Seated Versus Prone Position For Chiari Surgery

Chiari decompression surgery is generally performed with the patient lying in a prone position. However, a report from a UK neurosurgeon indicates there may be advantages to performing the surgery with the patient in a seated position for children with high BMI. According to the study authors, seated positions have been used less and less over the past 20 plus years due to concerns about certain complications, such as a venous air embolism (an air bubble entering the veins and traveling to the heart). However, at this institution both prone and seated positions are used when performing Chiari surgery on children, so the group decided to compare the two approaches.

Specifically, they looked at 52 pediatric cases who were operated on over a ten-year period with a similar surgical technique where the dura was opened. There were 25 children (average age 11 years) in the seated group, and 27 in the prone group (average age 9 years). The groups were similar in boy/girl ratio and the percentage of patients with syrinxes. Overall, there were no significant differences in the complication rates, or length of hospital stay between the groups. However, the average operating time was about 30 minutes less for the seated group. However, when they looked at patients with a BMI over 30, the average operating time for the prone group was nearly double that of the seated group (235 vs 123 minutes), and the prone group also experienced significantly more bleeding. Note that outcomes for the two groups were not reported.

The authors believe that with proper anesthetic care, the seated position can be safely used for high BMI children and offers certain advantages to the prone position, such as easier airway access and less intraoperative bleeding. It should be noted that this report included only a small number of children and their surgical position was not randomly assigned. Because of this, the results are not conclusive, which would require a larger and more rigorous study.

Sources: A comparison of prone versus sitting position for the surgical treatment of Chiari malformation type I in children. Gallo P, Afshari FT, Stendall C, Kaliaperumal C, Cheung M.J Clin Neurosci. 2025 Jun 26;139:111429. doi: 10.1016/j.jocn.2025.111429. Online ahead of print. PMID: 40578005

Conquer Chiari's research updates highlight and summarize interesting publications from the medical literature while providing background and context. The summaries do contain some medical terminology and assume a general understanding of Chiari. Introductory information and many more research articles can be found in the Conquer Chiari Library.