

Swallowing, Dysphagia; Cognitive Impact

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.



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One symptom that does not receive much attention among adult patients is dysphagia, or trouble swallowing. The literature contains a few case reports on the topic but it has not been examined carefully, so it remains unclear how common it is, how severe it is, and whether it improves with surgery. In a strong first step, a Swedish group recently reported their findings on a prospective study involving eleven adults with Chiari. Swallowing was assessed using two questionnaires and videofluoroscope (VFS). The first questionnaire, the Watson Dysphagia Scale, uses nine different types of food to assess how often people have problems swallowing each type of food. The scale is scored on a range of 0 (no problems) to 45 (severe problems). The researchers also used a scale that was designed for patients with esophagogastric cancer that was modified to remove items deemed to be irrelevant to Chiari. The VFS involves imaging the patients swallowing six different mixtures, of different consistencies, which contain a contrast agent. The Chiari group underwent the swallowing evaluations both before and 3 months after decompression surgery. The researchers found that 4 patients (36%) suffered from swallowing difficulties. On the VFS imaging, two of these were considered to have significant problems, and two were found to have minor disturbances. After surgery, all four patients reported their swallowing problems improved, but the repeated VFS still showed some abnormalities remained. Because of the small sample size, the researchers were unable to perform more advanced statistical analyses. Still, this study is another example of an encouraging trend in Chiari research, namely the careful study and quantification of symptoms.

SOURCE: *Swallowing Dysfunction in Adult Patients with Chiari I Malformation.* Almotairi FS, Andersson M, Andersson O, Skoglund T, Tisell M. *J Neurol Surg B Skull Base.* 2018 Dec;79(6):606-613.

Adding to the rapidly growing research base focused on the cognitive impact of Chiari, a Spanish group recently published a study which found that the negative effects are about the same in both patients who have and who have not had surgery. Specifically, the study involved three groups: 76 healthy controls, 37 Chiari patients who had had decompression surgery, and 39 Chiari patients who had not had surgery. All the participants were matched for age, gender, and education level. The researchers administered a large battery of neuropsychological tests designed to evaluate executive function, verbal fluency, spatial cognition, language, verbal memory, processing speed, emotional facial recognition, and theory of mind. They found that both Chiari groups, surgical and non-surgical, performed significantly worse than the control group on almost every assessment. Further, there was no significant difference between the two Chiari groups in terms of performance. Finally, the researchers controlled for depression and perceived pain levels, and found these did not affect the findings. It should be noted however, that the Chiari subjects were recruited through patient organizations. This can introduce what is called sampling bias, meaning that those worse off, especially after trying surgery, tend to be involved with such groups. In addition, the design of the study, which did not measure the surgical group before surgery, limits the conclusions that can be reached. In other words, the surgical patients could have been even worse off before surgery. To solidify the results, the same study should be repeated using the sequential patient flow from a clinical center, with the surgical group being evaluated both before and after surgery. This would then provide a clear picture of both the impact of surgery on cognitive symptoms, and any differences between those who have surgery and those who don't.

SOURCE: *Comparison between decompressed and non-decompressed Chiari Malformation type I patients: A neuropsychological study.* García M, Amaya I, Lázaro E, López-Paz JF, Martínez O, Pérez M, Berrocoso S, Al-Rashaida M. *Neuropsychologia.* 2018 Nov 6;121:135-143

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