Delays to Surgical Fixation of Hip Fractures for Medically Unfit Patients

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Background

Delays to surgical fixation are associated with significantly increased 1 year mortality rates as well as increased morbidity, including prolonged admission, pressure sores, pneumonia, and venous thromboembolism. The Scottish Standards of Care for Hip Fracture Patients[1] states that patients [should] undergo surgical repair of their hip fracture within 36 hours of admission. The guidance follows that for medically unfit patients: “delaying surgery is only acceptable if it is for an intervention thought to significantly improve outcome or reduce mortality, greater than the increase in mortality associated with delay”. Further, they advise that delaying surgery for investigations has not been found to improve outcomes. NICE guidelines[2] also state that adults with hip fracture should have surgery on a planned trauma list on the day of, or the day after, admission (ie within 36h) and that it is a priority to identify and treat correctable comorbidities immediately so that surgery is not delayed by conditions such as anaemia, anticoagulation, electrolyte imbalance or a correctable cardiac arrhythmia.

Aims

Reduce delays to surgical treatment of hip fractures for patients deemed ‘medically unfit’ by identifying the common themes which prevent timely fixation.

Methods

Patients waiting >36h for surgery are routinely identified by the national audit (SHFA). These patients are then categorised into overall reasons for delay including ‘medically unfit’. Retrospective data was collected from those patients identified as waiting >36h due to being ‘medically unfit’ over a 6 month period in 2019 via case note review.

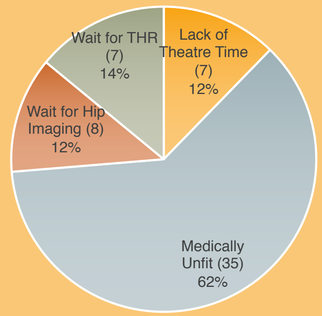
References:

1. Scottish Hip Fracture Audit. *Hip Fracture Care Pathway Report 2019.* NHS Scotland. Aug 2019
2. NICE. Hip Fracture Management (CG124). 2017
https://www.nice.org.uk/guidance/cg124/chapter/Recommendations#timing-of-surgery
3. Association of Anaesthetists of Great Britain and Ireland, Griffiths R, Alper J, Beckingsale A, Goldhill D, Heyburn G, Holloway J, Leaper E, Parker M, Ridgway S, White S, Wiese M, Wilson I. Management of proximal femoral fractures 2011: Association of Anaesthetists of Great Britain and Ireland. Anaesthesia. 2012 Jan;67(1):85-98. doi: 10.1111/j.1365-2044.2011.06957.x. PMID: 22150501.

Results

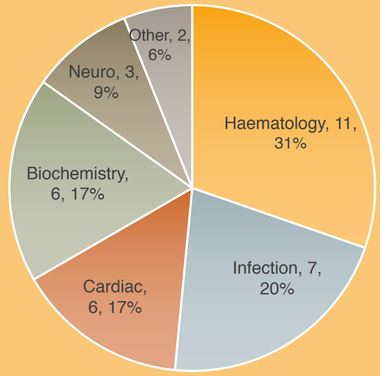
N = 57, 30 males, median age 80 (50-99), median ASA 3 (2-4), median wait for surgery 2 days (2-23). 35 (61%) patients were delayed because they were medically unfit, 7 due to lack of theatre time, 7 waited for CT/MRI hip and 8 waited for THR.

Chart 1 shows reason for delay



61% of patients delayed >36hrs were deemed medically unfit (N=35, 19 female). Their median age was 83 (54-99), median ASA 4 (3-4) and median wait for surgery was 3 days (2-23).

Chart 2 shows a breakdown of the reasons patients were deemed medically unfit for surgery



Specific reasons cited in clinical notes included:

- Haematology (11); DOACs, warfarinised INR>1.5, anaemia
- Infection (7); LRTI with SIRS (3) and without SIRS (3), UTI
- Biochemistry (6); hypo/hyperkalaemia, hyponatraemia, AKI
- Cardiac (6); pacemaker check/insertion (3), tachyarrhythmia, decompensated CCF, awaiting echocardiogram
- Neurological (3); delirium, awaiting CT head

Results cont.

Based on the AAGBI guidelines shown to the right [3], 17 (48%) of medically unfit delays may have been avoidable. Examples include LRTI without sepsis, mild-moderate electrolyte disturbances and anaemia with a heamoglobin >80g/L

AAGBI recommendations concerning acceptable and unacceptable reasons for delaying surgery. N

May be acceptable	Unacceptable
Severe anaemia <8 g dl^{-1}	Lack of facilities or theatre space
Severe electrolyte imbalance, plasma	Awaiting echocardiography
[Sodium] <120 or >150 mmol $litre^{-1}$	Unavailable surgical expertise
[Potassium] <2.8 or >6.0 mmol $litre^{-1}$	Minor electrolyte abnormalities
Uncontrolled diabetes	
Uncontrolled/acute left ventricular failure	
Correctable cardiac arrhythmia, ventricular rate >120 bpm	
Chest infection with sepsis	
Reversible coagulopathy	

6 patients on DOACs waited >48hrs for fracture fixation, although local guidelines state that surgery may be performed after 24hrs. An existing protocol regarding dosing of vitamin K for warfarinised patients was not always followed.

Recommendations and Conclusions

Whilst we found that some medically unfit patients did not meet recommended criteria for delaying surgery, it is recognized that clinical judgement must be used on an individual basis. In order to improve the overall >36h delay rate, there has been presentation of the data at the trauma MDT and departmental meetings and increased visibility of protocols, such as the vitamin K dosing schedule, in clinical areas. In some cases, a reorganization of the theatre list order may have avoided a >36h delay, for example where patients were medically optimised within 36h but weren’t placed first on the list - this has been highlighted to the team. The setup of a fast-track service for PPM checks is in progress and data collection for a re-audit has commenced. The data presented here were collected prior to the coronavirus pandemic and it is likely that more recent data will be affected by the challenges that COVID-19 has placed on efficient theatre management. The association of delayed fixation with 1-year mortality, increased complications and increased length of stay is well recognised[1], and policies and guidelines exist to achieve timely medical optimisation of this largely frail, elderly population. Regular detailed review at a local level can provide useful information not provided by the National Audit, which will improve delays in treating medically unfit patients.