

Compliance Rates for Cervical Collar Use Following Cervical Spinal Fusion: A Prospective Patient Survey and Feasibility study

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Introduction

Postoperative immobilization with external cervical orthosis is a common practice following cervical fusions. Its effectiveness is controversial and compliance data is lacking. We sought to evaluate the effect of cervical collar use on fusion rate and we first evaluated collar use compliance as a feasibility study.

Methods

We prospectively interviewed consecutive patients who underwent anterior/posterior cervical fusion in two hospitals with multiple surgeons at their 2-9 weeks' postoperative visits from 2/1-8/1/2017. Patients were instructed to wear their cervical collar for at least 23 hours. We excluded personal injuries or patients <18-year-old. Patients were interviewed using a cloud-based, secured and encrypted standardized questionnaire (Fig.1) in person or through a phone interview. Patients were considered lost to follow up after 2 phone calls and 1 certified letter. Our primary

Results

Two hundred thirty-eight (86.5%) out of 275 consecutive cervical fusion patients were interviewed. There is no difference between compliant vs. noncompliant patients [Table 1]. One hundred sixty-one (67.7%) patients self-reported collar use compliance with 50.4% wearing for > 23h/day (Table 2 and Fig. 2). Both compliant and noncompliant patients found collar use uncomfortable (Median 4, R=1-5) (Table 3). Sensitivity analysis showed a compliance rate of 45-72%.

Conclusions

About fifty percent of our patients were non-compliant and the median comfort rate was uncomfortable. Our compliance rate demonstrated that collar use might be of questionable effectiveness in achieving fusion. Further investigation is warranted.

Table 1. Patient Characteristics

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N=238	Compliant (n=161)	Non-compliant (n=77)
Male (%)	40.99	48.05
Age (mean ± SD)	57.58 ± 12.82	58.43 ± 10.88
ACDF (%)	66.46	64.94
Sx-interview interval (m)	2.15	2.36
≥3 interspace (%)	42.24	36.36
All P values > 0.05		

Table 1. Patient Characteristics

Table 2. Patient Compliance by Hours of Use

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N=238	n	%
Time worn (h)		
23-24	120	50.42
19-22	23	9.66
15-18	10	4.20
11-14	5	2.10
7-10	1	0.42
3-6	3	1.26
0-2	76	31.93

Table 2. Patient Compliance by Hours of Use

Table 3. Patient Comfort with Collar Use

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N=184	Compliant (n=115)	Non-compliant (n=69)
Median	4	4
Range	1-5	1-5

Table 3. Patient Comfort with Collar Use

Learning Objectives

By the conclusion of this session, participants should be able to: 1) understand the compliance rates of external cervical orthosis use, 2) patient-reported comfort level with collar use

References

1. George, K. J. & Fehlings, M. G. Is routine postoperative cervical bracing after instrumentation necessary? World Neurosurg. 79, 273-274 (2013).

2. Goel, A. & Kothari, M. External cervical orthosis (ECO): to have or not to have. World Neurosurg. 79,