
Design: meta-analysis of studies of diagnostic test accuracy

Study question: what is the diagnostic accuracy of ultrasound for the detection of full and partial thickness rotator cuff tears?

Reasons not to cite as evidence:

- Lenza 2013 is a stronger study due to several factors
  o Lenza excluded a number of studies which were included in this meta-analysis for reasons that are relevant to the topic; Lenza excluded studies in which things like arthrography were the reference standard; Smith 2011 includes them
  o In Lenza, the summary ROC curves include a point which represents the summary sensitivity and specificity estimates for the combined studies, which are not apparent in Smith 2011
- Some implausible and unexplained estimates undermine the main conclusion that ultrasound is a good diagnostic tool for rotator cuff tears
  o An analysis of transducer frequency is presented in which the diagnostic accuracy of 7.5 MHz and 10 MHz transducers are compared
  o For partial tears, the pooled sensitivity of the 7.5 MHz transducer is reported as 0.90 but the specificity is only 0.10 (95% confidence interval from 0.08 to 0.12)
    ▪ This abysmal specificity reduces the likelihood ratio for a positive test to exactly 1.0, making it a perfectly uninformative test
  o Similarly, for full thickness tears, the sensitivity is 0.94 but the specificity is 0.06; again, the positive likelihood ratio is a perfectly uninformative 1.0
- The results of Lenza 2013 are more useful and are better reported than Smith 2011

Reference