Risk Factors for Neonatal Brachial Plexus Injury: A Retrospective Review of a Single- Institution's Eleven-Year Experience

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Background

- Neonatal brachial plexus injury (NBPI) occurs due to traction on the plexus during birth and affects 0.5 to 3 infants per 1000 live births.
- These injuries range in severity from neurapraxic injuries to neurotmetic lesions and result in persistent deficits in 10% to 30% of patients.
- Management is surgical or conservative, with surgery occurring in the first year of life.
- Numerous risk factors are associated with PBPP, many of which are related to large fetal size or birth-related trauma.

Objectives

To characterize risk factors in patients with NBPI and to quantify their relative importance in predicting likelihood and severity of NBPI

Methods

- Retrospective review of patients with neonatal brachial plexus injury from 2008 – 2020

Results

Demographics

- A total of 236 patients with brachial plexus injury presented to our institution during the 12-year study period.
- Of these, 164 patients had a diagnosis of NBPI and met inclusion criteria.
- Our study population was 51.2% male, 77.4% white, and 21.9% black .
- Patients presented at an average of 2.29 months.

Risk Factors

- Risk factors were evaluated for each patient.

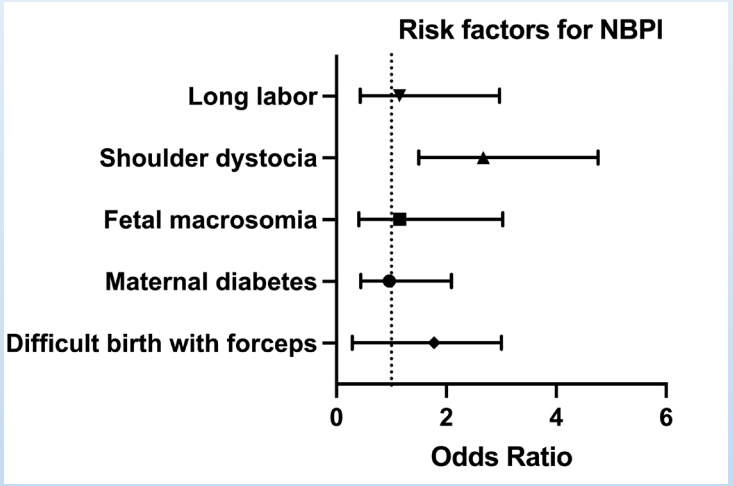
82.9% of patients had at least one risk factor

- Among these, 39% had 1RF, 37.5% had 2, and 23.5% had 3 or more risk factors.

Risk Factors Evaluated: Shoulder dystocia, fetal macrosomia, maternal diabetes, prolonged labor, etc.

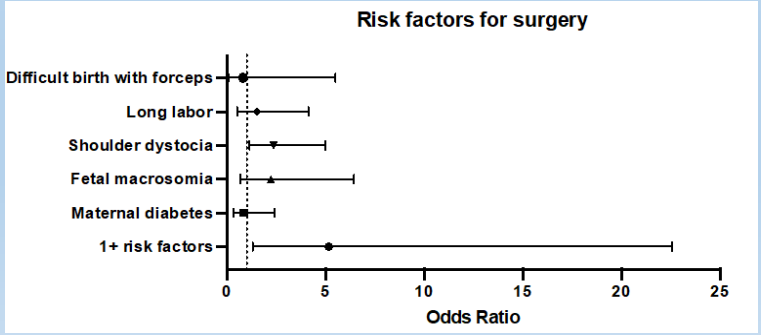
- The most common RF seen in our patient cohort was shoulder dystocia in 61.6% of our patients.
- The next most common were maternal diabetes mellitus (16.2%), long labor (11.8%), fetal macrosomia (9.6%), and difficult birth with forceps (2.9%).

Figure 1: Risk Factors for NBPI



- A total of 72 patients with NBPI (41.6%) ultimately required surgery.

Figure 1: Risk Factors for Surgery



Conclusions

- Numerous risk factors were identified that increase the risk of delivering a child with PBPP.
- Most notably: shoulder dystocia and the presence of >1 risk factor.
- These risk factors may be utilized to screen patients to prepare families for the possibility of delivering a child with PBPP.
- Ultimately, this information may be used by our OBGYN colleagues to inform their decision-making during the delivery process.

Limitations/Future Directions

- **Limitation:** Retrospective review limited evaluation of risk factors at birth
- **Future directions:** Implement a standard evaluation form used by OBGYN and primary care physicians to evaluate for NBPI

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