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Evaluating Upper Limb Reconstruction and Rehabilitation in Tetraplegia

Topic: Miscellaneous

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BACKGROUND

Restoring upper limb function is a key priority for individuals with tetraplegia, as impaired arm and hand movement directly limits independence and reduces quality of life. Surgical interventions, such as tendon and nerve transfers, aim to improve functional mobility. However, the uptake of these procedures remains low. This study evaluates the effectiveness of upper limb reconstructive surgery and postoperative rehabilitation in individuals with tetraplegia.

METHODS

This retrospective study analyzes data from a private acute rehabilitation center, focusing on patients with tetraplegia who were screened and those who underwent upper limb reconstructive procedures. Preoperative assessment is essential for candidate selection and surgical success. Patients should demonstrate medical stability, have reached a neurological plateau, and possess supple upper limb joints free of contractures with well-controlled spasticity. Candidates typically have an ASIA motor level of C5 or higher, and the International Classification for Surgery of the Hand in Tetraplegia (ICSHT) is utilized to categorize patients based on voluntary muscle function to guide surgical planning. Key priorities in surgical planning include restoring elbow extension, wrist movement, thumb and finger extension, and grasp function.

RESULTS

Postoperative rehabilitation is vital for strengthening muscles through therapist-guided exercises. Functional outcomes are measured using the Capabilities of Upper Extremity Questionnaire (CUE) and the Canadian Occupational Performance Measure (COPM), pre- and postoperatively.

CONCLUSION

By analyzing patient outcomes, surgical techniques, and rehabilitation strategies, this study aims to provide evidence-based insights to improve patient selection, enhance rehabilitation protocols, and ultimately promote greater accessibility and acceptance of these life-changing interventions.

Statement of Disclosures

None

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