Objectives

- Describe the physiological decline associated with aging and the clinical implications for anesthetic care
- Describe prevention and management strategies for common postoperative complications in the geriatric patient
- Discuss outcome studies showing no difference in mortality between regional and general anesthesia in the elderly
- Describe data showing that short-term improvements in postoperative acute pain management with the use of regional anesthesia in the elderly do not translate into long-term functional gain in orthopedic surgery

Physiology of Aging

- Cardiovascular
  - Decreased arterial elasticity
  - Decreased adrenergic activity
- Respiratory
  - Decreased pulmonary elasticity
  - Blunted response to hypercapnia/hypoxia
- Renal function decline
- Hepatic function decline
- Pharmacokinetic and pharmacodynamic changes
- Reduced MAC

MIPS

- CMS Anesthesiology Specific Measure Set 2017
  - MIPS #44: CABG: Preoperative Beta-Blocker in Patients with Isolated CABG Surgery
  - MIPS #76: Prevention of CVC-Related Bloodstream Infections*
  - MIPS #130: Documentation of Current Medications in the Medical Record
  - MIPS #317: Preventive Care and Screening: Screening for High Blood Pressure and Follow-Up Documented
  - MIPS #404: Anesthesiology Smoking Abstinence*
  - MIPS #424: Perioperative Temperature Management*
  - MIPS #426: Post-Anesthetic Transfer of Care Measure: Procedure Room to PACU*
  - MIPS #427: Post-Anesthetic Transfer of Care Measure: Procedure Room to ICU*
  - MIPS #430: Prevention of PONV - Combination Therapy*
  - * = High Priority Measure

Regional Anesthesia

- We can all agree that regional anesthesia helps with pain management in the perioperative period!
Regional Anesthesia

- Are there measurable patient outcomes that we can look at?
- What are your goals when choosing an anesthetic for your geriatric patient?

QUESTION #1

- Does regional anesthesia improve mortality?

- Meta analysis data unclear whether regional anesthesia reduces mortality
- Superior analgesia over opioid based techniques

- Retrospective cohort study – Ages 50 or older
- Surgery for hip fracture in New York State- 2004-2011
- 56729 patients- 28% regional anesthesia
- Length of stay- 0.6 days shorter in Regional groups
- No differences in 30- day mortality

In conclusion, there is strong evidence that epidural analgesia or peripheral regional analgesic techniques improve neither postoperative mortality nor postoperative pulmonary and gastrointestinal complications in a clinically significant manner for the geriatric surgical population. It may be that the advantages of epidural analgesia are limited to high-risk medical patients undergoing high-risk procedures. Epidural analgesia is statistically, but not clinically, superior using epidural techniques. The marginal superiority is further offset by failure rates and anesthetic alternatives such as (thoracic/intercostal, and IV sedation). Epidural analgesia is associated with a small but relevant number of adverse complications, especially in the presence of antiplatelet therapy. The risk-benefit balance should be discussed with the patient in the preoperative consultation.
- General anesthesia – Lower incidence of hypotension, fewer cerebrovascular accidents, shorter time of surgery
- Regional anesthesia – Reduced early mortality, less DVT, less acute postoperative confusion
- REGIONAL ANESTHESIA IS NOT A PANACEA
- Recommends multidisciplinary approach coordinated by geriatrician, anesthesiologist, and orthopedic surgeon

**QUESTION # 2**

Does regional anesthesia improve postoperative cognitive dysfunction?

- Spinal without sedation or postop opioids versus GA
- No significant differences in postoperative cognitive dysfunction between GA and spinal
- Rates higher in spinal group
- No difference in incidence of delirium
- Multifactorial issue

**QUESTION # 3**

Does regional anesthesia improve functional outcomes?

- Not enough high level RCTs to determine difference in mortality and morbidity
- RA compared to systemic analgesia improved post op pain, opioid consumption, PONV
- Length of stay NOT reduced
- Rehabilitation measures NOT improved
QUESTION # 4

• Does regional anesthesia reduce perioperative complications?

- General anesthesia – Lower incidence of hypotension, fewer cerebrovascular accidents, shorter time of surgery
- Regional anesthesia – Reduced early mortality, less DVT, less acute postoperative dysfunction
- REGIONAL ANESTHESIA IS NOT A PANACEA
- Recommends multidisciplinary approach coordinated by geriatrician, anesthesiologist, and orthopedic surgeon

REGIONAL ANESTHESIA IS NOT A PANACEA

Recommends multidisciplinary approach coordinated by geriatrician, anesthesiologist, and orthopedic surgeon

QUESTION # 5

• Is Regional Anesthesia Safe?

"The data reviewed here seem to suggest that short-term improvements in postoperative acute pain management do not translate into long-term functional gain in orthopaedic surgery"

- Small effect in reduction of blood loss
- Some studies show reduction in respiratory complications and infection
- In some circumstances, general anesthesia may reduce incidence on some complications
- Risk of complication with regional anesthesia may exceed benefit in some patients
Complications of Neuraxial Anesthesia/Analgesia

- Back pain
- Headaches
- Infection
- Nerve damage
- Hypotension
- Epidural abscess
- Bleeding
- Epidural hematoma

Complications of Regional Anesthesia

- Nerve injury
- Needle trauma
- Infection
- Bleeding
- Local anesthetic systemic toxicity
- Block specific issues
- Catheter related complications

Epidural Hematoma

- Rare but serious complication
  - 1: 150,000 for epidural blocks
  - 1: 220,000 for spinal anesthetics
- Risks
  - Female gender
  - Increased age
  - Traumatic placement
  - Indwelling catheter and LMWH pre, intra or postop
Antithrombotic and Thrombolytic therapy

https://depts.washington.edu/anticoag/home/content/neuraxial-guidelines

Antithrombotic and
Use with UWMC Nursing Epidural Policy and Procedure and Acute Pain Service Guidelines for Neuraxial/Peripheral Nerve Catheters

ANT
argatroban
10-20mg po qday

warfarin
15-20mg po qday

100 Units/kg SQ Q12H

dalteparin
10mg po QDay

40mg SQ Q12H

heparin

ANTICOAGULANTS FOR VTE PROPHYLAXIS

Peripheral routes include all peripheral nerve and plexus infusions. NOTE: Bloody tap/procedure? Anesthesia to call Pain Service

Neuraxial routes include epidural and intrathecal infusions, implanted intrathecal pumps, and spinal injections.

Minimum time between last dose of anticoagulant and spinal injection OR neuraxial/nerve catheter placement PRIOR TO removing catheter

Must wait 12 hrs after last dose before neuraxial/nerve catheter placement and prior to their removal

Must wait 8 hrs after catheter removal OR spinal/neural hematoma

Multimodal analgesia

- Norquist et al. 2014 – Review of analgesic techniques in the elderly
  - Regional anesthesia as part of a multimodal regimen reduces postoperative neurological, pulmonary, cardiac and endocrine complications
  - Non-opioid analgesics minimize side effects of medications

Conclusions

- Difficult to statistically tease out a SINGLE effect from a SINGLE variable
- Care should be based on specific patient – BE A PERIOPERATIVE PHYSICIAN!!!!!
- When it comes to pain management, multimodal always the best idea!
- "Healing is an Art, Medicine in a Science, Healthcare is a Business"
References

  [https://www.facs.org/~/media/files/qualityprograms/geriatric/acsnqsipagssbestpracticeguidelines]

References