

Evaluating Surgical Outcomes in Pediatric Chiari I Malformation

Rationale and Specific Aims

The overall purpose of this study is to identify clinical, psychosocial, and radiographic correlates with surgical intervention, including bony-only and duraplasty surgical techniques.

Aim 1: Determine the incidence of scoliosis in patients undergoing neurosurgical intervention for intraspinal pathology (Chiari I malformation and/or syringomyelia).

Aim 1b: Determine the differences in the post-procedure change in the scoliotic curve between age groups (early onset vs. AIS), and between posterior fossa decompression techniques (bony-only vs open duraplasty).

Aim 2: Evaluate the impact of social determinants of health, including, but not limited to, familial history of disease, sociodemographic and psychosocial covariates, on surgical outcomes.

Aim 3: Use machine-learning models to investigate post-procedure outcome using demographic, surgical, and imaging variables. Specifically, these variables will be used to predict post-procedure complications such as CSF fluid leak, need for CSF diversion, and need for redo decompression.