

Fractured NOF Patient: Killing me softly with my song...

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The elderly patient with a fractured neck of femur (NOF) is a challenging patient for most anaesthetists. Frequently we seek to answer questions such as;

- 1) Can I optimise this patient before theatre?
- 2) Will delay of surgery to medically optimise actually lead to benefit?
- 3) What is the best anaesthetic technique for this individual?
- 4) Does my practice really have a significant impact on the outcome?

Hip fracture is diagnosed when there is a fracture occurring in the area between the edge of the femoral head and 5cm below the lesser trochanter. Hip fractures are traditionally divided into two main groups based on their position relative to the capsule of the hip joint. Those above the insertion of the capsule may be termed intra-capsular, subcapital, or femoral neck fractures; these are mostly treated with hemiarthroplasty or hip joint replacement. A more conservative approach may be trialed if the patient is under 55 years of age. Those fractures of the hip below the capsule are termed extracapsular. Extracapsular fractures are further divided into trochanteric and sub-trochanteric, which are treated surgically with plate and screw or nail fixation.

In Australasia, patients with fragility fractures of the hip currently have a mortality of 10% at one month and 33% at one year.¹ It is estimated that Australia and New Zealand spend around \$600 million and \$100 million per year respectively on these patients.¹ Although the rate of hip fracture in the elderly population is decreasing, we know that with an aging population the absolute number of hip fractures we need to treat will only continue to increase.^{2,3}

The Australian and New Zealand Guideline for Hip Fracture Care is a 160 page document still in the public consultation phase as of October 2013.¹ It is based on the NICE clinical guideline while taking into account regional differences in practice and target population.^{1,4} The "ultimate goal" of the document "is to ensure that every hip fracture patient is given the maximum chance of making a meaningful recovery from a significant injury".¹ An additional aim of this guideline is to standardise care where currently there exists marked variation in time to theatre and 30 day mortality between hospitals surveyed in New South Wales.¹

The following factors¹ have previously been identified in the UK via the National Hip Fracture Database (NHFD) as vital to the delivery of quality care for the NOF patient:

- ▶ Surgery within 36 hours
- ▶ Shared care by surgeon and geriatrician
- ▶ Care protocol agreed by geriatrician, surgeon, and anaesthetist
- ▶ Assessment by geriatrician within 72 hours
- ▶ Pre- and post-operative abbreviated mental test score assessment
- ▶ Geriatrician-led multi-disciplinary rehabilitation
- ▶ Secondary prevention of falls
- ▶ Bone health assessment

Such factors have been used to create incentivised health care provision in the UK¹. Although this may be worth adopting to allow audit and comparison in Australasian hospitals, caution is advised given the current poor quality of the evidence. For example, regarding the timing of surgery the NICE guidelines use ten studies with 193,793 patients, which are all classified as "very low" to "low quality" studies¹. However, they do suggest a trend towards a statistically significant decrease in mortality, pressure ulcers, return to independent living and complication rates if surgery is performed in less than 48 hours.

The Australasian guidelines list the main goals of surgery as a) the alleviation of pain and b) the maximisation of functional outcome, which may or may not be part of a palliative intervention. The document is divided into the following areas:

- a) Diagnosis and preoperative care
- b) Perioperative care
- c) Operative interventions
- d) Postoperative mobilisation strategies
- e) Models of care
- f) Patient and care perspectives

The multidisciplinary expert panel sought to examine the evidence underpinning current practice and make recommendation toward best practice as evidence based, consensus based, or practice point. It is unfortunate that many of the studies currently used to guide practice are in fact of low quality and highlight the need for future research as previously mentioned. Take for example the issue of surgeon seniority for the elderly fractured neck of femur fracture. The expert panel highlights the fact that “age and experience do not guarantee performance and outcome”. “The limited literature available suggests that technically more demanding hip fractures have higher rates of re-operation when undertaken by unsupervised junior surgeons.”¹

Under the heading of “Diagnosis and perioperative care” anaesthetists are vital in the provision of analgesia/pain services and guiding the identification and optimisation of correctable comorbidities, which delay surgery such as anaemia, anticoagulation, and heart failure. In the area of “Perioperative care” anaesthetists are advised to continue to offer regional and or general anaesthesia according to patient co-morbidity. Neither the NICE guideline nor the Australasian counterpart is able to define the optimal anaesthetic for this group of patients. Emphasis is placed on involvement of the patient and family where anaesthetic options are available with the need to define the limits of care/resuscitation.

Although, regional anaesthesia has been hypothesized to reduce postoperative mortality, there are no studies that convincingly demonstrate this.⁵ There are two recent studies worthy of mention on this subject. In 2013, Chia et al. identified general anaesthesia as an independent risk factor for one-year mortality via retrospective analysis of 185 patients presenting with fractured neck of femur to an Australian metropolitan teaching hospital². The authors noted that of the 54% of patients who received general anaesthesia they were more likely to have pre-operative hypoxia, abnormal pre-operative vital signs and require pre-operative medical intervention. This led the authors to suggest that general anaesthesia is administered to those who are “more unwell in the pre-operative period”.² The second study by Patorno et al, 2014, looked at in hospital all-cause mortality of approximately 73 000 patients with hip fracture across a wide range of hospitals in the United States using a research database. In multivariate analyses there was no significant difference in mortality between regional anaesthesia, general anaesthesia, or combined anaesthesia.⁵

The NICE and Australasian guidelines can be used to develop NOF care pathways.^{1,3} Many hospitals have or are actively developing such pathways, which are intended to expedite the patient’s passage to theatre, reduce complications and coordinate care on the ward where multiple disciplines are involved. One such pathway from the Austin Hospital in Victoria will be presented as an example.⁶

All anaesthetists will be familiar with the repeated fasting that NOF patients are often subject to. Repeated fasting while reducing nutritional reserve and contributing to cognitive insult is extremely upsetting to the patient, family, carers, and staff. The Austin NOF pathway combats this problem through the use of a “fasting clock”. The clock is commenced from the time the patient is scheduled for theatre, 9 hours thereafter the nurse rings the orthopaedic registrar to confirm the theatre plan is still in place, and at 12 hours the patient is fed. Delirium is a common problem for NOF patients and significantly increases hospital mortality. The Austin NOF pathway has incorporated the NICE clinical guideline on delirium⁷ to try and reduce delirium via the following measures: assess cognition on admission, consider regional analgesia, monitor cognition and intervene early if changes detected, and consider preventative strategies such as early mobilisation, glasses, hearing aids, and hydration.⁶

Anaesthetic doctors have a vital role to play in the provision of quality care for the NOF patient. There are now international and local guidelines that should be used to guide practice and assist in the development of NOF care pathways. The current literature does not support the premise that regional anaesthesia has a lower mortality than general anaesthesia. Anaesthetists can continue to improve outcomes for NOF patients through ongoing audit process and there is still much research to be undertaken in this field.

References:

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7. NICE Clinical Guideline 103 – *Delirium: Diagnosis, prevention and management*.