

New Study Provides a Detailed Look at What to Expect from Surgery

Historically, most surgical outcome studies have been limited to using a single measure of outcome such as Improved/No Change/Worse or the Chicago Chiari Outcome Scale (CCOS). A second limitation is that most outcome studies evaluate patients less than a year after surgery, which can often be too soon to notice lasting changes. However, Chinese researchers recently published a retrospective study of 297 decompressed adult Chiari I patients which both looked at both longer-term outcomes (average 5 ½ years) and used a variety of metrics.

First and foremost, and of great benefit to patients considering surgery, the researchers looked at individual symptom improvement and identified each as being improved, stable, or worse (see Table). Hoarseness, nausea, and dizziness showed the greatest improvement, while sensory and muscle issues improved in less than half of the patients.

Symptom	Improved	Stable	Worse
Hoarseness	86%	14%	
Nausea/Vomiting	83%	17%	
Bucking	82%	18%	
Dizziness	78%	17%	5%
Headache	74%	21%	5%
Dysphagia	70%	30%	
Tinnitus	67%	33%	
Upper Extremity Pain	64%	28%	8%
Gait Instability	63%	29%	8%
Numbness	62%	31%	7%
Neck and back pain	60%	33%	7%
Muscle Weakness	51%	40%	9%
Sensory Loss/Paresthesia	49%	45%	6%
Movement Restrictions	38%	62%	
Muscle Atrophy	22%	53%	25%

Next, the researchers looked at improvement from an imaging point of view. Specifically, the cerebellar tonsils ascended in 54 patients (18%), were stable in 191 (64%), and descended in 52 (18%). Of the 265 patients who also had syringomyelia, The syrinx completely resolved in 22 (8%) patients, was reduced in 220 (83%), remained unchanged for 8 (3%), and grew larger in 15 (6%). Taken in total, radiographically 83% of the patients had no continued tonsil descent and more than 90% saw syrinx resolution or improvement.

Finally, the researchers used three scales to quantitatively assess the impact of surgery: the Chicago Chiari Outcome Scale (CCOS) which includes pain, non-pain symptoms, functionality and complication categories rated from 1 to 4, the visual analog scale (VAS) for pain, and the Japanese Orthopaedic Association (JOA) scale which is a widely used instrument in assessing the neurological status of patients before and after treatment. Most patients on the CCOS and VAS scale experienced improvement while 90% were considerably improved or unchanged under the JOA scoring.

Scale	No. of Patients	Improved	Unchanged	Worsened
CCOS	267	62%	32%	6%
VAS	185	59%	28%	13%
JOA	267	40%	50%	10%

Interestingly, there was not a significant difference, for any of the scales, in the average score for patients with and without a syrinx.

The improvement rate provided in this study is a little bit lower than what is generally reported in the United States, but this may be because most of the involved Chiari patients also had syringomyelia (89%). However, the fact that the scale assessments showed no difference between the syrinx and no syrinx patients argues against this. Another possibility is that, as noted earlier, the time frame for this study was 5 years post-op versus less than a year post-op which is the normal time frame for studies such as this. Regardless, this type of detailed outcome data is crucial for patients to make informed, intelligent decisions about their treatment.

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