




## Delivery and Anesthesia, Cognitive Impact, Verbal Fluency

Conquer Chiari's monthly 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 about Chiari, plus many more research articles, can be found at [www.conquerchiari.org](http://www.conquerchiari.org).

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 One area that has been getting more attention recently is pregnancy and Chiari. Just a few years ago, the only available information was a few case reports which seemed to indicate that women with Chiari should consider cesarean deliveries and avoid spinal based anesthesia so as not to worsen symptoms. Recently however, more and more reports are coming out showing that with proper evaluation and observation, this may not be true for many Chiari women. For example, a new study looked retrospectively at all deliveries at two busy hospitals in Pittsburgh and Boston to women with Chiari who had not had decompression surgery. In all, the researchers identified 95 deliveries for 63 women. The average herniation size was a significant 9mm, and while the majority of women did not report experiencing headaches before delivery (or other symptoms), 38 did, and there were even a couple of syringes. The sample represented a good mix with 44 cesarean deliveries and 51 vaginal deliveries. Similarly, for anesthesia, 26% had spinal, 38% epidural, and 12% general. In all, none of the women experienced any neurological deterioration or worsening of symptoms. It is important to note however that none of the women who underwent vaginal delivery showed indication of elevated intracranial pressure before delivery and that 10 of the C-section deliveries were recommended because of the Chiari malformation, often for issues related to elevated intracranial pressure. Based on these results, the researchers proposed guidelines that for women with Chiari but either no symptoms or just headaches, the choice of delivery method and anesthesia should be based on obstetric considerations and not the Chiari. However, women with indications of CSF issues, such as hydrocephalus or papilledema should be considered high risk for vaginal delivery and spinal/epidural anesthesia.

**SOURCE:** *Management of Anesthesia and Delivery in Women With Chiari I Malformations.* Waters JFR, O'Neal MA, Pilato M, Waters S, Larkin JC, Waters JH. *Obstet Gynecol.* 2018 Oct 5.

 While many Chiari patients anecdotally report difficulty in finding the right words, a study from Spain has shown fairly convincingly that Chiari patients do in fact struggle with verbal fluency. Specifically, the researchers administered a test of verbal fluency to 51 adults with Chiari and compared their results to 50 healthy controls. The verbal test consisted of two components, semantic and phonetic. For the semantic portion, participants had to name as many words as they could in one minute that fit into a specific category, such as animals. For the phonetic portion, they had one minute to come up with as many words as they could that began with a certain letter, such as "c". In both categories, the Chiari group scored significantly lower than the control group. In fact, for the two tests combined, the Chiari group averaged 25 fewer words than their counterparts. To rule out other causes, the researchers also administered a depression and anxiety scale. From this they were able to show that the lower verbal fluency scores of the Chiari group were independent of depression and anxiety. Interestingly, they also looked at the role of decompression surgery. The Chiari group was split almost evenly between patients who had had surgery and those who hadn't. Surprisingly, there was not a significant difference between the scores of the two groups. While this is not as good as measuring the same people before and after surgery, it does suggest that the verbal issues may not improve after surgery and that this should be investigated further.

**SOURCE:** *Chiari Type I Malformation Associated With Verbal Fluency Impairment.* Lázaro E, García M, Ibarrola A, Amayra I, López-Paz JF, Martínez O, Pérez M, Berrocoso S, Al-Rashaida M, Rodríguez AA, Fernández P, Luna PM. *J Speech Lang Hear Res.* 2018 Oct 5:1-9.

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