



Enhanced Perioperative Management of Older Adults

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Disclosures None



Interesting Facts



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- Warhol was a sickly child, spending a lot of time in bed drawing and writing but overcame most of his maladies by adulthood.
- He ran with several echelons of celebrities in the 60s and 70s, enjoying all the drugs introduced during the era and was a heavy drinker.
- Warhol survived a near fatal bullet wound in 1968 when he was shot by a disgruntled associate
- He died a few hours after surgery in 1987 following routine gallbladder operation at a New York hospital.



Objectives



1) Discuss the physiologic changes associated with aging affecting perioperative outcomes.

2) List the most frequent complications associated with surgical management of older adults.

3) Describe the common features of a perioperative program described in the literature.



Background

- 33-53% of surgical procedures occur in people older than 65 years.
- Older adults experience disproportionate rates of postoperative morbidity and mortality
- The identification of reversible factors that are associated with postoperative morbidity in geriatric surgical patients is critical to improving perioperative outcomes in such patients.

ACS-NSQIP participant use file (2005-2006), patients undergoing upper gastrointestinal tract (n = 4115), hepatobiliary or pancreatic (n = 3364), and colorectal (n = 17 268) operations at 121 hospitals



Arch Surg. 2009 Nov;144(11):1013-20. doi: 10.1001/archsurg.2009.114/

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Background



- Patients Don't Die on the Table
- Most Complications are Independent of Surgical Skills
- Pre-op Optimization Works

High Risk Older Adults Undergoing Gastrointestinal malignancies during 2009–2010





Background



RISK= modifying both







Cases



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- 85 y/o female presents to your office for evaluation for laparoscopic uterine resection.
- Hx of COPD well controlled, HTN, DM
- Lives by herself, walks every day to the store, plays cards with friends 3 x week
- Initial evaluation including pre op labs EKG CXR WNL

- 85 y/o female presents to your office for evaluation for laparoscopic uterine resection.
- Hx of COPD well controlled, HTN, DM
- Lives with her DTR, uses a walker to ambulate, needs assistance managing meds and finances
- Initial evaluation including pre op labs EKG CXR WNL







- Undergoes procedure w/o complications.
- Post Op day 1 out of bed and ambulating, IV's and Foley D/C Tolerating PO
- Uses PRN opioids and acetaminophen RTC for pain
- She is discharged on Post Op day 2 home

- Patient became agitated and resistant to care. She pulled her IV line and Foley with resulting trauma
- She was not able to ambulate and has poor PO intake
- On post op day 2 she felt from her bed and broke her L hip



Cases



Why two apparently similar patients had two completely different outcomes?







Physiologic Changes Associated with Aging



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Cardiac output declines by almost 50% between the ages of 20 and 80

Interstitial fibrosis results in decreased myocardial compliance

Increased arterial stiffness resulting in increased afterload, increased systolic blood pressure, and, thus, left ventricular hypertrophy





Alterations involve both the lung parenchyma and the chest wall (Emphysema)

Decreases in arterial oxygen tension and alveolar gas exchange, paired with alterations in compliance, lead to increases in ventilation perfusion mismatch

The elderly individual breathes with both a smaller tidal volume and more rapid respiratory rate

PATIENT

TIMING - TECHNIQUE



Physiologic Changes Associated with Aging



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The aged individual undergoes reductions in both hepatic and splanchnic blood flow with consequent liver involution.

Nearly 50% of all functioning glomeruli are lost by the age of 80







80-year-olds have lost approximately 30% of their total brain mass)

Older individuals may have difficulties filtering extraneous information and stimuli

As life expectancy continues to increase, a greater proportion of elderly individuals will begin to demonstrate clinical signs of neurodegenerative disease

PATIENT

TIMING - TECHNIQUE

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3597305/



Enhanced Perioperative Management



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"Traditional preoperative risk assessment tools, such as the American Society of Anesthesiologists (ASA) Physical Classification System, focus on medical factors associated with risk of adverse postoperative outcomes"

"... such tools do not account for risk factors unique to older adults such as malnourishment, impaired mobility, cognitive impairment, and frailty. Geriatric-specific risk stratification models are better able to predict outcomes in older adults."

https://www.ncbi.nlm.nih.gov/pubmed/30616422



Who Should Benefit From Enhanced Peri-operative Programs?



NSQIP[®]



AMERICAN COLLEGE OF SURGEONS Inspiring Quality: Highest Standards, Better Outcomes

Patient Name: John Doe Procedure: 43334 - Repair, paraesophageal hiatal hernia (including fundoplication), via thoracotomy, except neonatal, without implantation of													
mesh or other pr Risk Factors: 75-84 years, Par	osthesis tialv dep	endent fu	nctional	status,	Emerge	nt, Mild	system	ic disea	ise, Dia	ibetes (C	Dral), HTN,	Class2 Obese	
Outcomes		Note: <u>Y</u>	our Risk	has bee	en round	led to o	ne deci	mal poir	nt.		Your Risk	Average Risk	Chance of Outcome
Serious Complication	10	20	30	40	50	60	70	80	90	100%	24.1%	16.8%	Above Average
Any Complication	10	0 20	30	40	50	60	70	80	90	100%	26.7%	18.3%	Above Average
Pneumonia	10	0 20	30	40	50	60	70	80	90	100%	3.9%	2.9%	Above Average
Cardiac Complication	10	0 20	30	40	50	60	70	80	90	100%	1.4%	0.8%	Above Average
Surgical Site Infection	10	0 20	30	40	50	60	70	80	90	100%	5.0%	3.7%	Above Average
Urinary Tract Infection	10	0 20	30	40	50	60	70	80	90	100%	5.2%	2.8%	Above Average
Venous Thromboembolism	10	0 20	30	40	50	60	70	80	90	100%	2.9%	1.9%	Above Average
Renal Failure	10	0 20	30	40	50	60	70	80	90	100%	1.1%	0.6%	Above Average
Readmission		0 20	30	40	50	60	70	80	90	100%	9.8%	7.4%	Above Average
Return to OR	10	0 20	30	40	50	60	70	80	90	100%	6.1%	5.1%	Above Average
Death	10	0 20	30	40	50	60	70	80	90	100%	0.8%	0.5%	Above Average
scharge to Nursing or Rehab Facility	10	0 20	30	40	50	60	70	80	90	100%	42.1%	7.9%	Above Average

Cost-Effectiveness Depends Greatly in Targeting the Right Population







Appropriate Screening is the First Step



Common Features of Enhanced Perioperative Programs



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- Screening for the population that will receive the most benefit.
- Based on guidelines for preoperative cardiac and pulmonary risk assessment.
- Targeted preoperative testing.
- Intraoperative and postoperative interventions.
- Use evidence-based use of blood conservation methods, transfusion, coagulation testing, anticoagulant reversal agents, and/or management of anti-thrombotic drug therapies.
- Includes strategies to control acute postoperative pain using multimodal analgesia and reduce risk for chronic opioid dependency.
- impact of structural and cultural factors related to the healthcare system.



The Perioperative Optimization of Senior Health (POSH)



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- The main objective of the program is to improve postoperative outcomes for *high-risk* seniors
- The model involves geriatrics experts throughout the perioperative period
- Targeted interventions such as management of comorbidities, reduction of polypharmacy, enhancement of mobility and nutrition, and delirium risk mitigation







Open

5

0.

Laparoscopic



*326 patients undergoing elective abdominal surgery

https://www.ncbi.nlm.nih.gov/pubmed/30616422



POSH Basics

Step 1: General surgeons refer older patients undergoing elective procedures around 30 before surgery *Criteria:* cognitive impairment, poor nutrition, multiple chronic conditions, impaired vision/hearing, age > 85 (Falls?)

Pre-Visit Phone Call with Screening and Lab Work

Step 2: Single visit, multidisciplinary, inter- professional evaluation focused on identifying and mitigating risk factors for post-operative complications

Step 3: Surgery

Step 4: Post-operative geriatrics consult (or PCP) for management of medical conditions, medications, pain, complications, and planning for post-hospital care

Step 5: Common Documentation Visit.







POSH Program (cont)



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Mood–Koenig

Caregiver support

MNA



Promote mobility and nutrition

Educate family and staff Facilitate transitions

Expectations-Perception=Satisfaction

VA POSH PROGRAM



Social Support



- Older adults underestimate the degree of post-operative disability
- Older adults may overestimate the support they could receive for functional limitations after major surgery
- Rehabilitation professionals should consider that patients' pre-surgery expectations of support from friends and family may be inaccurate, leading to unmet need for help with activities of daily living

https://www.ncbi.nlm.nih.gov/pubmed/30616422



POSH Program (cont)



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Assessment (1-2 hour visit)

Medical history Medications Function—ADLs, IADLs Mobility—Gait speed Cognition—S16/SLUMS Mood— Koenig Vision and hearing Nutrition—MNA Caregiver support Goals and expectations



VA POSH PROGRAM



Barriers for POSH Implementation



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- Coordination of Providers
- Communication
- Perception (family and providers)
- Financial Feasibility

https://www.ncbi.nlm.nih.gov/pubmed/30616422



Taking Home Message



- As the demographics of the U.S. continues to shift, more older adults will undergo surgical interventions
- Older adults are at overall higher risk of post-operative complications.
- There are physiologic changes associated with age
- Look beyond co-morbid conditions and surgical risk. Geriatric patients are more complex
- Process and Standardized protocols are the answer to complexity
- Your surgical outcomes are affected by other factors different than your surgical skills.
- Believe in co-managed medicine, discuss cases with other treating physicians (no more clearances!)







Communication is Everything

Thank you



Communication is Everything

