Review: Strong evidence supports perioperative practices to reduce complications from hip fracture

Beaupre LA, Jones CA, Saunders LD, et al. **Best practices for elderly hip fracture patients. A systematic overview of the evidence.** J Gen Intern Med. 2005;20:1019-25.

Clinical impact ratings: Hospitalists ★★★★★☆☆ Geriatrics ★★★★★★☆

QUESTION

What are the best treatment practices for older patients with hip fracture?

METHODS

Data sources: 8 databases, clinical practice guideline Web sites, references of relevant articles, and content experts.

Study selection and assessment: Randomized controlled trials (RCTs), systematic reviews, and high-quality cohort studies of treatment practices in patients > 65 years of age with hip fracture. 50 articles met the selection criteria. Quality assessment of individual studies was based on Users' Guides to the Medical Literature.

Outcomes: Hip fracture complications.

MAIN RESULTS

The effective treatment practices based on systematic review and RCT evidence are in the Table. Among preoperative care practices, pressure-reducing mattresses reduced development of pressure ulcers, and traction provided no benefit. Delay in surgery > 24 hours was associated with complications, including pressure ulcers. Among operative practices, regional anesthesia was better than general anesthesia. Deep venous thrombosis (DVT) prophylaxis and antibiotic prophylaxis were effective for reducing DVT and wound infection, respectively. Wound drainage did not affect wound healing problems or transfusion requirements. Better outcomes were seen with intermittent urinary catheters than indwelling catheters, and with epidural than conventional analgesia. Among postoperative practices, nutrition supplementation with protein, vitamins, and minerals was better than placebo or usual care.

CONCLUSION

In older patients with hip fracture, strong evidence supports several treatment practices during the perioperative period to reduce the rate and severity of complications.

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Effective treatment practices for older patients with hip fracture*

Timing of care	Indications or interventions	Number of trials	Comparisons†	Outcomes
Preoperative care	Pressure ulcers	1 SR (2 RCTs)	Pressure reducing vs standard mattress	Pressure ulcer development
Perioperative care	Fracture fixation	3 SRs (49 RCTs)	Compression hip screws vs various nails for trochanteric or extracapsular fractures	Operative and postoperative complications
	Anesthetic	2 SRs (163 RCTs)	Regional vs general anesthesia pneumonia, and	Mortality, DVT, pulmonary embolism, transfusion requirements
	DVT prophylaxis	1 SR (21 RCTs) + 1 RCT	Heparin, pumping device, or fondaparinux vs placebo	DVT
	Antibiotic prophylaxis	1 SR (15 RCTs)	Antibiotic vs placebo	Deep and superficial wound infection
	Urinary catheterization	1 RCT	Intermittent vs indwelling catheter	Time to normal voiding
	Analgesia	2 RCTs	Epidural vs conventional analgesia	Cardiac complications and pain
Postoperative care	Nutrition supplementation	1 SR (15 RCTs) + 1 RCT	Nutrition supplementation vs placebo or usual care	Major complications, length of stay, and death or complications

*SR = systematic review; RCT = randomized controlled trial; DVT = deep venous thrombosis.
†The first intervention in each comparison cell is the effective treatment practice.

COMMENTARY

Older adults who sustain hip fractures are at high risk for functional decline, institutionalization, and premature mortality. Minimizing the risk for these adverse outcomes requires coordination of patient care by a team with expertise in several disciplines, including surgery, anesthesia, nursing, internal medicine, rehabilitation, and nutrition.

Beaupre and colleagues have systematically reviewed a wide range of interventions for management of older adults with hip fractures that will interest all of these health care professionals.

In some cases, the cost-effectiveness of the interventions discussed in this review is unclear and warrants additional study. Furthermore, several potentially relevant interventions are not addressed and are worth highlighting for physicians who provide care to older adults with hip fractures.

First, upstream factors contributing to hip fracture should be identified and treated whenever possible. Many patients who have suffered fragility fractures are never evaluated for osteoporosis, which is worrisome given their high risk for recurrent fractures (1). To address this problem, authors of this systematic review are currently recruiting hip fracture patients into a clinical trial to evaluate a nurse-led osteoporosis service (2). Clinicians must also recognize that most hip fractures are the result of falls from standing height (3). A systematic assessment of falls in patients who sustain hip fractures makes intuitive sense, despite the fact that no trial to date has addressed whether this approach would reduce the risk for recurrent fracture.

Second, decisions regarding the timing of surgery should include consideration of perioperative cardiovascular risk (4). In some cases (e.g., when patients present with decompensated heart failure or an acute coronary syndrome), optimization of cardiovascular status may necessitate delays in hip repair.

Third, physicians should appreciate that delirium is common after repair of a hip fracture. Delirium often reflects underlying medical illness or drug toxicity and is associated with poor functional recovery after hip fracture. An RCT has shown that proactive geriatric medicine consultations can reduce the incidence and severity of postoperative delirium (5).

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References

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