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NAZIONALE

Geriatría e Rinascita

-CORSO 2-
Il Geriatra e l'Ortogeriatria

LE BARRIERE ALL'INTERVENTO CHIRURGICO PRECOCE:
LA CORRETTA GESTIONE DELLA MULTIMORBILITÀ

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Frattura del collo del femore: intervento chirurgico entro 2 giorni

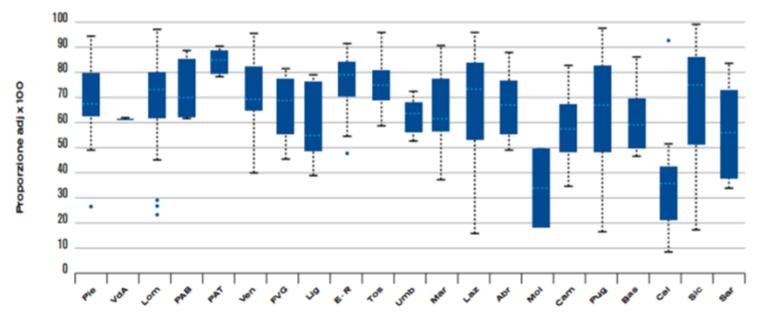
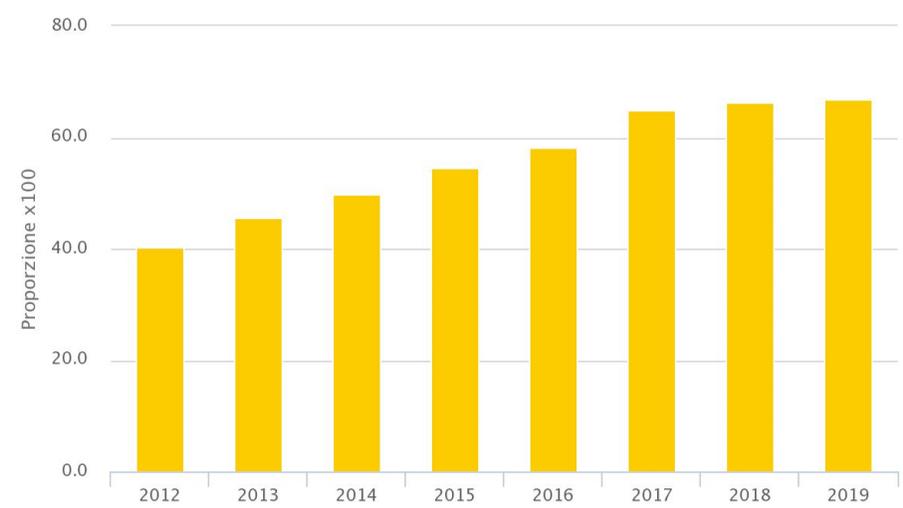
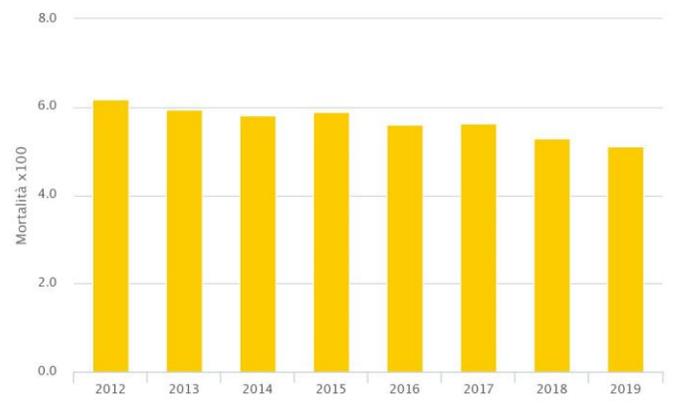


Figura 17 - Frattura del collo del femore in pazienti di età ≥65 anni: proporzione di interventi chirurgici entro 2 giorni, per Regione/P.A. Italia, 2019.

Frattura del collo del femore: mortalità a 30 giorni

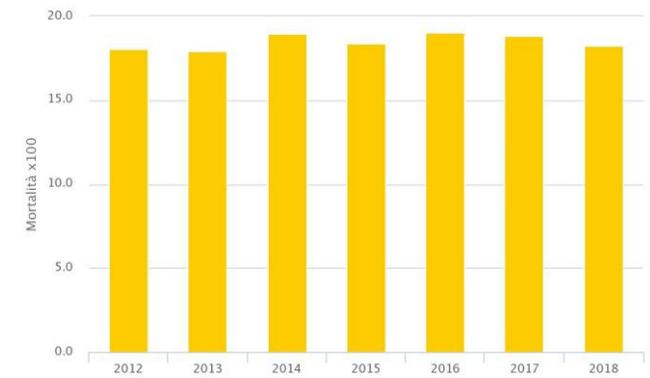


40,2%

66,8%

18.27%

Frattura del collo del femore: mortalità a 1 anno



2018 5,29 %

5,12%



timing of surgery

Fragility Fracture Network (FFN) guidance states

“surgery should be delayed only if the benefits of additional medical treatment outweigh the risks of delaying surgery”

Aging Clinical and Experimental Gerontology
<https://doi.org/10.1007/s40520-021-01840-0>

CONSENSUS DOCUMENT

Orthogeriatric fracture: recommendations

Antonio De Vincentis, Giovanni Iolascon⁸, Luca Pietrogrande¹², Luigi Tritapepe¹⁶, Ar Gerontologia (SIGG), Territorio (SIGOT), Rianimazione e Terapia Fracture Network-Italia Fisioterapia (SIF), Superiori Sanità (ISS)

Received: 20 April 2021 / Accepted: ...
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STATEMENT 1.14		Tipo di statement	Forza della raccomandazione	Qualità dell'evidenza
1	L'intervento chirurgico deve essere eseguito il più precocemente possibile; può essere differito, ma entro un limite massimo di 48 ore, se presenti specifiche problematiche mediche che richiedono la stabilizzazione, mediante interventi appropriati, al fine dell'attribuzione dell'idoneità anestesiológica e chirurgica.	Raccomandazione	A	Moderate
2	Il timing dell'intervento chirurgico può essere differenziato in base alle seguenti caratteristiche: a. pazienti in buone condizioni all'ingresso dovrebbero essere operati entro 12-24 ore; b. pazienti con minor fitness e problematiche mediche all'ingresso meritevoli di ottimizzazione dovrebbero essere operati entro 24-48 ore, in base alla tipologia di interventi da attuare e dopo accordo tra anestesista, geriatra e ortopedico; c. a parità del precedente criterio, lo stato funzionale pre-frattura e le comorbidità dovrebbero orientare la scelta, garantendo la priorità ai soggetti a maggior rischio di complicanze medico-chirurgiche e mancato recupero funzionale post-operatorio	Raccomandazione	B	Moderate



OrthoCARE

ORTHOGERIATRIC CONSENSUS AND RECOMMENDATIONS





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hip attack

69 hospitals in 17 countries (Canada, Spain, India, Pakistan, South Africa, Italy, Poland, the UK, the USA, Malaysia, Belgium, France, Thailand, the Netherlands, China, Hong Kong, and Colombia)

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

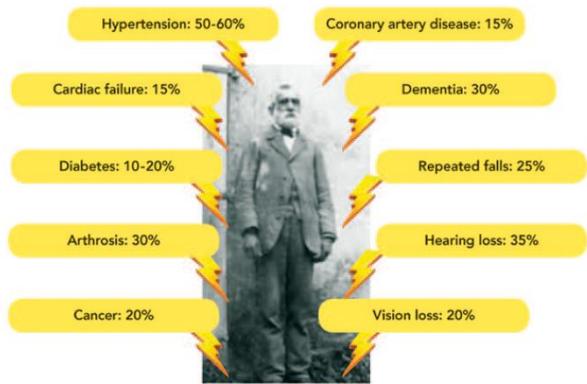
*The HIP ATTACK Investigators**

Summary

Background Observational studies have suggested that accelerated surgery is associated with improved outcomes in patients with a hip fracture. The HIP ATTACK trial assessed whether accelerated surgery could reduce mortality and major complications.

median time from hip fracture diagnosis to surgery was 6 h (IQR 4–9) accelerated surgery (n=1487)
24 h (IQR 10–42) standard care (n=1483)

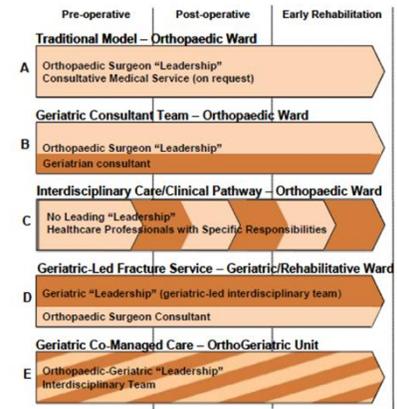
- AS did not reduce 90-day mortality or major complications like mortality, non-fatal myocardial infarction, stroke, venous thromboembolism, sepsis, pneumonia, life-threatening bleeding, and major bleeding, compared with standard care in patients with a hip fracture.
- AS was associated with **lower risk of delirium, urinary tract infection, and moderate-to-severe pain, faster mobilisation, and a shorter LOS**



Beyond 70 years = 5 comorbidities

comorbidità e modello organizzativo

comprehensive geriatric assessment



Giusti et al Eur J Phys Rehabil Med 20110

we recommend that CGA is performed in all patients with HF because it improves baseline clinical and surgical evaluation, risk stratification and promotes optimal therapeutic management, and positive health outcomes

we suggest that CGA encompasses the following domains:

- Pre-fracture functional status (independence and disability)
- Cognitive and psychological status
- Comorbidities and polypharmacy
- Nutritional status
- Socioeconomic status -Housing situation -Social and family support



appropriate preoperative preparation

Prehabilitation describes the involvement of anaesthetists in patient management after hospital admission but before operating theatre admission, in order to facilitate prompt (< 36 h) access to surgery. Common themes include analgesia; fluid resuscitation; communication within multidisciplinary pre-operative meetings; the provision of daily trauma lists that prioritise HF surgery; and standardised pre-operative assessment guided by codified treatment plans for common medical conditions.

risk assessment

rischio perioperatorio e ASA

ASA PS Category	Preoperative Health Status	Comments, Examples
ASA PS 1	Normal healthy patient	No organ, physiologic, or psychiatric dysfunction; includes the very young and very old, healthy with good functional reserve.
ASA PS 2	Patients with mild systemic disease	No functional limitation; has a well-controlled disease of one body system; controlled hypertension or diabetes without systemic effects; cigarette smoking without disease; controlled pulmonary disease (COPD); mild obesity; pregnancy.
ASA PS 3	Patients with severe systemic disease	Some functional limitation; has a controlled disease of more than one body system or one major system; no immediate danger of death; controlled congestive heart failure (CHF); insulin therapy; old heart attack; poorly controlled hypertension; insulin therapy; chronic renal failure; bronchospastic disease with intermittent symptoms.
ASA PS 4	Patients with severe systemic disease that is a constant threat to life	Has at least one severe disease that is poorly controlled or at end stage; possible risk of death; unstable angina; symptomatic COPD; symptomatic CHF; hepatic/renal failure.
ASA PS 5	Moribund patients who are not expected to survive without the operation	Not expected to survive > 24 hours without surgery; imminent risk of death; multiple failure; organ failure with hemodynamic instability; hypotension; poorly controlled coagulopathy.
ASA PS 6	A declared brain-dead patient whose organs are being removed for donor purposes	



Nottingham Hip Fracture Score

Variable	Points
Age 66-85 years	3
Age 86 > older	4
Male	1
Haemoglobin concentration ≤ 10 g dl ⁻¹ on admission to hospital	1
Abbreviated mental test score ≤ 6/10 on admission to hospital	1
Living in an institution	1
More than one co-morbidity	1
Active malignancy within last 20 years	1

Score	Predicted 30-day postoperative mortality
0	0%
1	1%
2	2%
3	4%
4	6%
5	10%
6	15%
7	23%
8	22%
9	45%
10	57%

Risk Prediction in Surgery

Nottingham Hip Fracture Score

Parameters	
Age	>=85
Sex	female
AMTS	>=7
Hb on admission	>=100 g/l
Residence	other
Comorbidities	<2
Active malignancy in the last 20yrs (not SCC/BCC)	no

Calculate Risk Reset Form



Short Portable Mental Status Questionnaire **≥ 7**

1. Che giorno è oggi? (mese, giorno, anno)	1
2. Che giorno è della settimana?	1
3. Come si chiama questo posto?	1
4. Qual è il suo indirizzo?	1
5. Quanti anni ha?	1
6. Quando è nato?	1
7. Chi è il Presidente della repubblica? (o il Papa?)	1
8. Chi era il Presidente precedente? (o il Papa?)	1
9. Qual è il nome di ragazza di sua madre?	1
10. Sottraggia da 20 tre e poi ancora fino in fondo	1
Totale Valutazione Cognitiva	10



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Consent and hip fracture anaesthesia

interaction with caregivers

anaesthetist, geriatrician and orthopaedic surgeon, as far as their respective roles are concerned

- give information about the risk/benefit of the intended anaesthesiologic and surgical procedure
- give the opportunity to inquire about the expected health and functional outcome.



conservative management of HF

in the following situations in which the expected benefit of surgery does not outweigh risks:

- a. Patients with irreversible clinical instability with poor life expectancy (i.e., hours or days)
- b. Patients with incomplete stable sub-capital fracture with valgus impaction, and poor pre-fracture functional capacity

STATEMENT 1.17	Tipo di statement	Forza della raccomandazione	Qualità dell'evidenza
<p>1 In considerazione dell'elevato rischio di complicanze post-operatorie e morte, il trattamento conservativo è consigliato nei pazienti</p> <ul style="list-style-type: none">• cronicamente allettati e buon controllo del dolore subito dopo la frattura con le sole strategie conservative e attesa invarianza del fabbisogno assistenziale e dell'aspettativa di vita.• con instabilità clinica irreversibile di entità tale da prevedere prognosi infausta a giorni o ore <p>Il trattamento conservativo della frattura di femore è da riservare ad una percentuale bassa di pazienti (<4%).</p>	Raccomandazione	B	Low
<p>2 Nei pazienti con gravi limitazioni funzionali preesistenti (ad es. allettati da tempo prima della frattura e/o condizioni di terminalità, ecc.) il cui rischio operatorio è molto elevato, non è giustificato ritardare l'intervento oltre le 48 ore, ma piuttosto è possibile scegliere procedure meno invasive, mirate al controllo del dolore.</p>	Raccomandazione	B	Moderate
<p>3 La frattura sottocapitata in valgo in un paziente con numerose comorbidità e a fronte di una scarsa autonomia funzionale può anche avere una valutazione di non operabilità.</p>	Raccomandazione	B	Moderate

pain treatment



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We recommend the following blood tests (minimum requirement) :

- full blood count,
- urea, creatinine,
- sodium, potassium, calcium, phosphorus,
- glycaemia,
- prothrombin time, activated partial thromboplastin time,
- C-reactive protein,
- urine test with urinary sediment
- blood group determination



Given the high prevalence of malnutrition and anaemia in patients with HF, we suggest determining blood concentration of:

albumin, vitamin D, vitamin B12, sideremia, ferritin, transferrin and folic acid

We suggest performing additional blood tests specific to the patient's medical history and/or comorbidities (e.g., liver function tests, blood levels of drugs)



Guidelines

Guideline for the management of hip fractures 2020

Guideline by the Association of Anaesthetists

R. Griffiths,¹ S. Babu,² P. Dixon,³ N. Freeman,⁴ D. Hurford,⁵ E. Kelleher,⁶ I. Moppett,⁷
D. Ray,⁹ O. Sahota,¹⁰ M. Shields¹¹ and S. White¹²

proactive involvement of anaesthetists in correcting medical obstacles to surgery

...for hip fracture that the Working Group considered unacceptable.

Acceptable	Unacceptable
<ul style="list-style-type: none"> • Haemoglobin concentration < 8 g.dl⁻¹. • Plasma sodium concentration < 120 or > 150 mmol.l⁻¹ and potassium concentration < 2.8 or > 6.0 mmol.l⁻¹. • Uncontrolled diabetes. • Uncontrolled or acute onset left ventricular failure. • Correctable cardiac arrhythmia with a ventricular rate > 120 .min⁻¹. • Chest infection with sepsis. • Reversible coagulopathy. 	<ul style="list-style-type: none"> • Lack of facilities or theatre space. • Awaiting echocardiography. • Unavailable surgical expertise. • Minor electrolyte abnormalities.

‘delay’ vs ‘optimisation’



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anemia and transfusion trigger

restrictive (8g/dl) versus liberal (10g/dl)

- peri-operative Hb in frailer patients should be kept above approximately 9 g/dl,
- approximately 10 g/dl for patients with a history of ischaemic heart disease or who fail to remobilise on the first postoperative day due to fatigue or dizziness.

FFN guidelines and the Working Party recommends:

the recognition and management of peri-operative anaemia, and the administration of blood, should proceed according to an agreed hospital protocol.



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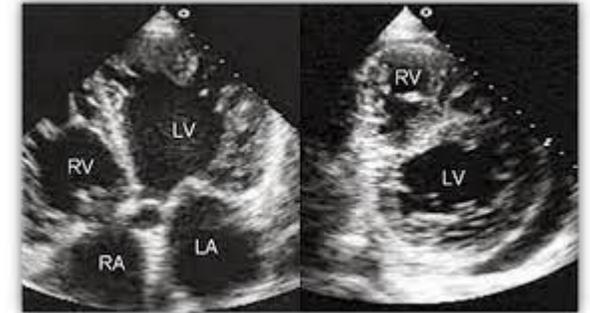
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echocardiography



- 25% of patients with HF have an audible cardiac murmur on examination
- valvular heart disease occurs in approximately 10% hip fracture patients in the UK.
- treatment of any valvular disease is very unlikely to precede surgery in patient with HF
- unlikely that the results of echocardiography will inform a change in the anaesthetic management of patients with suspected valvular heart disease
- delay to HF surgery for diagnostic echocardiography also increases postoperative mortality

(invasively) monitored GA or RA, which aims to maintain coronary and cerebral perfusion pressures, with possible short-term admission to a higher-level care unit postoperatively



anticoagulation and antiplatelet therapy

surgical bleeding and vertebral canal haematoma

versus

abrupt cessation of medication and delay to surgery

Drug	Elimination half-life	Management	Acceptable to proceed with spinal
Aspirin	Irreversible effect on platelets	Proceed with surgery	Continue
Clopidogrel	Irreversible effect on platelets	Proceed with surgery under GA Monitor blood loss Consider platelet transfusion if concerns regarding bleeding	Yes, if GA poses greater risk to patient
Ticagrelor	8–12 h	Proceed with surgery with GA Monitor for blood loss Consider platelet transfusion if concerned about risk of bleeding	Yes, if GA poses greater risk to patient
Unfractionated i.v. heparin	1–2 h	Stop i.v. heparin 2–4 h pre-op	4 h
Low molecular weight heparin subcutaneous prophylactic dose	3–7 h	Last dose 12 h pre-op	12 h
Low molecular weight heparin	3–7 h	Last dose 12–24 h pre-op.	24 h

news

- gives advice about when it would be considered safe to proceed with a spinal anaesthetic.
- single antiplatelet therapy, including clopidogrel, is not a contraindication to spinal anaesthesia. Spinal anaesthesia may be appropriate for patients taking dual antiplatelet therapy for who are unsuitable for GA, on a risk/benefit basis
- for many, GA is an acceptable alternative and surgery should proceed when the surgical bleeding risk is felt to be acceptable.
- for some, the risks of vertebral canal haematoma may be (considerably) less than the risk of GA. The Association of Anaesthetists' guidelines recognise this balancing of risks and benefits, as do recommendations made by the European Society of Anaesthesiology.
- the risks of delaying surgery and/or thromboembolism usually greatly outweigh the risks of vertebral canal haematoma and/or of peri-operative bleeding.
- INR and aPTT are uninterpretable in the context of DOACS.



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

C. Shelton^{1,2,*} and S. White³

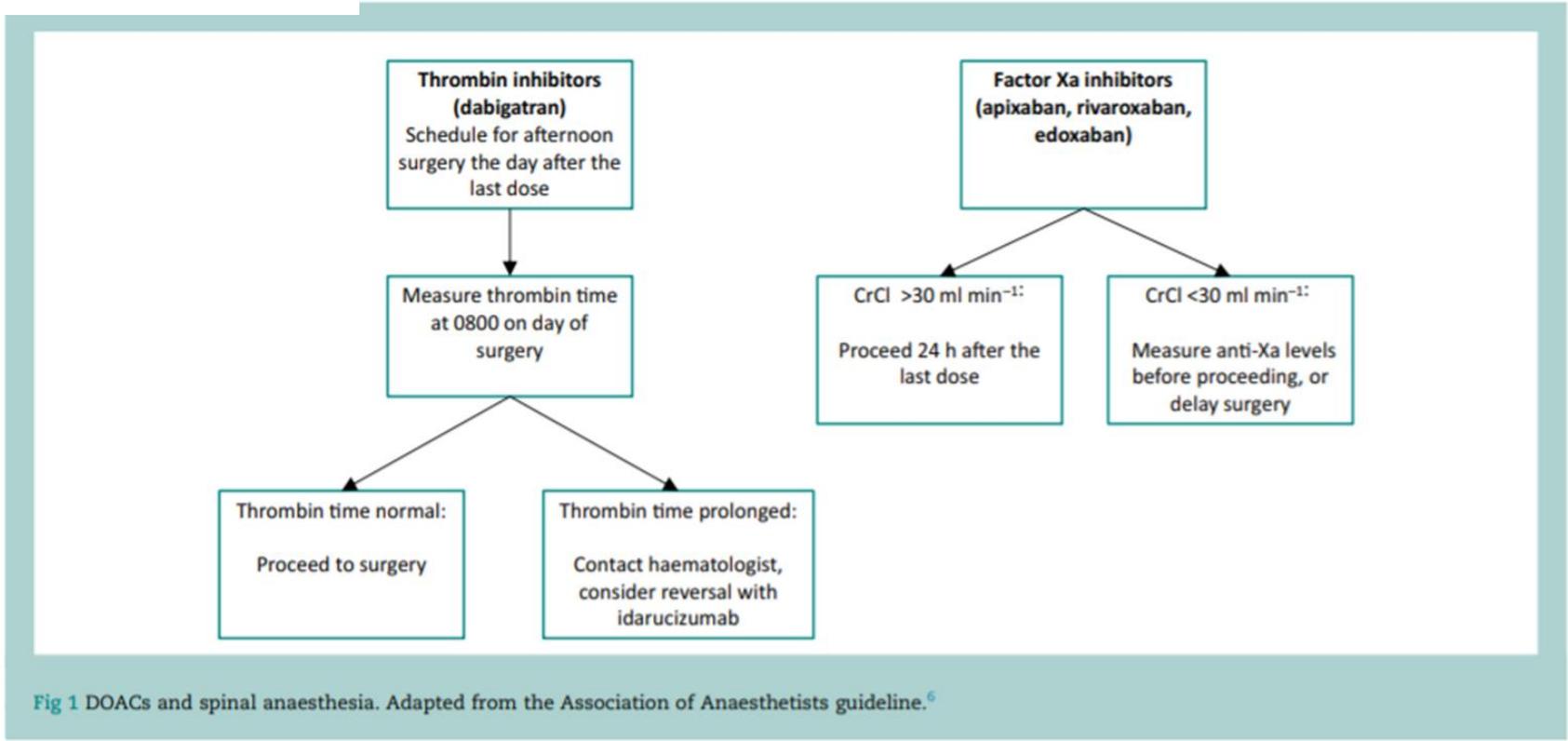


Fig 1 DOACs and spinal anaesthesia. Adapted from the Association of Anaesthetists guideline.⁶



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delirium

- we recommend screening for delirium in all patients with HF using easy and validated tools such as the 4AT
- there is no specific drug to effectively treat delirium. As such, the leading recommended strategy to prevent delirium-related adverse health outcomes is the avoidance of trigger factors
- delirium prevention should include multidimensional and multimodal interventions aimed at:
 - optimizing analgesic therapy (via PNBs),
 - preventing prolonged fasting and dehydration
 - correcting sensory deficits,
 - avoiding inappropriate and/or delirium-triggering drugs
 - promoting early surgery, early mobilization, and early contact with caregivers
- we recommend the provision of periodic educational sessions for staff, focusing on delirium detection and prevention, and organising multidisciplinary audits within the hospital



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malnutrition

- is very common in patients with HF
- its optimal management reduces the risk of perioperative complications and improves health outcomes

Dehydration and prolonged fasting are associated with metabolic complications and higher medium-term mortality;

- limiting fasting to 6 h prior to surgery for solids and 2 h prior to surgery for liquids
- use carbohydrate based drinks before surgery and high protein supplements after surgery, to limit the negative effect of perioperative fasting and to compensate the catabolic state induced by HF
- recommence oral feeding and hydration as soon as possible after surgery



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PMK or ICD



careful evaluation of the underlying heart disease, and a preoperative device check, if the latter has not been carried out in the last 12 months
avoidance of diathermy or electrocauterization to eliminate possible electrical interference with the device
ICD should be in monitor mode or switched of, by positioning a magnet over during surgery

dialysis should be performed within 24 h prior to surgery to reduce fluid overload

ensure rapid perioperative correction of metabolic imbalance





Guidelines

Guideline for the management of hip fractures 2020

Guideline by the Association of Anaesthetists

R. Griffiths,¹ S. Babu,² P. Dixon,³ N. Freeman,⁴ D. Hurford,⁵ E. Kelleher,⁶ I. Moppett,^{7,8}
D. Ray,⁹ O. Sahota,¹⁰ M. Shields¹¹ and S. White¹²

in England and Wales:
decline in national 30-day mortality after hip fracture surgery, from 10.9% in 2007 to 6.1% in 2018

Table 1 Proportion of nerve blocks co-administered with general or spinal anaesthesia for hip fracture surgery in England and Wales, by year. Figures represent proportion of general/spinal anaesthetics.

Year	2019	2018	2017	2016	2015
General anaesthesia + nerve block	57.2%	56.7%	70.7%	64.1%	58.6%
Spinal anaesthesia + nerve block	39.8%	38.5%	50.1%	40.2%	33.0%

greater standardisation of anaesthetic management in line with international consensus guidance



anaesthesia delivered sympathetically to a patient's age, frailty and comorbidity



the aim is to improving

- analgesia
- remobilisation
- eating and drinking
- cognitive function



immediate postoperative period:

pts should be sitting up, conversing coherently, drinking and eating, pain free and disconnected from oxygen, intravenous fluids and urinary catheters (all of which impede remobilisation)



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...e il COVID-19?

- it is uncertain what the effect of COVID-19 will be on the provision and outcomes of fragility hip fracture care
- anecdotally, similar numbers of people have presented for hip fracture surgery, but some have faced long delays before their operation

Publications approval reference:



- COVID-19 pandemic guidance recommends prompt (< 24 h), consultant-delivered surgical and anaesthesia care, preferring spinal anaesthesia if possible, co-administered with nerve block and minimal/no sedation

Specialty guides for patient management during the Coronavirus pandemic

Clinical guide for the perioperative care of people with fragility fractures during the Coronavirus pandemic

23 March 2020

"...and there are no more surgeons, urologists, orthopaedists, we are only doctors who suddenly become part of a single team to face this tsunami that has overwhelmed us..."
Dr Daniele Macchine, Bergamo, Italy. 9 March 2020

- compliance with this guidance, and its effects on outcome, should become clearer when the National Hip Fracture Database publishes its 2020 data in 2021.



Impact of COVID-19 on Timing of Hip-Fracture Surgeries: An Interrupted Time-Series Analysis of the Pre/Post-Quarantine Period in Northern Italy

Jacopo Lenzi¹, Stefano Rousset^{2*}, Maria Pia Fantini¹, Maria Michela Gianino²

Conclusion

In Piedmont, northern Italy, the percentages of hip-fracture surgery were unchanged during the lockdown period, without any differences among the proportion of patients operated on the day of admission, the following day and two days after admission. This result suggests that healthcare systems, even during a global pandemic, can be resilient and able to get reorganized to guarantee a high-quality and safe healthcare to hip-fracture patients.

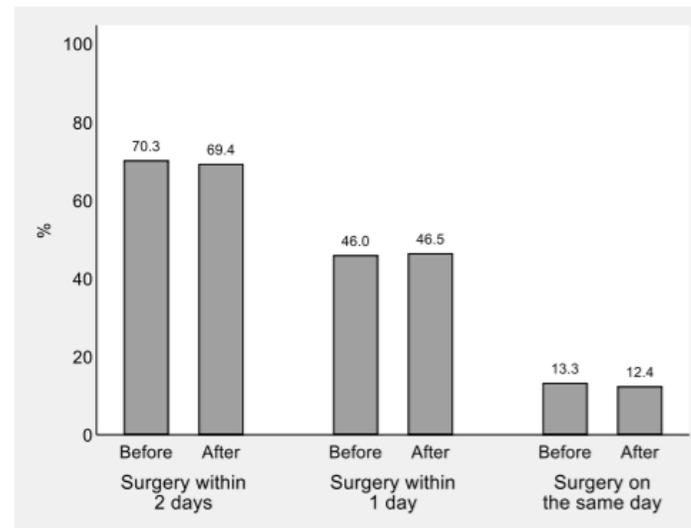


Figure 2. Sex-, Age- and Comorbidity-Standardized Percentages of Hip-Fracture Surgery Initiated Within 2 Days, Within 1 Day and on the Same Day as Hospital Admission in Piedmont in the 16 Weeks Before and After Italy's COVID-19 National Quarantine. Abbreviation: COVID-19, coronavirus disease 2019. *Note:* No significant differences were found between the pre- and post-quarantine period on multivariable logistic regression analysis (two days: *P* value = .581; one day: *P* value = .731; same day: *P* value = .471).



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Hip Fracture Trends and Outcomes During the COVID-19 Pandemic

<https://doi.org/10.3928/01477447-20210819-05>

Published Online: September 01, 2021



- during the pandemic, fewer patients were admitted with hip fractures, and the time from injury to presentation doubled.
- patients were significantly less likely to be discharged to rehabilitation and more were discharged with oral anticoagulants.

Overall, there was no increase in complications, and these data indicate that the authors were successfully able to provide high-quality care to hip fracture patients during the pandemic.



Science Letter

The effects of COVID-19 on hip fracture management and mortality in a regional trauma centre

2- month period following the onset of lockdown from 24 March 2020 until 23 May 2020 compared with the same 2-month time period in 2015–2019

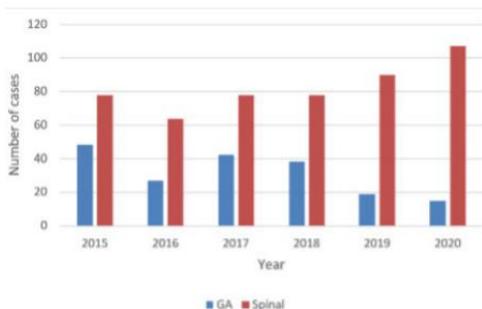


Table 1 Baseline characteristics, relevant outcome and anaesthetic details for the 2020 and 2015–2019 (5 year) groups. Values are number (proportion) or median (IQR [range])

	2020 n = 126	2015–2019 n = 574	p value
Sex; female	93 (73.8%)	429 (74.7%)	0.82
Age; years	83 (76–88 [60–99])	84 (77–89 [60–102])	
Operated	123 (97.6%)	562 (97.9%)	0.84
Non-operated	3 (2.4%)	12 (2.1%)	
ASA physical status			
1	0	3 (0.5%)	
2	13 (10.6%)	84 (14.9%)	
3	66 (53.7%)	320 (56.9%)	0.11
4	41 (33.3%)	152 (27.0%)	
5	3 (2.4%)	3 (0.5%)	
Time to theatre			
Under 48 h	79 (64.2%)	301 (53.6%)	0.03
Over 48 h	44 (35.8%)	261 (46.4%)	
Anaesthetic type			
General	15 (12.2%)	174 (31.0%)	0.0001
Spinal	107 (87.0%)	388 (69.0%)	
30-day mortality	8 (6.3%)	29 (5.1%)	0.71
30-day mortality in operated patients	5 (4.1%)	20 (3.6%)	1.00
30-day mortality in non-operated patients	3 (100.0%)	9 (75.0%)	1.00

ability to maintain high standards of care despite the organisational changes made during surge planning



	Accelerated-surgery group (n=1487)	Standard-care group (n=1483)
Age, years	79 (12)	79 (11)
Sex		
Men	456 (31%)	461 (31%)
Women	1031 (69%)	1022 (69%)
History before hip fracture		
Hypertension	902 (61%)	922 (62%)
Needing assistance with activities of daily living	476 (32%)	502 (34%)
Diabetes	333 (22%)	320 (22%)
Residing in nursing home	265 (18%)	269 (18%)
Dementia	256 (17%)	266 (18%)
Osteoporosis	229 (15%)	219 (15%)
Chronic obstructive pulmonary disease	149 (10%)	149 (10%)
Stroke	131 (9%)	131 (9%)
Myocardial infarction	120 (8%)	120 (8%)
Hip fracture	97 (7%)	97 (7%)
Congestive heart failure	81 (5%)	81 (5%)
Coronary revascularisation	73 (5%)	73 (5%)
Chronic atrial fibrillation	73 (5%)	73 (5%)
Active cancer*	56 (4%)	56 (4%)
Transient ischaemic attack	56 (4%)	56 (4%)
Peripheral arterial disease	35 (2%)	30 (2%)
Aortic stenosis	24 (2%)	29 (2%)
Deep venous thrombosis	17 (1%)	9 (1%)
Subarachnoid haemorrhage	14 (1%)	11 (1%)
Pulmonary embolism	11 (1%)	11 (1%)
Renal failure receiving dialysis	11 (1%)	11 (1%)

New diagnoses from time of hip fracture until randomisation		
Infection	27 (2%)	27 (2%)
Atrial fibrillation	10 (1%)	10 (1%)
Significant hyponatraemia or hypernatraemia	10 (1%)	10 (1%)
Significant hypokalaemia	6 (<1%)	6 (<1%)
Non-ST-elevation myocardial infarction	5 (<1%)	5 (<1%)
Myocardial infarction with ST-segment elevation	3 (<1%)	2 (<1%)
Stroke	1 (<1%)	3 (<1%)
Ischaemic	3 (<1%)	1 (<1%)
Subarachnoid haemorrhage	1 (<1%)	2 (<1%)
Stroke	0	1 (<1%)

Medications taken ≤24 h before surgery		
Angiotensin-converting enzyme inhibitor or angiotensin II receptor blocker	346 (23%)	300 (20%)
Statin	262 (18%)	266 (18%)
β blocker	251 (17%)	257 (17%)
Prophylactic antithrombotic	141 (9%)	396 (27%)
Antiplatelet agent	247 (17%)	163 (11%)
Therapeutic non-vitamin K antagonist anticoagulant	27 (2%)	35 (2%)
Therapeutic dose vitamin K antagonist	22 (1%)	5 (<1%)
Prothrombin complex concentrate	19 (1%)	8 (1%)

Insufficient operating room time and medical clearance are the main barriers