Study Compares Pediatric and Adult Chiari

Most Chiari research studies look at either adult or pediatric patients rather than both; however, a recent study from Sweden not only included both groups of patients but directly compared the two in terms of symptoms and surgical outcomes. The study included 136 adult surgical patients (18+ years old) and 73 surgical pediatric patients (<18 years old) who were seen at a single neurosurgical center that serves over 2 million people.

The average age of the adult group was 33 and the average age of the pediatric group was 11. While there were more females than males in both groups, the difference was significantly higher among adults (78% female) than kids (63%). Headaches were the most common symptom in both groups, but again they were significantly more common in the adult group (80%) than the pediatric group (63%) (see Table 1). Neck pain, balance issues, and numbness/tingling were also significantly more common among the adults while scoliosis and sleep apnea were more common among the younger patients. The rates for syringomyelia and hydrocephalus were not significantly different between the groups.

Table 1: Prevalence of Symptoms with A Significant Difference Between Pediatric and Adult Patients

	Pediatric	Adult
Headache	63%	80%
Neck Pain	21%	63%
Vertigo/Balance	25%	43%
Numbness/Tingling	16%	43%
Scoliosis	34%	0%
Sleep Apnea	8%	2%

Surgical outcomes were assessed using the Chicago Chiari Outcome Scale 3 months after surgery because in general that's the final follow-up visit for adult patients. While a similar percentage were considered "improved" in both groups, the distribution of scores indicated slightly worse outcomes for adults. Surgical complication rates were also similar between the groups, but the pediatric patients stayed in the hospital on average for one day longer.

The outcome finding is different than other studies which have found that pediatric patients have significantly better surgical outcomes than adults. This may be due in part to the fact that for the Swedish study outcomes were assessed only 3 months after surgery which is a very short time for adults.

It's also important to note that the Swedish study was limited to surgical patients, which leaves out a large portion of the Chiari population. The study was also done retrospectively, meaning looking back at medical records, which raises the question of how consistently symptoms were recorded from patient to patient.

The question of whether pediatric and adult Chiari are essentially the same or fundamentally different has been debated for decades with no real progress. It will likely take a breakthrough in understanding the underlying cause(s) of Chiari before this question can answered with any degree of certainty.

Source: Difference in clinical presentation and surgical outcomes in pediatric and adult patients with Chiari malformation type 1: a single center retrospective study. Öhlén E, El-Hajj VG, Staartjes VE, Jabbour P, Edström E, Elmi-Terander A. Acta Neurochir (Wien). 2025 Apr 24;167(1):120. doi: 10.1007/s00701-025-06534-3. PMID: 40272545

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Conquer Chiari is a 501(c)(3) public charity dedicated to improving the experiences and outcomes of Chiari patients through education, awareness and research.