

Neck Related Disability Is Common Among Adult Females with Chiari

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Purpose

Despite neck pain being one of the most common symptoms of Chiari, no study to date has quantified neck pain related disability among Chiari patients. The Neck Disability Index (NDI) is a widely used, validated, 10 question survey that assesses the impact of neck pain on different aspects of daily living, such as driving, sleep, work, etc. This study used the NDI and the Chiari1000 database to quantify the neck related disability of adult females with Chiari and also to identify variables associated with the disability score.

Methods

Seventy items were selected from the self-report history questionnaires (12 variables, N=474), standardized scales (15 variables, N=474), and morphometric measurements from MRI (43 variables, N=293-474) data of adult women in the Chiari1000 dataset. The variables were tested independently to identify associations with NDI score and selected ones were combined in a statistical model to see how much of the variability (variance) in NDI scores could be predicted by specific combinations of variables.

Results

Overall, 79.5% of the subjects scored at the *Moderate* level of disability or higher. Twenty-nine separate variables were associated with NDI score, including variables from each category. Pain and depression exhibited the highest correlations with NDI, while patients with symptom duration > 2 years before diagnosis had a 77% higher NDI score on average than patients with symptoms < 2 years before diagnosis. The statistical model was able to account for 62% of the variance in NDI scores, with pain and depression alone accounting for more than half. Further testing revealed that depression mediated the relationship between pain and disability to a modest extent (5%).

Conclusions

This study found that high levels of neck related disability are common among adult females with Chiari whether they have undergone surgery or not. Many variables are associated with disability level, but pain and depression have the strongest associations. Patients who are diagnosed in less than two years from symptom onset have markedly lower disability scores, highlighting the importance of early diagnosis.

Neck Disability Index Question Focus:

- 1) Pain Intensity
- 2) Personal Care
- 3) Lifting
- 4) Reading
- 5) Headaches
- 6) Concentration
- 7) Work
- 8) Driving
- 9) Sleeping
- 10) Recreation

Neck Disability in Adult Female CM Patients (N=474)

Category (score range)	N	%
None (0-8)	12	2.5%
Mild (10-28)	85	17.9%
Moderate (30-48)	167	35.2%
Severe (50-68)	153	32.3%
Complete (70-100)	57	12%

Avg NDI Scores For Selected Self-Report Variables

	Avg NDI 'With'	Avg NDI 'Without'
Scoliosis	50.7	44.67
Ehlers-Danlos	54.8	45.0
Migraines	48.6	40.8
Symptom Duration > 2 Years	44.7	25.3
Multiple Decompressions	53.6	43.8