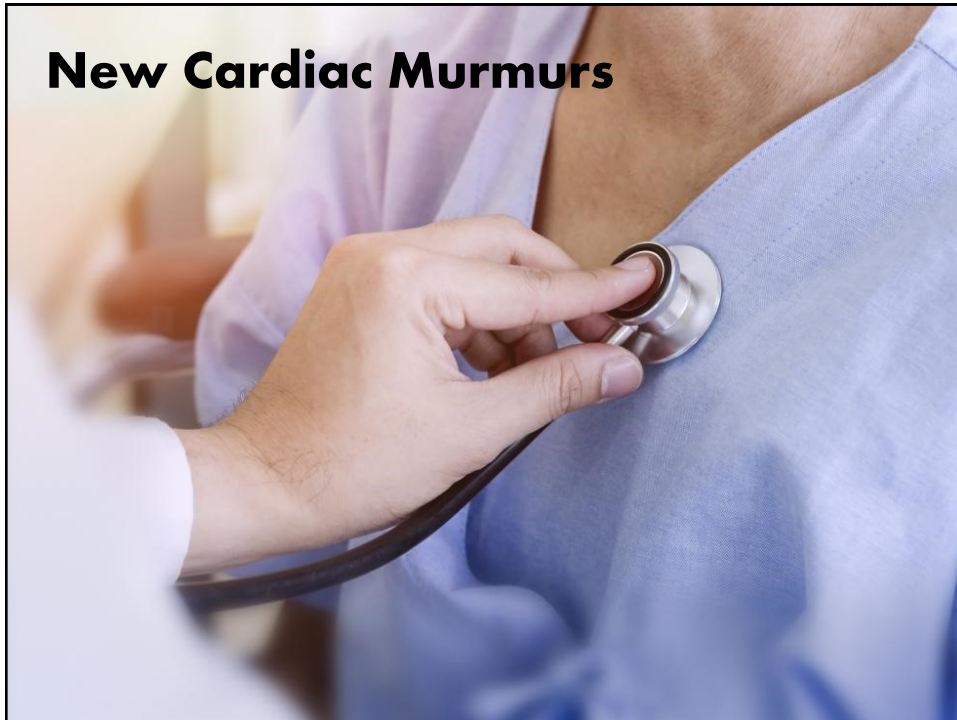


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Anaemia and Transfusions

- Pre-existing anaemia is common
- Blood loss from the fracture
- Blood loss from surgery
- Association of Anaesthetists Guidelines (2020) recommends perioperative Hb target of 90 g/L and 100 g/L for patients with ischaemic heart disease or symptoms preventing mobilisation on the first postoperative day (fatigue, dizziness)

42



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New Cardiac Murmurs

- 25% of patients with hip fractures have an audible cardiac murmur
- A pre-operative echo can influence anaesthetic management

Anaesthesia 2018, 73, 428-437

doi:10.1111/anae.14130

Original Article

Pilot multi-centre randomised trial of the impact of pre-operative focused cardiac ultrasound on mortality and morbidity in patients having surgery for femoral neck fractures (ECHONOF-2 pilot)

D. J. Canty,^{1,2} J. Heiberg,^{3,4} Y. Yang,^{5,6} A. G. Royse,^{7,8} S. Margale,^{9,10} N. Nanjappa,^{11,12} D. Scott,^{13,14} A. Maier,^{15,16} D. I. Sessler,¹⁷ A. Chuan,^{18,19} A. Palmer,²⁰ A. Bucknill,^{21,22} C. French²³ and C. F. Royse^{23,24}

- Surgery should not be delayed waiting for an echo or its result

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New Cardiac Murmurs

- Proceed with invasive arterial monitoring
- User lower doses of anaesthesia
- Titrate IV Fluids and vasopressors as appropriate

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Antiplatelets and Anticoagulants

- Guidelines not related to hip fracture surgery and related more to elective surgery tend to be conservative when defining what is safe
- A more pragmatic approach is needed when delaying surgery can have significant impact
- This is endorsed by the AA Guideline (2020)

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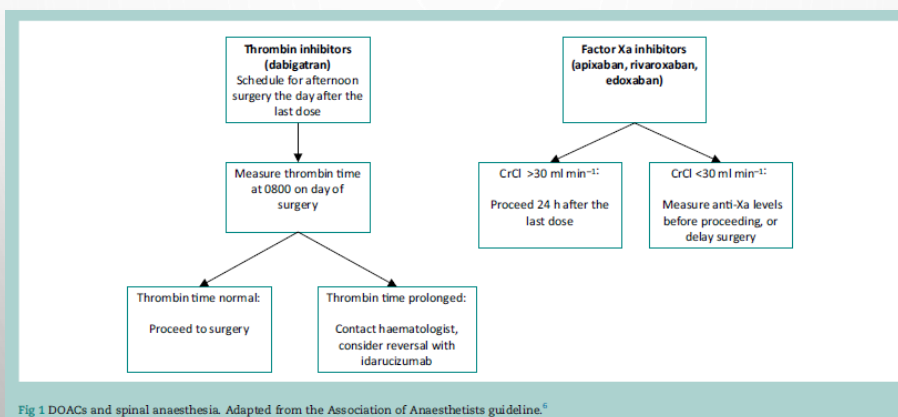
Antiplatelets and Anticoagulants

Where spinal anaesthesia is deemed superior to GA:

- Single antiplatelet therapy (including clopidogrel) is not a contraindication to spinal anaesthesia
- Spinal may be appropriate for patients on dual antiplatelet therapy where benefit outweighs risk
- For patients on Warfarin, spinal anaesthesia can be undertaken once $INR \leq 1.5$
- Spinal anaesthesia can usually be taken the day after last administration of a DOAC is Creatinine Clearance $> 30 \text{ mL/min}$

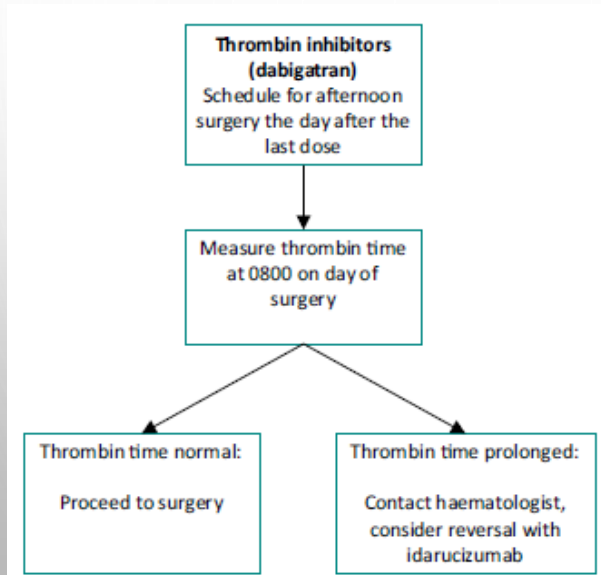
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Antiplatelets and Anticoagulants



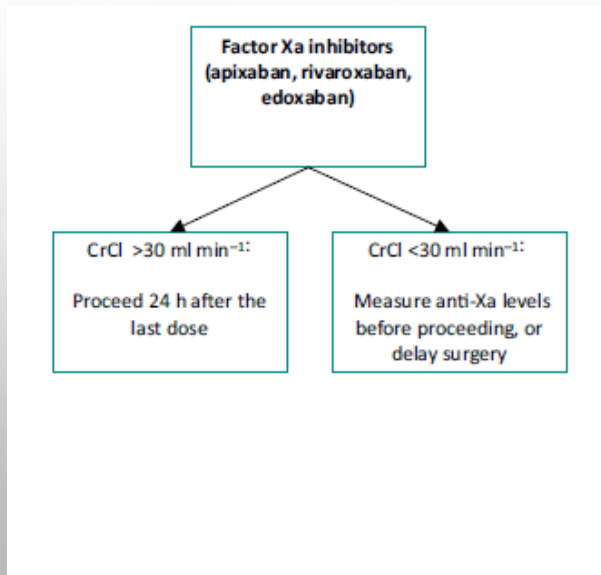
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Antiplatelets and Anticoagulants



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Antiplatelets and Anticoagulants

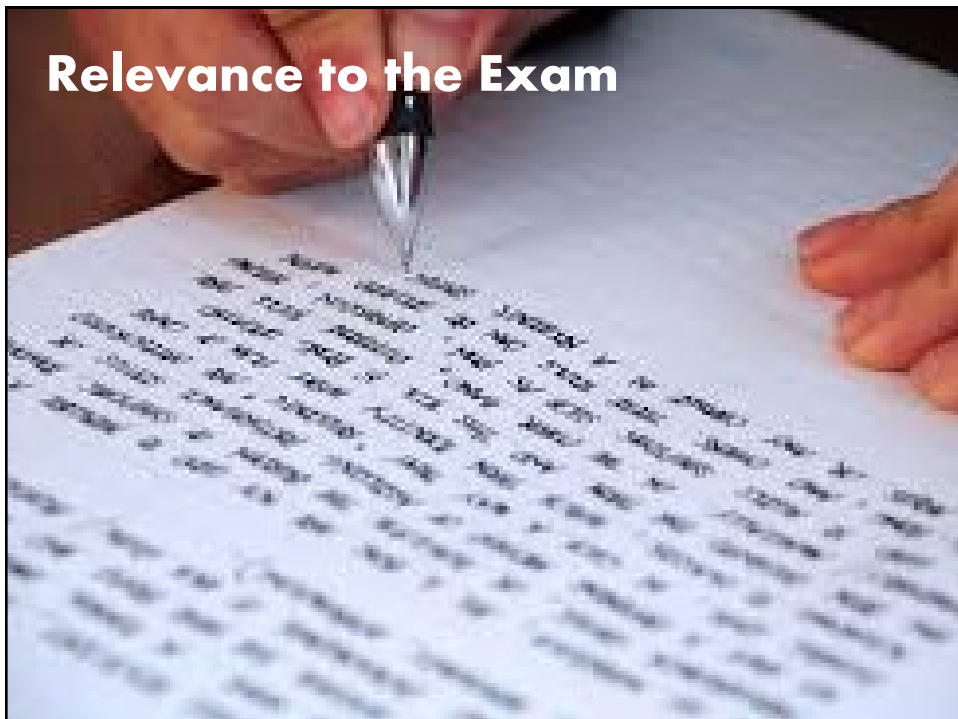


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Role of the Anaesthetist

- Decision to proceed with surgery – low threshold to proceed
- Enable timely hip fracture repair
- Avoid unnecessary delay and investigations
- Avoid and treat perioperative hypotension
- Liberal use of peripheral nerve blocks
- Strategies to avoid cognitive complications
- Less important the type of anaesthetic
- More important the conduct of anaesthesia

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Relevance to the Exam

March 2012

Question 1 (Blue Book)

A 90-year-old woman sustains a fractured neck of femur following a fall. She is scheduled for surgery.

- What aspects of this patient's care will have the highest impact on outcome? (45%)
- Outline the recommendations made by The National Institute for Health and Clinical Excellence (2011) on the management of pain in this patient. (30%)
- What causes of a fall in this patient might impact on the anaesthetic management? (25%)

Question 1 Trauma/Fractured neck of femur/NICE guideline.

52.9% pass rate.

Significant number of candidates gave a generic answer without relating to the current NICE guidelines. A significant number of candidates in section b) failed to concentrate on the management of pain and digressed to general aspects of care.

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Relevance to the Exam

March 2014

Question 12 (Grey Book)

An elderly patient has sustained a fractured neck of femur following a fall and is scheduled for surgery.

- Which aspects of this patient's care have a significant impact on outcome? (45%)
- Outline the recommendations of best practice for the management of pain in this patient. (30%)
- What causes of a fall in this patient might impact on the anaesthetic management? (25%)

Question 12 Pass Rate 53.1%

An elderly patient has sustained a fractured neck of femur following a fall and is scheduled for surgery.

- Which aspects of this patient's care have a significant impact on outcome? (45%)
- Outline the recommendations of best practice for the management of pain in this patient. (30%)
- What causes of a fall in this patient might impact on the anaesthetic management? (25%)

Management of a patient with a hip fracture is fundamental to anaesthetic practice and very topical. This question was straightforward for candidates who had read one of the recent guidelines published by NICE or the AAGBI, and a number of individuals gained maximum marks. The question proved highly discriminatory between generally strong and generally weak candidates.

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Relevance to the Exam

March 2017

Question 12 (Grey Book)

An 80-year-old woman is admitted to your hospital having sustained a proximal femoral (neck of femur) fracture in a fall.

- How would you optimise this patient's pain preoperatively? (5 marks)
 - You decide to perform a fascia iliaca compartment block for analgesia. What are the borders of the fascia iliaca compartment (4 marks) and which nerves are you attempting to block? (1 mark)
 - Describe how you would perform this block using an ultrasound-guided technique. (10 marks)
- NB consent has already been obtained; you also have adequate assistance, emergency equipment, monitoring and venous access.

Question 12: Early management of hip fractures and use of fascia iliaca block

Pass rate 22.2%

It is disappointing that this question concerning a very commonly seen clinical scenario and accompanying anaesthetic technique, was answered so poorly. In part a many candidates failed to mention assessment of pain as part of preoperative optimization. There was general lack of knowledge of anatomy in part b. In part c some candidates failed to read the question correctly and described a technique using a nerve stimulator rather than ultrasound, or described a femoral nerve block rather than a fascia iliaca block. Some candidates still wrote about assistance and emergency equipment despite being told in the question that this was unnecessary. Many of the answers were somewhat brief but it is unclear whether this reflects a lack of knowledge or a lack of time.

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BJA Education, 19(6): 191–197 (2019)

doi: 10.1016/j.bjae.2019.03.001

Advance Access Publication Date: 24 April 2019

Fascia iliaca compartment block

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ELSEVIER

R

RESEARCH
IN
ANESTHESIOLOGY
AND
PAIN MEDICINE

Manuscript code: JAGI,
JAGD, JAGE, JAGI,
JAGI, JAGI, JAGI,
JAGI, JAGI, JAGI,
JAGI, JAGI, JAGI,
JAGI

BJA Education, 20(5): 142–149 (2020)

doi: 10.1016/j.bjae.2020.02.003

Advance Access Publication Date: 23 March 2020

Anaesthesia for hip fracture repair

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*Corresponding author: cliff.shelton@nhs.net

New guidance from Association of Anaesthetists this year (in press)

57

Anaesthesia 2018, 73, 863–874

doi:10.1111/anae.14225

Guidelines

International Fragility Fracture Network Delphi consensus statement on the principles of anaesthesia for patients with hip fracture

S. M. White,¹ F. Altermatt,² J. Barry,³ B. Ben-David,⁴ M. Coburn,⁵ F. Coluzzi,⁶ M. Degoli,⁷ D. Dillane,⁸ N. B. Foss,⁹ A. Gelmanas,¹⁰ R. Griffiths,¹¹ G. Karpeta,¹² J.-H. Kim,¹³ M. Kluger,¹⁴ P.-W. Lau,¹⁵ I. Matot,¹⁶ M. McBrien,¹⁷ S. McManus,¹⁸ L. F. Montoya-Pelaez,¹⁹ I. K. Moppett,²⁰ M. Parker,²¹ O. Porritt,²² R. D. Sanders,²³ C. Shelton,²⁴ F. Sieber,²⁵ A. Trikha,²⁶ and X. Xuebing²⁷

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Fascia Iliaca Compartment Block for Hip Fractures

A 84 YEAR OLD LADY PRESENTS WITH AN ISOLATED NECK OF FEMUR FRACTURE FOLLOWING A MECHANICAL FALL AT HOME.

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Fascia Iliaca Compartment Block for Hip Fractures (a) When should the patient's pain be assessed before surgery? (4 marks)

- IMMEDIATELY UPON PRESENTATION AT HOSPITAL
- WITHIN 30 MINUTES OF ADMINISTERING INITIAL ANALGESIA
- HOURLY UNTIL SETTLED ON THE WARD
- REGULARLY AS PART OF ROUTINE NURSING OBSERVATIONS THROUGHOUT ADMISSION

Hip fracture: management

Clinical guideline
Published: 22 June 2011
[nice.org.uk/guidance/cg124](https://www.nice.org.uk/guidance/cg124)



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1

Fascia Iliaca Compartment Block for Hip Fractures
 (b) According to NICE guidance, what would indicate sufficient pre-operative analgesia for this patient? (1 marks)

- ANALGESIA SHOULD BE SUFFICIENT TO ALLOW MOVEMENTS NECESSARY FOR INVESTIGATIONS AS INDICATED BY THE **ABILITY TO TOLERATE PASSIVE EXTERNAL ROTATION OF THE LEG**, AND FOR NURSING CARE AND REHABILITATION

Hip fracture: management

Clinical guideline
Published: 22 June 2011
[nice.org.uk/guidance/cg124](https://www.nice.org.uk/guidance/cg124)

NICE

guideline

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1

Fascia Iliaca Compartment Block for Hip Fractures
 (c) Which nerves are you attempting to block with a fascia iliaca compartment block? (2 marks)

- FEMORAL NERVE
- OBTURATOR NERVE
- LATERAL CUTANEOUS NERVE OF THE THIGH (LATERAL FEMORAL CUTANEOUS NERVE)

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Fascia Iliaca Compartment Block for Hip Fractures
(d) What are the borders of the fascia iliaca compartment? (4 marks)

ANTERIOR

- POSTERIOR SURFACE OF THE FASCIA ILIACA

POSTERIOR

- ILIACUS AND PSOAS MUSCLES (ILIOPSOAS MUSCLE IS ACCEPTABLE)

MEDIAL

- FASCIA OVERLYING THE PSOAS MUSCLE

LATERAL

- ILIAC CREST

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Fascia Iliaca Compartment Block for Hip Fractures
(e) List three advantages of a fascia iliaca compartment block over a femoral nerve block for this patient? (3 marks)

- ACHIEVES A BLOCK OF MORE OF THE NERVES THAT INNERVATE THE HIP JOINT: OBTURATOR AND LATERAL CUTANEOUS NERVE OF THE THIGH
- THE BLOCK IS PERFORMED DISTANT TO THE NERVE MAKING NERVE INJURY LESS LIKELY
- THE BLOCK IS PERFORMED DISTANT TO THE VESSELS MAKING VASCULAR PUNCTURE AND SYSTEMIC ABSORPTION OF LOCAL ANAESTHETIC LESS LIKELY
- CAN BE RELIABLY PERFORMED WITH LESS TRAINING THAN A FEMORAL NERVE BLOCK
- CAN BE PERFORMED USING LANDMARK TECHNIQUES WITHOUT NERVE STIMULATION OR ULTRASOUND
- CAN BE MORE EASILY TAUGHT TO NON-MEDICAL PRACTITIONERS

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1**Fascia Iliaca Compartment Block for Hip Fractures**

(f) List three potential complications of a fascia iliaca compartment block?
(3 marks)

- BLOCK FAILURE
- HAEMATOMA
- NERVE INJURY
- LOCAL ANAESTHETIC SYSTEMIC TOXICITY (LAST)
- QUADRICEPS MUSCLE WEAKNESS AND A RISK OF FALLS
- PERFORATION OF PERITONEAL CAVITY CONTENTS
- BLADDER PUNCTURE

65

1**Fascia Iliaca Compartment Block for Hip Fractures**

(g) What is the maximum dose of levobupivacaine that could be used for this nerve block assuming the patient weighs 50kg? (1 mark)

- ACCEPT EITHER 100MG (2 MG KG⁻¹) OR 125MG (2.5 MG KG⁻¹).

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1

Fascia Iliaca Compartment Block for Hip Fractures

(h) If you were involved in setting up a service to train non-medically practitioners to perform fascia iliaca blocks, list four training requirements that you would mandate as part of this training. (2 marks)

- KNOWLEDGE OF RELEVANT ANATOMY, LANDMARKS AND SONOANATOMY
- KNOWLEDGE OF ULTRASOUND PHYSICS, 'KNOBOLOGY' FOR USG TECHNIQUE
- KNOWLEDGE OF INDICATIONS AND CONTRAINDICATIONS FOR FICB
- KNOWLEDGE OF LOCAL ANAESTHETIC PHARMACOLOGY
- KNOWLEDGE OF SIGNS AND SYMPTOMS OF LAST
- KNOWLEDGE OF TREATMENT OF LAST
- DEVELOPMENT OF TECHNICAL SKILLS FOR BOTH USG AND LANDMARK TECHNIQUES