ORIF vs Acute Arthroplasty for Fractures of the Distal Humerus

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1. Goals of Care: Elderly versus Young Patients
   • Maintain function
   • EARLY motion
   • EARLY weight bearing
   • Mobilize, NO BED REST
   • Minimize surgical insult
   • Minimize risk of additional surgeries

2. Preoperative Assessment – Important Considerations for the Elderly
   • Medical Optimization and Time to Operating Room
     • Early intervention to mobilize early
     • However, operate ONLY WHEN OPTIMIZED
     • Multidisciplinary teams improve outcomes
   • Functional Status
     • Knowing pre-injury functional status is mandatory
     • Function of affected limb will likely decrease
   • Mental Status: Considering Dementia and Delerium
     • Identify proxy, obtain advanced directives if available
     • Early social work involvement
     • Expect difficult postoperative course
     • Increased complication rates
   • Quality and Quantity of Bone
     • Obtain necessary imaging studies to assess:
       • Bone quality
       • Bone stock
       • Presence of pre-existing disease/occult fractures
   • Polytrauma?
     • Staged interventions to minimize physiologic stress

3. Why are Geriatric Distal Humerus Fractures So Difficult to Fix?
   • Osteoporotic bone leads to severe comminution, bone loss, nearly unreconstructible articular surface

4. Evolution of Care
   • Up to 1960s → rudimentary fixation options, most treated non-operatively, leading to stiffness/disability
   • 1960s to Present → fixation options evolve from reconstruction to locked to precontoured plating
   • 1990s to Present → TEA becomes a reliable treatment option in the acute setting
5. What is the Evidence?
Frankle et al (JOT 2003) – Level III, ORIF vs TEA
• Total n=24, (12 in each group)
• ORIF higher re-operation rate (44% vs. 25%)
• ORIF significantly worse outcome scores than TEA
• Critiques: under-powered, biased (TEA with more RA patients)
• Recommendations: See algorithm

McKee et al (JSES 2009) – Level 1, RCT ORIF vs. TEA
• Total n=42 (24 in each group), >65-years-old, no RA
• Primary outcome: Re-operation rate
  • TEA lower re-operation rate than ORIF (12% vs. 24%, NS)
• TEA significantly better outcome scores than ORIF
• Critiques: under-powered, need long-term follow-up for TEA
• Recommendations: If not amenable to stable fixation, TEA is preferred option
Egol et al. (Am J Ortho, 2011)
• Total n=20 patients (11 ORIF and 9 TEA), >60-years-old, all female
• Primary outcome: MEPI
  • similar
• Critiques: Retrospective, under-powered, need long-term follow-up for TEA
• Recommendations: Either option can provide good functional outcomes

A 70 year old F with an extensively comminuted left distal humerus fracture treated with acute arthroplasty. (Courtesy Kenneth A Egol MD)

A 72 Year Old male s/p fall with open distal humerus fracture. Was treated with I and D and ORIF. (Courtesy Kenneth A Egol MD)
References.


