Reverse Shoulder Arthroplasty in the Young Patient

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I (and/or my co-authors) have something to disclose.

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Indications

A non-functional rotator cuff

- Cuff tear arthropathy
- 3 or 4 part proximal humerus fractures
- Proximal humerus non-unions
- Massive rotator cuff tears with pseudoparalysis
- Failed cuff repairs
- Tumor resection
- Failed shoulder arthroplasty
Complications

Initially, a reported 50% complication rate and 33% reoperation rate

Then 17% complication rate

Now 6%

Follows experience of other total joint replacements

- 87% survival at 15 years

Werner CM, JBJS-A, 2005
Frankle MA, JBJS-A, 2006
Cuff D, JBJS-A, 2008
Walch, ASES, 2016
“We do not fear the unknown. We fear what we think we know about the unknown.”

-TEAL SWAN-
Population

Literature focuses on ages 55-65 as cutoff for “young” versus “old”
- Does not account for physiologic age

One consensus statement placed “minimum” age at 65

However, demand projections for shoulder arthroplasty predict a significant increase in patients under 55
- 333% from 2011-2030

Kwaees, Orthop Traumatol Rehabil, 2014
Padegimas, CORR, 2015
Activity Levels

Conventional thinking suggests younger patients will be...
  ◦ More active
  ◦ Place more stress on components
  ◦ Have earlier mechanical failure

Multiple studies indicate RTSA patients return to medium and high level activity
  ◦ Includes sporting activities
  ◦ None of these studies stratified patients by age

Lawrence, JSES, 2012
Bulhoff, Arch Orthop Trauma Surg, 2016
Fink-Barnes, Am J Orthop, 2015
Activity Levels

Patients under 65 reported similar activity levels as older patients after RTSA
- 47% vs 44% high demand activities
- 24% vs 37% moderate activities

Younger patients more likely to require narcotics and be disabled
- Self-regulated their activities to minimize pain and maximize daily functions

Walters, JSES, 2016
Outcomes

Multiple studies demonstrate satisfactory outcomes in younger patients

- Maximum ages vary from 59-65 years
- Follow up ranges from 2-15 years
- Improved function, pain, and strength
- Gains maintained at 10 years in one study

Muh, JBJS, 2013
Samuelsen, JSES, 2016
Sershon, JSES, 2014
Dillon, JSES, 2013
Ek, JSES, 2013
Outcomes

Inferior patient satisfaction
- 81% vs 90-96%

75% satisfactory results by ASES score

38% complication rate reported

Higher revision rate
- Relative risk 3.0 vs older patients
- 25% at average 93 months follow up

Muh, JBJS, 2013
Sershon, JSES, 2014
Dillon, JSES, 2013
Ek, JSES, 2013
Why?

This is a revision population
- 67-83% of patients with at least one prior operation
- 46% with multiple prior operations
- Average of 2.5 prior operations

Muh, JBJS, 2013
Sershon, JSES, 2014
Salvage

Similar outcomes for RTSA after failed prior arthroplasty

- Improved pain and function
  - VAS 1.4
  - SSV 60%
- Worse than age matched patients undergoing primary RTSA
- Complication rate 28%

Black, JSES, 2014
Conclusions

RTSA in younger patients is a viable treatment option
- More difficult population
- Higher revision and complication rates
- Limited goals

Younger patients not necessarily more active after RTSA
- Due to salvage nature of their condition

Long-term outcomes still in process
- Mechanical failure still a concern over time
Thank You