THE EFFECT OF CRANIOCERVICAL FLEXION EXERCISES IN THREE CASES WITH DECREASED CERVICAL LORDOSIS

CEYHUN TURKMEN[1], H. CETIN[1], H. TEKERLEK[1], E. DULGER[1], S.BILGIN[1] , N.KOSE[1]

[1]HACETTEPE UNIVERSITY, INSTITUE OF HEALTH SCIENCE, DEPARTMENT OF PHYSIOTHERAPY AND REHABILITATION, ANKARA, TURKEY

INTRODUCTION

In patients with neck pain, degenerative changes in the cervical spine or discs and flattening of the accompanying cervical lordosis are observed(1). The aim of this study was to investigate the effect of craniocervical flexion exercises on cervical lordosis in three cases with decreased cervical lordosis.

METHODS

This study was carried out on three patients with neck pain who applied to Hacettepe University Faculty of Health Sciences Physiotherapy and Rehabilitation Department. Individuals were included in the craniocervical flexion exercise program for a total of 6 weeks, twice a week. Prior to the program, cervical cobb angle, visual analog scale (VAS) and deep muscle endurance measurements were performed. Individuals, Pittsburg Sleep Quality Index, Neck Disability Index and Nottingham Health Profile surveys were also conducted(2). Individuals were taught craniocervical flexion exercise using a stabilizer biofeedback device. The craniocervical flexion exercise and limb movements were combined after the stabilizer pressure gauge reached 30 mmHg. During the following weeks, limb movements were performed with resistive exercises. Thus, it was aimed to improve the performance of deep cervical muscles(3). At the end of 6 weeks, pre-treatment evaluations were repeated.

DISCUSSION

Craniocervical flexion exercises have been shown to increase neck lordosis and decrease neck pain when applied to neck pain individuals. The positive results of this exercise for 6 weeks showed us that craniocervical flexion exercises may be an effective method to struggle degenerative changes in the cervical spine.

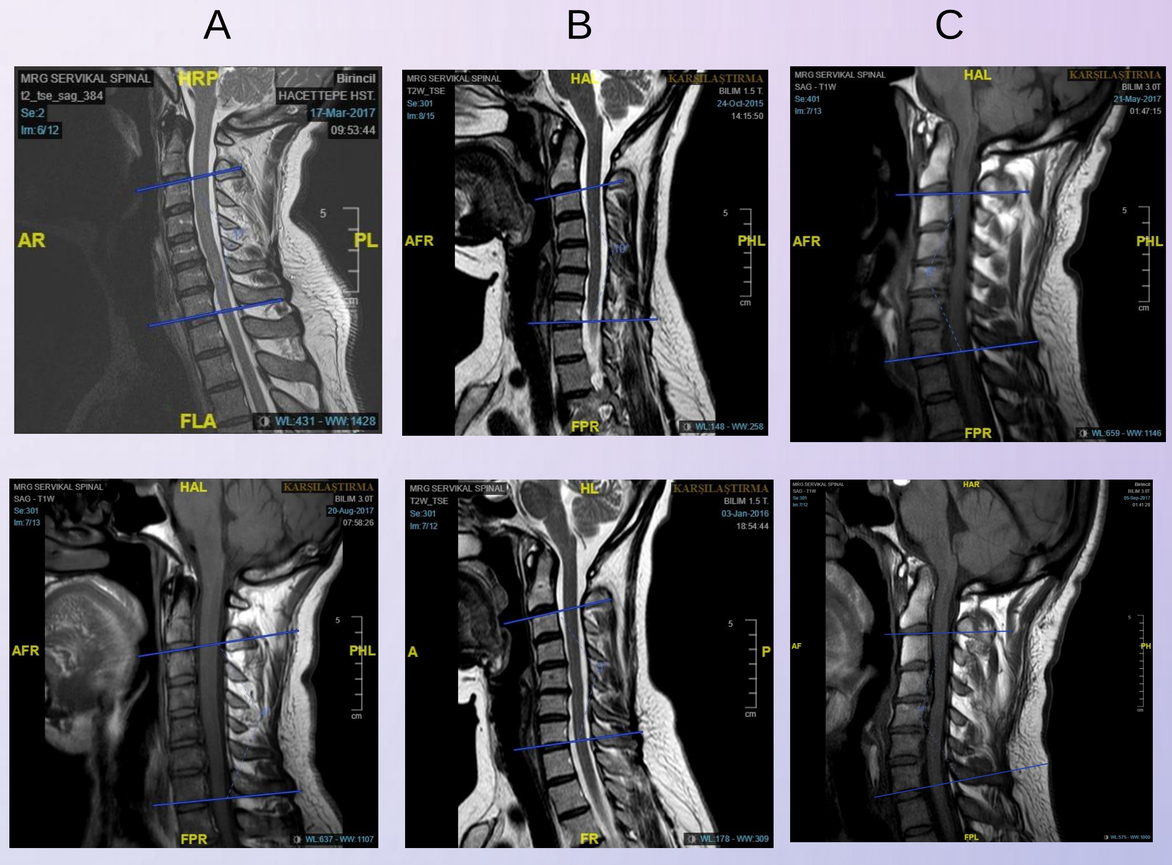

Figure 1. Measurement of cervical lordosis angle using Cobb method in patients with MRI images. **A.** The findings of the first case before and after treatment **B.** The findings of the second case before and after treatment **C.** The findings of the third case before and after treatment .

Table 1. The results of the pre- and post-treatment evaluations of all three cases

ASSESMENT		Case 1: (Age: 47, Male)		Case 2 (Age:47 , Female)		Case 3 (Age 48, Male)	
		Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment
Visual Analog Scale (0-10)	Pain (rest)	4	2	2	1	3	0
	Pain (activity)	6	3	5	4	6	1
	Pain (night)	4	2	2	1	0	0
Craniocervical Flexion Assessment (20-30 mmHg)	1st second	24	30	25	30	24	30
	5th second	22	30	23	30	23	30
	10th second	22	30	22	30	20	30
Deep Cervical Flexors Activation Score (20-30 mmHg)		20	30	22	30	20	30
Deep Cervical Flexors Performance Score (0-100)		14	100	32	100	12	100
C2-C7 Cervical Lordosis Angle (Cobb Measurement)		-*10^0	-*5^0	5^0	10^0	1^0	4^0
Neck Disability Index (0-100)		36	10	26	16	38	32
Pittsburg Sleep Quality Index Total (0-21)		8	4	8	6	8	8
Nottingham Health Profile (0-600)		155,5	58,16	221,03	88,42	121,54	83,59

* “-” means kyphosis angle

RESULTS

As a result of the cervical lordosis and VAS evaluations, when the cases applied craniocervical flexion exercises for 6 weeks, an increase in the cervical lordosis angle and a decrease in the VAS scores were observed (Figure 1). The endurance of the cervical deep muscles increased in all cases. In addition, Pittsburg Sleep Quality Index, Neck Disability Index and Nottingham Health Profile scores decreased in all cases (Table 1).

REFERENCES

[1] Grob, D., Frauenfelder, H., & Mannion, A. F. (2007). The association between cervical spine curvature and neck pain. *European Spine Journal*, *16*(5), 669-678..
[2] Hawker, G. A., Mian, S., Kendzerska, T., & French, M. (2011). Measures of adult pain: Visual analog scale for pain (vas pain), numeric rating scale for pain (nrs pain), mcgill pain questionnaire (mpq), short-form mcgill pain questionnaire (sf-mpq), chronic pain grade scale (cpgs), short form-36 bodily pain scale (sf-36 bps), and measure of intermittent and constant osteoarthritis pain (icoap). *Arthritis care & research*, *63*(S11), S240-S252.
[3] Falla, D. L., Jull, G. A., & Hodges, P. W. (2004). Patients with neck pain demonstrate reduced electromyographic activity of the deep cervical flexor muscles during performance of the craniocervical flexion test. *Spine*, *29*(19), 2108-2114.

Email: fztceyhunturkmen@gmail.com