

Restoration of [shoulder](#) function is an important treatment goal in upper [brachial plexus injury](#) (UBPI). Combined [dual motor nerve transfer](#) (CDNT) of spinal [accessory nerve](#) to suprascapular and radial to axillary nerves demonstrates good functional recovery with minimal risk of perioperative complications.

A decision model was constructed to evaluate costs (\$, third-party payer) and effectiveness (quality-adjusted life years [QALYs]) of CDNT compared to [glenohumeral arthrodesis](#) (GA), conservative management, and nontreatment strategies. Estimates for branch probabilities, costs, and QALYs were derived from published studies. Incremental cost-effectiveness ratios (ICER, \$/QALY) were calculated to compare the competing strategies. One-way, 2-way, and probabilistic sensitivity analyses with 100 000 iterations were performed to account for effects of uncertainty in model inputs.

Base case model demonstrated CDNT effectiveness, yielding an expected 21.04 lifetime QALYs, compared to 20.89 QALYs with GA, 19.68 QALYs with conservative management, and 19.15 QALYs with no treatment. The ICERs for CDNT, GA, and conservative management vs nontreatment were \$5776.73/QALY, \$10 483.52/QALY, and \$882.47/QALY, respectively. Adjusting for potential income associated with increased likelihood of returning to work after clinical recovery demonstrated CDNT as the dominant strategy, with ICER = -\$56 459.54/QALY relative to nontreatment. Probabilistic sensitivity analysis showed CDNT cost-effectiveness at a willingness-to-pay threshold of \$50 000/QALY in 78.47% and 81.97% of trials with and without income adjustment, respectively. Conservative management dominated in <1% of iterations.

CDNT and GA are cost-effective interventions to restore shoulder function in patients with UBPI <sup>1)</sup>.

<sup>1)</sup>

Khalifeh JM, Dibble CF, Dy CJ, Ray WZ. Cost-Effectiveness Analysis of Combined Dual Motor Nerve Transfers versus Alternative Surgical and Nonsurgical Management Strategies to Restore Shoulder Function Following Upper Brachial Plexus Injury. *Neurosurgery*. 2018 Mar 14. doi: 10.1093/neuros/nyy015. [Epub ahead of print] PubMed PMID: 30371909.

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