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Review of 20 Years' Experience With Open Myelomeningocele Patients at a Single Institution

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Introduction

Spina bifida affects approximately 1,500 infants born in the United States each year. Myelomeningocele defect is the most common presentation and the most severe form of spina bifida that is compatible with long term survival. While the mortality rate for these infants was historically high, many children today are surviving into adulthood due to improved multidisciplinary management of their condition. However, there is a paucity of literature regarding patient characteristics that may predict perinatal death and ultimate level of function. We performed a retrospective chart review of all patients born with myelomeningocele defects at Children's Hospital of Pittsburgh over the last 20 years with the aim of delineating important patient characteristics including those predicting short-term survival. We also examined our case volume per year and compared level of lower extremity function compared to what would be predicted by anatomic level.

Methods

This retrospective chart review examines 153 infants who underwent closure of a myelomeningocele defect and subsequent care at the Children's Hospital of Pittsburgh between 1995 and 2015. Data collection included Apgar scores, birth weight, anatomic level of defect (by x-ray), functional level of defect, presence of shunted hydrocephalus, symptomatic Chiari II malformation, and ambulatory ability. Data collection was performed for the first 24 months of life.

Results

153 infants were identified and reviewed. We found that 90% of the patients required placement of a ventriculoperitoneal shunt and that 15% of these patients acquired shunt infections. Despite reports of decreasing incidence of open spina bifida, our data do not reflect this trend. Three percent of patients died within the first year of life. Predictors of short-term survival include poor Apgar scores, large head circumference, and need for early Chiari II decompression. Functional motor outcome was slightly better than predicted by anatomic level.

Conclusions

Spina bifida has largely become a chronic condition that can be effectively managed by a multidisciplinary team of clinicians. However, large head circumference, low Apgar scores, and symptomatic Chiari II malformation at birth portend a dismal prognosis. Clinicians should identify these characteristics to better counsel families regarding their child's disease and potential outcome.

Learning Objectives

Myelomeningocele defects represent a severe birth with life threatening complications. It is important to identify early risk factors for surgical complications and poor outcomes.

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