Nerve Transfer Versus Interpositional Nerve Graft Reconstruction for Post-traumatic, Isolated Axillary Nerve Injuries: A Systematic Review

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INTRODUCTION: There is little consensus regarding the best method for reconstructing peripheral nerve injuries not amenable to primary repair. The purpose of this study is to compare functional outcomes between nerve grafting and nerve transfer procedures in the setting of isolated, post-traumatic axillary nerve injuries.

MATERIALS AND METHODS: A systematic review was performed using the PubMED, SCOPUS, and Cochrane databases in order to identify all cases of isolated, post- traumatic axillary nerve injuries in patients 18 years or older. Patients who underwent axillary nerve reconstruction were included and categorized by technique: graft or transfer. Demographics were recorded, including age, time to operation, and presence of concomitant injuries. Functional outcomes were evaluated, including British MRC strength and range of motion for shoulder abduction.

RESULTS: Ten retrospective studies met criteria, for a total of 66 patients (20 nerve grafts, 46 nerve transfers). Median time from injury to operation was equivalent across the nerve graft and nerve transfer groups (8.0 months versus 7.0 months; p=0.41). Postoperative follow-up was 24.0 months for nerve grafting versus 18.5 months for nerve transfers (p=0.13). Clinically useful shoulder abduction, defined as M3 or greater, was obtained in 100% of nerve graft patients versus 87% of nerve transfer patients (p=0.17). Grade M4 or better strength was obtained in 85% of nerve graft patients and 73.9% of nerve transfer patients (p=0.52).

CONCLUSION: Significant differences in functional outcomes between nerve graft and transfer procedures for post-traumatic axillary nerve injuries are not apparent at this time. Prospective outcomes studies are needed to better elucidate if functional differences do exist. Level of evidence: II, Type: Therapeutic