Management of Hip Fractures in the Elderly Patient

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Optimizing Management of Hip Fractures in the Elderly Patient
Optimizing Management of Hip Fractures in the Elderly Patient

• Objectives:
  • Differentiate Treatment and Management Strategies for Elderly vs. Young Patients with Hip Fractures.
  • Review / Understand Current Guidelines for Management
  • Discuss Proper Evaluation, Treatment and Management of Hip Fracture Patients
  • Improve Communication and Care – Multidisciplinary Care Team Members.
Optimizing Management of Hip Fractures in the Elderly Patient

• Pretest:
  • 1. What are the chances of sustaining a hip fracture if you live to be 90 years old?
  • 2. If you sustain a hip fracture after age 65 what is your one-year mortality?
  • 3. Why are femoral neck fractures of such concern in young patients?
  • 4. If you suspect a patient has a hip fracture but plain films are normal – what further study should you order?
  • 5. How quickly should a Hip-Fracture patient undergo surgery?
  • What is the average length-of-stay for a hip fracture patient?
Optimizing Management of Hip Fractures in the Elderly Patient

• Overview:
  • Epidemiology
  • Emergency Room Management
  • The Role of the Hospitalist / Internist
  • Perioperative Risk Assessment / Optimization
  • Anesthesia for Hip Fracture Patients
  • Orthopedic Care
  • Post Op Care on the Ward
  • Inpatient Rehabilitation
  • Discharge and Return to Function
  • Preventing Future Injuries
Epidemiology of Hip Fractures in the Elderly

- U.S.
  - 250,000 Hip Fractures Annually
  - Even Division - Femoral Neck & Intertroch Fx’s
  - 500,000 by 2050
  - 75% are Women
  - Average age 72 years old
  - By Age 90 – 50% of women will have a hip fracture
  - Lifetime risk 18%

[References]

Osteoporosis International
October 2011, Volume 22, Issue 10, pp 2575–2585
Geographic trends in incidence of hip fractures: a comprehensive literature review
Epidemiology of Hip Fractures in the Elderly

- Bend and Surrounding areas
  - Estimated 300 – 500 admissions
  - More than 500 Procedures
  - Average Length of Stay – 6 Days?
  - Mortality - ?
  - Morbidity - ?
Epidemiology of Hip Fractures

• U.S. Population:
  • Risk Factors
    • Female sex
    • Multiple medical problems
    • Tobacco and Alcohol Use
    • White Race
    • Increasing Age
    • Low Estrogen Levels in females
Epidemiology of Hip Fractures

• In the United States:
  • Risk Factors
    • Previous Fall History
    • Previous Fragility Fracture
Fragility Hip Fractures

- Mechanism of Injury
  - Low Energy trauma
  - Fall onto the Greater Trochanter
  - Forced External Rotation
  - Fracture then Fall
Hip Fractures in Young Patients

- Occur as a result of
  - high energy trauma
  - Stress Fractures in Military recruits and Athletes
- Different treatment considerations
- Different Urgency of surgical care
- Disruption of the blood supply to the femoral head
Emergency Room Management
Hip Fractures

Low Energy Fracture

- History
  - LOC or near-syncopy
  - PMH
  - Chest pain
  - Previous Hip Pain
  - Pre-Injury functional status
- 2ndary Survey

- Radiology
  - Plain Films
  - CT Scan
  - MRI
- Pain Control
  - Regional block
Emergency Room Management of Hip Fractures

• Confirm Diagnosis
• Notify Hospitalist & Orthopedic surgeon
• NPO, IVF
• Foley Catheter
• Physician Assisted Traction Internal Rotation film
• Consider Regional Block – pain control
• Position for Comfort – traction not indicated
Hip Fracture Management
The Role of the Internist

• Perioperative Risk Assessment
• Medical Optimization
• Geriatric Comanagement

• Interdisciplinary Care
  • 50% reduction in postoperative complications
  • Fewer ICU transfers
  • Shorter Length of Stay
  • Lower mortality
  • Fewer Nursing Home discharges
Perioperative Risk Assessment and Medical Optimization

- Evaluation of Comorbidities
  - Chronic Stable
  - Chronic – Unstable
  - Newly Diagnosed
    - Charlson comorbidity Index

- Preoperative Functional Capacity
- ASA Classification
- Preoperative Cardiac Risk Assessment
- Pulmonary Risk Assessment
- Preoperative Cardiac and Pulmonary Testing
- Geriatric Comanagement
Surgical Timing in Management of Hip Fractures

• Operative Treatment as soon as patient is medically optimized
• Avoid Delay for patients on Aspirin or Plavix
Anesthesia for Hip Fracture Patients

• Pain control – Peripheral Nerve Blocks
  • Continuous Infusion catheters
• Spinal and Epidural Anesthesia
  • Not definitively associated with fewer complications
  • Less POCD & Delerium

• General Anesthesia
  • Induction
  • Hypotension
  • Prolonged intubation in patients with pulmonary issues
Orthopedic Surgeon’s Approach to the Management of Hip Fractures
Classification of Hip Fractures

- Femoral Neck Fractures
- Introchanteric Fractures
Non Operative Treatment

- Femoral Neck Fx’s
  - Valgus Impacted Fractures
  - Patient Compliance
  - Nonambulatory Patients
  - High Risk of Nonunion
  - Displacement
  - Unsuccessful Result

- Intertrochanteric fxs
  - Prolonged TWB
  - Less Risk of Nonunion
  - Minimal Risk of AVN
  - Complications associated with limited mobility
Classification of Femoral Neck Fractures

- Femoral Neck Fractures
  - Nondisplaced
  - Displaced
  - Valgus impacted
Classification of Femoral Neck Fractures

- Femoral Neck Fractures
  - Nondisplaced
  - Displaced
  - Valgus impacted
Operative Treatment

• Femoral Neck Fractures
  • Girdlestone Procedure
  • Cannulated Screw Fixation \textit{in-situ}
  • Closed or Open Reduction with Screw Fixation
Operative Treatment

- Femoral Neck Fractures
  - Hemiarthroplasty
    - Cemented
    - Uncemented
  - Total Hip Arthroplasty
    - Cemented Stem
    - Uncemented Stem
Femoral Neck Fractures

- Stable Femoral Neck Fractures
  - Nondisplaced
  - Valgus impacted
Treatment of Femoral Neck Fractures

- Displaced Femoral Neck Fractures
  - Arthroplasty
  - Unipolar vs Bipolar
Treatment of Femoral Neck Fractures

• Displaced Femoral Neck Fractures
  • Total Hip Arthroplasty vs. Hemiarthroplasty
  • Cemented Femoral Stems
  • Surgical approach
Treatment of Femoral Neck Fractures

- Displaced Femoral Neck Fractures
  - Total Hip Arthroplasty vs. Hemiarthroplasty
  - Recreate normal Hip mechanics and function
Treatment of Femoral Neck Fractures

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Treatment of Femoral Neck Fractures

- Displaced Femoral Neck Fractures
  - Total Hip Arthroplasty vs. Hemiarthroplasty
  - Recreate normal Hip mechanics and function
Classification of Intertroch Fractures

- Intertrochanteric Fractures
  - Nondisplaced
  - Stable
  - Unstable
Treatment of Intertroch Fractures

- Stable Fractures
  - Intact Lateral Wall
  - Minimal Comminution
  - Intact Posteiomedial buttress
Treatment of Intertroch Fractures

- Stable Fractures
  - Sliding Hip Screw
  - Cephalomedullary IMN
Treatment of Intertroch Fractures

• Stable Fractures
  • Sliding Hip Screw
  • Cephalomedullary IMN
Treatment of Intertroch Fractures

- Unstable Fractures
  - Reverse Obliquity
  - Subtroch Extension
  - Intertroch Comminution
Operative Treatment

• Intertrochanteric Femur Fractures
  • Cephalomedullary IMN
    • Short Implant
      • Quicker
      • Less blood Loss
      • Risk of Fx
    • Long Implant
      • Increased time
      • EBL
      • Protects the entire femur
Postoperative Considerations

- Mental Status Changes
  - POCD – cognitive dysfunction
  - POD - delirium
- Pulmonary Complications
- Cardiac Complications
- Gastrointestinal Complications
- Nutrition Concerns
- DVT and PE
Post Operative Care on the Ward

- Transfusion threshold not higher than 8mg/dl
- Multimodal Pain Management
- VTE prophylaxis
- Nutritional Supplementation
- Occupational Therapy and Physical Therapy
- Calcium and Vitamin D supplements
Inpatient Rehabilitation

• Establish Weight Bearing Status
• Hip Precautions
• Progressive mobilization
• Assistive Device training
• ADL’s
Discharge and Return to Function

- Strength and Balance Training
- Fall Prevention
- Bone Health Augmentation
- Nutrition Optimization
- Calcium and Vitamin D
- Intensive Physical therapy
Discharge and Return to Function

- Strength and Balance Training
- Fall Prevention
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- Calcium and Vitamin D
- Intensive Physical therapy
Preventing Future Injuries

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- Fall Prevention
- Bone Health Augmentation
- Nutrition Optimization
- Calcium and Vitamin D
- Intensive Physical therapy
Optimizing Management of Hip Fractures in the Elderly Patient

• Post-test:
  • 1. What are the chances of sustaining a hip fracture if you live to be 90 years old? Women 50% Men 17%
  • 2. If you sustain a hip fracture after age 65 what is your one-year mortality? 12% - 37%
  • 3. Why are femoral neck fractures of such concern in young patients? Disrupts femoral head blood supply
  • 4. If you suspect a patient has a hip fracture but plain films are normal – what further study should you order? MRI
  • 5. How quickly should a Hip-Fracture patient undergo surgery? After medial optimization: Within 48 hours
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Summary

• Fragility Hip Fractures:
  • A marker of an overall decrease in health
  • Best outcomes with a multidisciplinary team
  • Benefit from Continuation of Outpatient PT
  • Opportunity to address bone health & Prevention of fragility fractures of the hip, spine, wrist & shoulder
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• Key References:
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