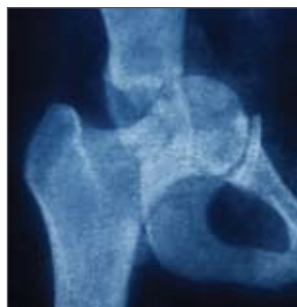


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FAST TRACK

Delay in operating after hip fracture was associated with increased risk of death in the hospital

What steps can reduce morbidity and mortality caused by hip fractures?

Evidence-based answer

Surgery within 24 hours of hip fracture is a critical step in reducing complications, and may decrease mortality compared with conservative care (strength of recommendation [SOR]: **B**, cohort studies). Give patients heparin at the time of admission to prevent venous thromboembolism (VTE) (SOR: **A**, systematic reviews of RCTs). Anticoagulation should be continued in some form for 10 days or until the patient is fully ambulatory (SOR: **A**). Patients should also get prophylac-

tic antibiotics in the 2 hours before surgery (SOR: **A**, meta-analysis of RCT). Reduce the risk of postoperative delirium by avoiding certain medications, minimizing sleep disturbances, and providing adequate analgesia (SOR: **B**, systematic review of cohort studies). Aggressive pain control should also be top of mind—higher pain scores are associated with longer hospital stays, delayed ambulation, and long-term functional impairment (SOR: **C**, extrapolation from a single cohort study).

Clinical commentary

Ensure that proper treatment continues after discharge

As an FP working in a hospital, I am often asked to consult on cases of hip fracture. It's important to maximize the patient's condition quickly in order for the orthopedist to be able to proceed with surgical repair within the first 24 hours of the injury.

Many hospitals have anticoagulation protocols or standing orders for postop hip fracture management, which should make VTE prevention almost automatic. However, it's important to ensure that these orders are initiated preoperatively if surgery is delayed,

and that treatment gets continued for the appropriate length of time—even after the patient is discharged to their home or to a facility for rehabilitation.

As physicians, we worry about the short-term mortality from VTE and pulmonary embolism, but delirium can be devastating for family members to watch, and carries its own morbidities. I talk to the patient and family preoperatively or immediately postoperatively about this risk so they can be prepared.

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Evidence summary

Although most patients undergo surgery for hip fracture, family physicians often serve as consultants for periop-

erative management and rehabilitation. Several interventions have been studied that influence outcomes for hip fracture patients.

Surgical interventions:

Timing is critical

Most ambulatory, medically stable patients elect to have surgical repair of their fractures. A meta-analysis found few randomized trials comparing operative with nonoperative therapy; it concluded that surgical treatment seems to be associated with a reduced length of hospital stay and improved rehabilitation.¹

The timing of surgery appears to be an important variable, particularly whether patients should undergo surgery within 24 hours of the fracture. Some studies found decreased mortality with earlier surgical intervention,² while others have not.³ A 2006 observational study⁴ found that delay in operating was associated with an increased risk of death in the hospital, even after adjusting for comorbidities. For all deaths in the hospital, the odds ratio [OR] for delaying more than 1 day, relative to 1 day or less, was 1.27 (95% confidence interval [CI], 1.23–1.32). Despite the inconsistency regarding mortality rates, complication rates (such as decubitus ulcers) do increase with a delay in surgery.³

Unfractionated vs LMW heparin

After a hip fracture, patients are at very high risk for VTE. For untreated patients, the rate of deep vein thromboses (DVT) may be as high as 50%, with an associated fatal pulmonary embolism rate as high as 7.5%.⁵

The effectiveness of unfractionated and low-molecular-weight heparin was evaluated in a 2002 Cochrane systematic review.⁶ While evidence was insufficient to recommend 1 agent over another, both were found to significantly decrease the incidence of lower-extremity DVT over placebo (for unfractionated heparin, relative risk [RR]=0.59 [95% CI, 0.49–0.72]; for low-molecular-weight heparin, RR=0.60 [95% CI, 0.50–0.71]). Number needed to treat [NNT] with either agent was 7.

Reduce infections with antibiotic prophylaxis

Antibiotic prophylaxis has been support-

TABLE

6 steps for managing hip fracture from the American College of Physicians

1. Consider hospitalization for stabilization and surgical repair for most patients.
2. Perform surgical repair as soon as the patient is medically stable.
3. Administer prophylactic antibiotics to patients.
4. Provide adequate analgesia to all patients with hip fracture, whether or not they undergo surgical repair.
5. Treat all patients to reduce the rate of thromboembolic complications.
6. Institute interventions to minimize the risk of postoperative delirium.

Source: PIER: Physicians' Information and Education Resource, American College of Physicians, 2006.¹⁶

ed by a Cochrane review, which concluded that single-dose antibiotic prophylaxis before surgery significantly reduced the risk of deep wound infections (RR=0.40; 95% CI, 0.24–0.67; NNT=55), as well as superficial wound, urinary, and respiratory tract infections.⁷

Patients should receive antibiotics less than 2 hours before surgery to reduce the risk of infection.⁸ Classen et al found that patients treated less than 2 hours before surgery had a 0.6% rate of infection (10/1208), compared with a 3.85% rate for those treated 2 to 24 hours ahead (14/369) (NNT=31).⁸ It is unclear whether multiple-dose therapy provides additional benefit when administered over the first 24 to 36 hours after surgery⁹ (OR=0.60; 95% CI, 0.18–2.02). First- or second-generation cephalosporins were used in most studies.

Delirium: A common but avoidable complication

Delirium is a common complication seen after hip fracture, affecting approximately 10% to 16% of patients.^{10,11} Delirium may increase the duration of hospitalization, and may be associated with an increased mortality at 1 year.¹² Delirium can be avoided by looking at each patient's risk factors.¹³ Studies suggest avoiding use of meperidine, benzodiazepines, and medications with anticholinergic side effects.^{11,13} Sleep deprivation, delayed mobility, and inadequate pain control are also associ-

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Inadequate pain control is associated with longer hospital stays and delirium

ated with the development of delirium.¹³

One study showed that prophylaxis with haloperidol for hip fracture patients did not decrease the incidence of postoperative delirium but did reduce its duration and severity.¹⁴ Haloperidol prophylaxis was also associated with shorter hospital stays. Treatment with haloperidol or risperidone for the agitation of postoperative delirium has been recommended when behavioral interventions fail.¹³

Pain control improves recovery

Providing adequate analgesia is of the utmost importance. In a 2003 prospective cohort study, patients without sufficient analgesia had an increased risk of poor functional recovery and longer hospitalization.¹⁵ In another cohort study, those patients whose pain was inadequately controlled also had an increased risk for delirium (RR=9.0; 95% CI, 1.8–45.2).¹¹ Meperidine use increased the risk for delirium compared with other opioid analgesics (RR=2.4; 95% CI, 1.3–4.5).¹¹

Recommendations of others

The American College of Physicians provides a comprehensive evidence-based guideline for the management of hip fracture patients in their PIER series (Physicians' Information and Education Resource) (TABLE).¹⁶

The American College of Chest Physicians has published evidence-based guidelines for the prevention of VTE.⁵ For patients undergoing hip fracture surgery, they recommend routine use of fondaparinux, low-molecular-weight heparin at high-risk dosing, adjusted-dose warfarin (at a target international normalized ratio [INR] of 2.5, range 2.0–3.0), or unfractionated heparin. They recommend against routine use of aspirin alone. If surgery must be delayed, physicians should initiate prophylaxis with unfractionated or low-molecular-weight heparin at the time of hospital admission. Anticoagulation should routinely continue for 10 days after surgery or until the patient is ambulatory. If anticoagulation is contraindicated, mechani-

cal prophylaxis of VTE with foot and calf pumping devices is recommended.^{5,6} ■

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To prevent delirium after surgery, patients should avoid certain medications, such as meperidine and benzodiazepines