Perioperative Management of Geriatric Patients

J. Michael Straughn, Jr., MD
Associate Professor
Gynecologic Oncology
Educational Objectives

- Review the goals of geriatric medicine.
- Review the preoperative assessment of elderly surgical patients.
- Discuss the prevention and treatment of postoperative cognitive deficits in elderly surgical patients.
Take Home Message

- Geriatric surgery is about disease, not age.
Aging

- Multidimensional process of physical, psychological, and social change.
  - Reaction slows
  - Wisdom grows
- 100,000 people worldwide die each day due to age-related causes.
Elderly

- Classification
  - Young old – 65-74
  - Middle old – 75-84
  - Oldest old – 85 and higher

- Affect on surgical outcomes is unknown.
Elderly Facts

- 13% of the population is age 65 or older.
  - Account for 44% of days of care in hospitals and 38% of discharges.
- Longer hospital stays, greater costs, and higher risk of adverse outcomes.
- Every 8 minutes a Baby Boomer turns 60.
Geriatrics

- Branch of medicine that focuses on healthcare of the elderly.
  - Promote health
  - Prevent disease
  - Treat disabilities
The Aging Process

- Physiological changes with age
- Decline in organ reserve
- Decreased functional ability
- Altered quality of life
Geriatric Giants

- Immobility
- Instability
- Incontinence
- Impaired intellect
History of Geriatric Medicine

- *In 1025, The Canon of Medicine was written by Avicenna, a Persian Scholar.*
- First book to offer instruction in the care of the aged.
  - Foreshadowing of modern geriatrics.
History of Geriatric Medicine

- In a chapter "Regimen of Old Age", Avicenna was concerned with how "old folk need plenty of sleep" and recommended exercises such as walking or horse-riding.
- Several sections were dedicated to elderly patients who become constipated.
Cognitive Concerns in the Surgical Patient

- Dementia
- Delirium
- Polypharmacy
- Power of attorney
- Advanced directives
Challenges

- Dementia, frailty, impaired ability to care for oneself, and malnourishment may be present at baseline and are likely to worsen postoperatively.
- The elderly are at increased risk of acute delirium and cognitive impairment postoperatively.
- These challenges will complicate recovery and discharge.
Gynecologic Surgery in the Elderly

- Incontinence
- Pelvic prolapse
- Pelvic masses
- Gynecologic malignancies
  - Endometrial
  - Ovarian
  - Vulvar
Preoperative Decisions

- Elective or emergency?
- Is the problem significant?
- Can it be fixed?
- Medical versus surgical therapy?
- What are the risks of surgery?
- Is the patient a surgical candidate?
- Who is going to help me help her?
Preoperative Clearance

- Who will clear the patient?
  - Anesthesia
  - Internist
  - Cardiologist
  - Geriatrician
- Depends on the problem
Preoperative Clearance

- Cardiology
  - Coronary artery disease
  - Stents (drug eluting)
  - Heart failure
  - Valvular issues
    - Aortic stenosis
  - Rhythm issues
    - Atrial fibrillation
Preoperative Clearance

- Medicine
  - Hypertension
  - Pulmonary
  - Renal issues
  - Neurologic deficits
Preoperative Clearance

- Geriatrician tools
  - Comprehensive geriatric assessment (CGA)
  - Brief fatigue inventory (BFI)
  - Preoperative assessment of cancer in the elderly (PACE)
Preoperative assessment of cancer in the elderly (PACE)

  - 460 patients age 70 or older with cancer were prospectively evaluated.
  - ADLs, fatigue, and PS predicted 30-day morbidity (38%).
  - Stage of cancer and severity of surgery impacted 30-day mortality (4%).
Case 1

- An 82-year-old woman is admitted for XLAP for ovarian cancer.
- She has a history of osteoarthritis and hypertension.
- Her medications include a beta-blocker, a thiazide diuretic, and a multivitamin.
Case 1

- She is independent in all ADLs.
- She is a social drinker and does not smoke.
- She has no known cardiovascular, lung, or renal disease.
Case 1

- Her laboratory test results:
  - BUN, 24 mg/dL
  - Creatinine, 1.0 mg/dL
  - Hemoglobin, 12.8 g/dL
  - Albumin, 3.8 gm/dL
Case 1

Which of these statements about this patient is most correct?

A - She is at high risk (> 40%) of postoperative cognitive dysfunction

B - Her risk of postoperative delirium is 5% to 10%

C - Postoperative delirium cannot be prevented

D - Preoperative haloperidol (1.5 mg/day for 3 days) will reduce the risk of delirium by 25%
Case 1

- A is correct
  - A - She is at high risk (> 40%) of postoperative cognitive dysfunction
    - Correct
  - B - Her risk of postoperative delirium is 5% to 10%
    - Higher
  - C - Postoperative delirium cannot be prevented
    - Can be prevented
  - D - Preoperative haloperidol (1.5 mg/day for 3 days) will reduce the risk of delirium by 25%
    - Reduces severity not risk
Postoperative Cognitive Dysfunction

- POCD was 1st described in patients after cardiac surgery, especially following coronary artery bypass graft procedures.
- It also occurs in patients who undergo noncardiac surgery.
- May persist for weeks to months.
- May not be obvious but can be detected by standard neuropsychological testing.
Postoperative Cognitive Dysfunction

- POCD is different from:
  - Emergence delirium that is associated with the wearing off of anesthesia.
  - Acute delirium which sometimes occurs over the first few postoperative days.
Postoperative Cognitive Dysfunction

- Cause not well understood.
- Predisposing factors include advanced age, metabolic problems, lower educational level, and previous cerebral vascular accident.
- POCD must be considered preoperatively as it may impact quality of life.
Postoperative Cognitive Dysfunction


POCD was common at hospital discharge after major noncardiac surgery in adults of all ages.

- 41% in those 60 or older

3 months after surgery, 12.7% of patients aged 60 or older continued to have cognitive dysfunction, which was more than double the rates in the young patient group (5.7%).
Delirium

- Delirium is a common complication of surgery.
- It is a disorder of attention and cognition and classically presents as an acute change in mental status.
Delirium

- Accompanied by the following:
  - Fluctuation in awareness
  - Memory impairment
  - Inattention (inability to stay on task, distractibility)
  - Disorganized or illogical thinking
  - Altered level of consciousness
    - Hyperalertness (agitation, pulling out intravenous lines)
    - Hypoalertness (quiet delirium)
Delirium Risk Assessment


- Age ≥ 70 years (1 point)
- History of alcohol abuse (1 point)
- Baseline cognitive impairment (1 point)
- Severe physical impairment (1 point)
- Abnormal preoperative electrolytes or glucose (1 point)
- Noncardiac thoracic surgery (1 point)
- Abdominal aortic aneurysm surgery (2 points)
Delirium Risk Assessment

- **Marcantonio Model**
  - 0 points is associated with a 2% risk of developing postoperative delirium.
  - A score of 1 or 2 points (as for the patient in our case study) is associated with an 11% risk.
  - 3 or more points is associated with a 50% risk of postoperative delirium.
Predictors

- Severe illness (high fever, complicated infections)
- Baseline dementia
- Dehydration (high BUN:creatinine ratio)
  - Normal is 10:1
  - Greater than 18:1 is associated with an increased risk of delirium
- Sensory impairments (particularly visual)
Risk Reduction

- Supplemental oxygen during surgery
- Optimization of electrolytes and blood glucose preoperatively
- Discontinuation of high-risk medications
- Adequate nutritional intake (by parenteral route if necessary)
- Ambulation on the first postoperative day
- Treatment of severe pain
High-Risk Medications

- Anticholinergics
  - Diphenhydramine
- Benzodiazepines
- Meperidine
- Tricyclic antidepressants
- Promethazine
- High-dose H₂-receptor blockers (cimetidine)
Haloperidol

- No antipsychotic agents, including haloperidol, have a FDA–approved indication for treating agitation, dementia, or delirium.
- The usual off-label use is for patients who are severely agitated and are at risk of harming themselves or others.
- In an ICU setting, where patients have multiple lines, these agents can be considered for an agitated patient.
Haloperidol

- Haloperidol has the advantage that it can be given in small increments rapidly and achieve control of severe agitation.

- As delirium resolves, it should be tapered rapidly over a few days and discontinued prior to discharge.
Case 2

- On POD1, our patient appears weak and slightly confused.
- She is not eating and is crying in pain.
- Her neurological exam is normal.
- Which is the most appropriate next step?
  - A - Increase physical therapy
  - B - Begin an antidepressant
  - C - Insert a nasogastric feeding tube
  - D - Increase doses of analgesics
Case 2

- D is correct
  - A - Increase physical therapy
    - Pain hampers PT
  - B - Begin an antidepressant
    - No history
  - C - Insert a nasogastric feeding tube
    - Premature
  - D - Increase doses of analgesics
    - Correct
Strategy for Pain Control

- Low-dose morphine sulfate is preferred.
  - 1–4 mg every 2 hours, titrated as needed
- Acetaminophen can be given safely to most patients.
- PCA is reasonable for select patients but not for patients with cognitive impairment.
- NSAIDs must be used cautiously.
  - Risk of gastric ulcers and bleeding, acute kidney injury, fluid retention, and exacerbation of congestive heart failure.
Case 3

- 79 year old undergoes TVH, prolift, and TVT.
- On POD 2, the patient is weak and complains of fatigue.
- She says that before surgery, she was experiencing mild weight loss, fatigue, and reduced activity.
Case 3

What is the most likely reason for her symptoms before the surgery?

- A - Frailty
- B - Occult heart failure
- C - Adverse drug reaction to her beta-blocker
- D - Clinical depression
Case 3

- A is correct
  - A – Frailty
    - Correct
  - B - Occult heart failure
    - A consideration
  - C - Adverse drug reaction to her beta-blocker
    - Unlikely to cause weight loss
  - D - Clinical depression
    - No history
Frailty

- Frailty is a failure over time of the homeostatic mechanisms that keep our organ systems functioning in the face of stress.
Frailty

- Minimal physical activity ("doing less")
- Generalized (not focal) muscle weakness
- Slowed performance (walking short distances takes longer)
- Fatigue or poor endurance
- Unintentional weight loss
Frailty Treatment

- Preoperative assessment and counseling
- Physical therapy
- Nutritional supplementation
- Discharge planning
- Family involvement
Oncology Considerations

- Age is not a contraindication to oncology treatment.
- Robotic surgery, radiation therapy, and chemotherapy are feasible.
- Performance status and stage of disease are the most important predictors of outcomes.
Summary

- Elderly people are not just older adults.
- Preoperative assessment of elderly patients is critical.
- Surgical decisions should be based on medical need, ability to benefit, health status, and patient wishes.
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