

Introduction

Oberlin's transfer has been described for both adult and birth related brachial plexus injuries (BPI). We hypothesize that pediatric patients will have superior postoperative elbow flexion after Oberlin transfer compared to adult patients.

Methods

A systematic review was conducted according to PRISMA guidelines. Inclusion criteria were studies reporting outcomes on adult (age 18 or older) or pediatric patients undergoing Oberlin's transfer. Patients were excluded for the following reasons: follow-up for less than one year after surgery and patients with BPI beyond C5-C6. Pooled analysis was performed, and the primary outcome was postoperative elbow flexion Medical Research Council (MRC) score. Independent samples t test was used to compare continuous variables and chi-squared test was used to compare categorical variables between the adult and obstetric BPI groups.

Results

Twelve studies (73 patients) met inclusion criteria for analysis. Time from injury to surgery was greater for obstetric BPI patients (8.8 months vs. 6.1 months; $p < 0.001$). The obstetric BPI group attained superior overall MRC scores at final follow-up relative to the adult group (3.8 vs 3.6, $p = 0.005$). They achieved excellent postoperative results, defined as MRC score greater than or equal to 4, more often (87.5% vs 65.3%; $p = 0.046$).

Table 1. Demographics and Outcomes.

	Adult BPI	Obstetric BPI	P-value	Chi-Squared
Number	N=49	N=24		
Age, mean (SD)	29.9 (10.4)	7 (5)	<0.001	
C5-C6 BP Injury, %	100%	100%		
Preoperative delay, mean (SD)	6.1 (7.5)	8.8 (5.8)	0.128	
Biceps MRC, mean (SD)	3.6 (0.6)	3.8 (0.9)	0.005	14.73
1	0	0.3		
2	2	0		
3	15	4.2		
4	32	79.2		
5	0	8		
MRC ≥ 4 %	65.3	87.5	0.046	3.989
Follow-up time, months, mean (SD)	26.5 (13.0)	28.2 (11.7)	0.585	

Conclusions

Oberlin's transfer produces superior results in the pediatric BPI population. The degree to which this population's postoperative performance depends on factors such as variability in MRC scoring and mechanism of injury relative to greater nervous system plasticity in infancy, remains a topic of future investigation.