

Medicine Used To Identify Surgical Candidates

There is a growing awareness that patient selection plays an important role in the success of Chiari surgery. In certain cases, such as when there is a syrinx or obvious brainstem or cranial nerve involvement, the decision to operate is straightforward. However, in children whose only symptom is headache the surgical decision can be much more difficult. This is especially true if the headaches are not the kind traditionally associated with Chiari (cough/Valsava in the back of the head). Now, a pediatric neurosurgeon from North Carolina has published his successful experience using a medication as a surgical selection tool in such cases. Over a 15 year period, the surgeon saw 45 children with Chiari on MRI and whose only symptom was headache. In almost all the cases, the headaches were either not typical of Chiari or in combination with Chiari type headaches. Each child was given acetazolamide (Diamox) for two weeks and asked to keep a symptom journal during that time. Acetazolamide lowers intracranial pressure – the pressure of the fluid in the brain – and is used to treat a number of conditions including idiopathic intracranial hypertension. The surgeon believed that if a child's headaches improved with the medication, then they were likely due to pressure issues and that surgery would help. If the headaches did not improve they were likely due to something else and surgery wouldn't work. In all, 33 children improved with the medicine and 12 did not. Of the 33, 25 underwent decompression surgery (the symptoms resolved with just the medication in the other 8). One-hundred percent of the surgical group improved and 24 out of the 25 reported they were satisfied with the outcome. In addition, using the Chicago Chiari Outcome Scale, the surgical group scored an average 3.52 in the pain category. This is halfway between improved and resolved. Of the 8 children who did not improve with the medicine, one eventually underwent surgery but their symptoms did not improve even after surgery. The authors conclude that acetazolamide can be used as a diagnostic aid in Chiari children whose only symptom are atypical headaches.

Source: Preoperative Acetazolamide Challenge in Pediatric Chiari I Malformation. Rossi V, Wait S, Jernigan S, Van Poppel M, Pfortmiller D, Zeitouni D, Henegar MM. *Pediatr Neurosurg.* 2021 May 17:1-6.

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 www.conquerchiari.org