Hip Fracture: What We Do Well and What We Can Do Better – An Interdisciplinary Clinical Perspective

Take Home Message

1. There are more than 350,000 hip fractures each year in the United State. Based upon the National Hospital Discharge Survey data, future estimates for hip fractures in the US by the year 2050 range from 458,000 to 1,037,000 with largest number occurring in females older than 65 years of age.
   • 1/3 of seniors over age 75 who fall die from complications within 18 months; 25% die within 12 months
   • 20-40% of adults over 65 will fall
   • White men have the highest fall-related death rates
   • Women sustain ~80% of all hip fxs
   • Among both sexes, hip fracture rates ▶ with age
   • Ages 85 & older are 10-15 X more likely to fx than 60-65 yrs

2. Hip Fracture Descriptions:
   • Subcapital Fracture – just below head of the femur
   • Femoral Neck – anywhere along the neck of the femur
   • Intertrochanteric – femoral fracture between greater and lesser trochanter
   • Subtrochanteric – fracture of the proximal femur, at or below the level of the lesser trochanter

3. Garden Classification System
   • Garden I Fracture – impacted fracture (may or may not have a complete fracture line)
   • Garden II Fracture – Complete fracture without displacement or angulation
   • Garden III Fracture – Complete fracture with partial displacement. May see shortening and ER of the distal fracture fragment
   • Garden IV Fracture – Complete fracture with total displacement of the fracture fragments. Continuity between proximal and distal fragments are disrupted

4. Garden I and II Fracture
   • Type I fracture treated with CRPP fixation
   • Type II treated with PP or sliding hip compression screw

5. Garden III and IV Fracture
   • Non-operative treatment is rare
   • Initially managed with Buck’s tx
   • ORIF – PP, Sliding Hip Screw, TFN (Trochanteric Femoral Nail), Bipolar Hemiarthroplasty, THA

   • Fracture type did not relate to functional outcome
   • Mortality, pain, function & QOL did not differ by surgical implant
7. Rehabilitation considerations with Hemiarthroplasty

- **Cemented Device** – WBAT
- **Uncemented** – WBAT per literature
- **Dislocation Precautions**
  - Avoid combined movements of the operative hip for 6-12 weeks (surgeon specific)


- Home & OPPT had similar outcomes with trend of better results with increasing intensity of PT treatments
- No strong consensus for recommending one rehabilitation setting over the other

9. Intertrochanteric Hip Fractures

- Occur along a line between greater & lesser trochanter
- Totally extracapsular
- Hip internal rotators remain attached to the distal fracture fragment
- About half of all proximal femur fractures are intertrochanteric hip fractures
- Extracapsular fractures are 4 times as common as femoral neck fractures
- Occur primarily in the elderly
- Clinical signs/treatments
  - LE markedly shortened with as much as 90 degrees hip ER deformity
  - Swelling of the hip girdle with ecchymosis over greater trochanter
  - Pain with any hip motion
  - Immediate post–injury treatment with Buck’s Traction to fx limb
  - Non–operative treatment is uncommon
  - Operative treatment
  - ORIF with sliding hip screw (DHS), TFN (trochanteric femoral nail), IMN, THA


- **PHASE 1**
  - Begin POD 1 with f/u OPPT 2-3 days per week
  - WBAT with assistive device
  - A/PROM LE with focus on full knee extension
  - Modalities as indicated for ms reeducation (e-stim to quads), edema control, pain management
  - Stretching: focus on HS, gastroc/soleus
  - Strengthening: QS, distal LE, SLR in 4 planes, hip ABDuctors
  - Balance/Proprioception/Gait: WBAT with assistive device

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• **PHASE 2**
  - Initiated when full knee extension, minimal knee effusion, fair quadriceps & hip abductor contractions, 50% WB tolerated
  - Progress strengthening exercises to knee extension (90-30 degrees with weight), heel/toe raises, mini squats, resisted standing hip exercises (ankle weights or theraband), standing knee flexion PRE
  - Gait activities – side-stepping, retro walking
  - Add stationary bike & pool therapy

• **PHASE 3**
  - Initiated when FWB with or without assistive device, minimal knee effusion, good quadriceps contraction, fair to good hip abductor contraction
  - Strengthening: ↑ weight with PREs, FWB activities (step-ups, single-leg mini squats), closed-chain single-limb strengthening
  - Balance: single-leg stance activities, dynamic surfaces
  - Treadmill walking, jogging, activity-specific conditioning

11. Get patients with fixated hip fractures up and moving as quickly as possible, but respect the patient’s pain and use pain medication in the acute phase so patients can succeed in therapy.

12. Talk to the orthopedic surgeon about the type of fixation that was used and any complications during surgery so that the best care can be given to patients while still respecting necessary limitations.

13. Adaptive equipment such as reachers, long handled sponges and sock aids can help patients through the acute phase when they are sore and tight and help maximize ADL independence and confidence and prevent further disability.

14. WBAT (weight bearing as tolerated) is the weight bearing order of choice to encourage function.

15. In the SNF (skilled nursing facility), be sure to do a comprehensive evaluation and treatment that includes vestibular, endurance and strength training components.

16. Hip fracture patients must perform strength-training exercises (after the acute phase) that are intense enough to cause fatigue. They should only be done every other day so the muscles have time to recover from fatiguing contractions. Patients may still do all kinds of other exercises on the days they are not strength training.

17. Assess for fall risk at all levels of care and work on the components that are dysfunctional to get the patient out of fall risk.

18. Using a Borg Card as a monitoring device for evaluation and treatment can help the patient perform and progress at the correct individualized level. Optimal rehabilitation is not too hard or too easy, but it is a challenge.

19. Useful functional tools for hip fracture patients can show evidence-based improvement and guide therapy progression. There are numerous tools available for use from the 2MST (two minute step test) to the (TUG) Timed up and Go, to the 30-second chair stand.

20. Stay current with evidence based evaluation and treatments and constantly question what you are doing and what you could be doing better.