Original Article
Clinics in Orthopedic Surgery 2016;8:164-167 • http://dx.doi.org/10.4055/cios.2016.8.2.164

Failure Rate of Spine Surgeons in Preoperative Clinical Screening of Severe Psychological Disorders

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Background: The surgeon's attention to the patient's underlying psychological state is essential to attaining desired outcomes. We aimed to investigate the prevalence and severity of psychological disorders in patients undergoing elective spine surgery.

Methods: In this case-control study, associated psychological disorders were assessed using the Hospital Anxiety and Depression Scale (HADS) questionnaire at a single academic spine surgery center from August 2013 to June 2015. The case group consisted of 68 adult patients (mean age, 38.2 ± 9.6 years; male:female = 41:27) undergoing elective spine surgery and the control group included 69 healthy visitors of the orthopedic patients (mean age, 37.1 ± 6.9 years; male:female = 40:29) who voluntarily participated in the study. The 2 groups were compared for statistical analysis and a *p*-value < 5% was considered significance.

Results: There was no statistically significant intergroup difference with regard to gender and age. The incidences of abnormal anxiety and depression were the same in the case group (14 patients, 20.6%). The values were 3 (4.3%) and 5 (7.2%), respectively, in the control group, showing statistically significant difference. Any association between the severity of depression and age or sex could not be identified.

Conclusions: In spite of spine surgeons' attempts to screen severe psychological disorders preoperatively, up to 21% of which cannot be diagnosed prior to elective spine surgery. Therefore, we believe the use of a questionnaire would be helpful in assessing patients' underlying psychological state before elective spine surgery.

Keywords: *Anxiety, Depression, Surgery, Psychiatric status, Spine*

Patient satisfaction with treatment results is the ultimate goal of spine surgeons. Spine surgery outcomes have been shown to be intimately correlated with preoperative psychological distress in previous studies;[1-3] therefore, the surgeon's attention to the patient's underlying psychological state is essential to attaining desired outcomes. In order to deliver maximum patient satisfaction, spine surgeons should make all their efforts to elucidate the patients' emotional state prior to surgery.[4]

Anxiety and depression are commonly used indicators to determine the severity of emotional disorders.[5,6] In 1983, Zigmond and Snaith[7] introduced the Hospital Anxiety and Depression Scale (HADS) as a self-assessment questionnaire to evaluate the level of anxiety and depression in patients undergoing conservative or surgical treatment. In the current study, we used this questionnaire to assess the prevalence and severity of emotional disorders in patients undergoing elective spine surgery. The purpose

Received January 31, 2016; Accepted February 18, 2016
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Clinics in Orthopedic Surgery • pISSN 2005-291X eISSN 2005-4408

of this study was to investigate whether the surgeons are capable of identifying patients with significant psychological disorders so as to appropriately refer them for psychiatric consultation prior to elective spine surgery.

METHODS

For this case-control study, we first obtained local Institutional Review Board approval (identification number 921893). The HADS questionnaire was used to assess associated emotional disorders. The questionnaire contains 14 items yielding ordinal data. Odd items are for the assessment of anxiety whereas even items are for depression status, and each item is scored from 0 to 3; thus, a person may score from 0 to 21 for anxiety or depression (0–7, normal; 8–10, borderline; 11–21, abnormal).[7)]

The HADS questionnaire was given to all adult patients undergoing elective spine surgery in our Orthopedic Department from August 2013 to June 2015. Simultaneously, the questionnaire was given to the healthy visitors of the orthopedic patients in the same range of age and gender who voluntarily participated in the study. Our inclusion criteria for the case group were the patients with an elective spine surgery, signed informed consent, and an age of > 18 years. The major indications for elective spine surgery included cervical or lumbar disc herniation, lumbar degenerative or isthmic spondylolisthesis, scoliosis (lumbar degenerative, idiopathic, or congenital), Scheuermann's kyphosis (posttraumatic or congenital), Pott disease, and cervical or lumbar spinal stenosis. We excluded cases that required emergency or urgency spine surgery due to epidural abscess, cauda equina syndrome, acute spinal trauma, and tumor. Tumoral cases should be operated earlier irrespective of the presence of major depression, which we believed should not be considered elective surgery cases. After collection of a sufficient number of questionnaires, data were entered into the computer for statistical analysis. SPSS ver. 16 (SPSS Inc., Chicago, IL, USA) was used for analysis and comparison of the 2 groups. A *p*-value of less than 0.05 was considered statistically significant.

RESULTS

The case group consisted of 68 patients (41 males and 27 females) with a mean age of 38.2 ± 9.6 years. The control

Table 1. Prevalence of Anxiety and Depression in Cases and Controls

Group	Normal	Borderline	Abnormal
Case			
Anxiety	52 (76.5)	2 (2.9)	14 (20.6)
Depression	51 (75.0)	3 (4.4)	14 (20.6)
Control			
Anxiety	55 (79.7)	11 (15.9)	3 (4.3)
Depression	53 (76.8)	11 (15.9)	5 (7.2)
p-value			
Anxiety	0.749	0.021*	0.001*
Depression	0.825	0.014*	0.012*

Values are presented as number (%).
*Statistically significant.

Table 2. Severity of Psychological Disorders According to Age and Sex

Group	Anxiety			Depression		
	Normal	Borderline	Abnormal	Normal	Borderline	Abnormal
Case						
Age (yr)	38.7 ± 10.4	35.3 ± 2.3	37.1 ± 7.5	38.7 ± 10.3	35.5 ± 7.8	37.1 ± 7.2
Male	31 (75.6)	2 (4.9)	8 (19.5)	30 (73.2)	2 (4.9)	9 (22.0)
Female	21 (77.8)	0	6 (22.2)	21 (77.8)	1 (3.7)	5 (18.5)
Control						
Age (yr)	36.5 ± 6.7	38.0 ± 7.7	41.8 ± 7.1	36.5 ± 6.7	40.4 ± 8.4	36.7 ± 4.2
Male	33 (82.5)	6 (15.0)	1 (2.5)	34 (85.0)	4 (10.0)	2 (5.0)
Female	22 (75.9)	5 (17.2)	2 (6.9)	19 (65.5)	7 (24.1)	3 (10.3)

Values are presented as mean ± standard deviation or number (%).

group included 69 subjects (40 males and 29 females) with a mean age of 37.1 ± 6.9 years. Sex and age differences between the 2 groups were not statistically different ($p = 0.782$ and $p = 0.442$, respectively). Prevalence of anxiety and depression in the 2 groups are presented in Table 1.

There was no significant association between the severity of depression and anxiety and age or sex (Table 2). In each groups, the prevalence of anxiety or depression between males and females was not significantly different.

DISCUSSION

Patient's underlying psychological disturbances have been considered to influence not only conservative treatment of spinal disorders but also operative intervention in many studies.[8-10] The authors of such studies have suggested that treatment of an underlying emotional disorder should precede spinal disease treatment to improve the ultimate outcome excluding cases where the patient is in critical condition requiring an immediate surgical intervention as reported by Hobby et al.[11] In their study, early outcome of lumbar discectomy for symptomatic lumbar disc herniation was not affected by the severity of preoperative psychological disorders. In contrast, there are few authors who do not believe in the influence of psychological factors on the results of spine surgery. In 2012, Maratos et al.[12] reported that psychological distress did not compromise the outcome of spine surgery in their patients. They evaluated 302 patients with degenerative spinal disease undergoing spine surgery using the Short Form 36 (SF-36), Health Survey, and HADS questionnaires to compare preoperative and 12-month postoperative scores. Preoperatively, 117 patients (39%) had significant anxiety or depression. After degenerative spine surgery, physical function was improved and emotional distress was reduced. Although postoperative physical function was relatively worse in the patients with higher level of preoperative emotional disorder, emotional distress did not appear to have any negative impact on the surgical outcome when matched for preoperative physical function. Therefore, they suggested that the main determinant of surgical outcome is preoperative physical score and surgery should be offered to psychiatric patients, if properly indicated. However, we believe it should be noted that the mean age of their patients was relatively high and the surgery was indicated for degenerative diseases in all patients in the study.

The current study has revealed that spine surgeons tend to underestimate the diagnosis of severe emotional disorders associated with spinal diseases in patients undergoing elective spine surgery. For the assessment of associated psychological disorders, the HADS questionnaire was used. Bjelland et al.[13] carried out a systematic review of 747 previous publications that used the HADS questionnaire for evaluation and finally recognized a cut-off point of 8 for both anxiety and depression. According to the study, this cut-off point is associated with 78% specificity and 90% sensitivity for anxiety and 79% specificity and 83% sensitivity for depression. An Iranian version of this questionnaire has already been translated and validated by Montazeri et al.[14] in 2003.

In a prospective study, Daubs et al.[15] assessed 400 patients with eight physicians. They evaluated psychological distress using the Distress and Risk Assessment Method (DRAM) questionnaire, which was classified as normal, borderline (at risk), and abnormal (distressed), and compared the results with physicians' clinical impression. The questionnaire results showed 254 patients (64%) had some level of psychological distress. These included 167 patients (41.8%) with borderline level of distress and 87 patients (21.8%) with high level of distress. Of these, only 28.7% patients with high level of distress could be appropriately diagnosed by the physicians. Sensitivity rate of the nonoperative spine specialists was more significant than the spine surgeons, although the physicians' experience had no significant impact on the clinical impression. Therefore, Daubs et al.[15] concluded that there is a low likelihood that preoperative psychological disorders could be diagnosed properly by clinical impression of spine surgeons and proposed that standardized questionnaires should be routinely used to screen the psychological distress preoperatively. Similarly, we also found that despite the physicians' efforts, a great number of underlying psychological disorders could not be clinically determined prior to spine surgery. Abnormal psychological disorders were not clinically detected in 21% of the patients undergoing spine surgery, which is similar to the incidence reported by Daubs et al.,[15] although the questionnaire used was different.

Our study was not without limitations. If we had conducted a multicenter study, we could have generalized the study results more easily. In addition, since our study involved a small number of treating physicians, we could not assess the impact of age, sex, or medical experience of the spine surgeon on the diagnostic rate of psychological disorders prior to elective spine surgery. In the future, a more comprehensive study addressing these issues is strongly recommended.

In spite of the spine surgeons' attempts to preoperatively diagnose severe psychological disorders, up to 21% went undiagnosed prior to elective spine surgery. There-

fore, we believe the use of a questionnaire would be helpful in assessing patients' underlying psychological state before elective spine surgery.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

ACKNOWLEDGEMENTS

The authors thank Student Research Committee, Faculty of Medicine, Mashhad University of Medical Sciences for financial support. This paper is based on the thesis of Dr. Mahya Hashemi Kazar.

REFERENCES

1. Abtahi AM, Brodke DS, Lawrence BD, Zhang C, Spiker WR. Association between patient-reported measures of psychological distress and patient satisfaction scores after spine surgery. J Bone Joint Surg Am. 2015;97(10):824-8.

2. Havakeshian S, Mannion AF. Negative beliefs and psychological disturbance in spine surgery patients: a cause or consequence of a poor treatment outcome? Eur Spine J. 2013; 22(12):2827-35.

3. Thorvaldsen P, Sorensen EB. Psychological vulnerability as a predictor for short-term outcome in lumbar spine surgery: a prospective study (Part II). Acta Neurochir (Wien). 1990; 102(1-2):58-61.

4. Young AK, Young BK, Riley LH 3rd, Skolasky RL. Assessment of presurgical psychological screening in patients undergoing spine surgery: use and clinical impact. J Spinal Disord Tech. 2014;27(2):76-9.

5. Watson D, Naragon-Gainey K. Personality, emotions, and the emotional disorders. Clin Psychol Sci. 2014;2(4):422-42.

6. Farchione TJ, Fairholme CP, Ellard KK, et al. Unified protocol for transdiagnostic treatment of emotional disorders: a randomized controlled trial. Behav Ther. 2012;43(3):666-78.

7. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand. 1983;67(6):361-70.

8. Consortium for Spinal Cord Medicine. Early acute management in adults with spinal cord injury: a clinical practice guideline for health-care professionals. J Spinal Cord Med. 2008;31(4):403-79.

9. Chaichana KL, Mukherjee D, Adogwa O, Cheng JS, McGirt MJ. Correlation of preoperative depression and somatic perception scales with postoperative disability and quality of life after lumbar discectomy. J Neurosurg Spine. 2011;14(2):261-7.

10. Manning JS. Psychiatric screening. J Fam Pract. 1994;38(3): 223-4.

11. Hobby JL, Lutchman LN, Powell JM, Sharp DJ. The distress and risk assessment method (DRAM). J Bone Joint Surg Br. 2001;83(1):19-21.

12. Maratos EC, Trivedi R, Richards H, Seeley H, Laing RJ. Psychological distress does not compromise outcome in spinal surgery. Br J Neurosurg. 2012;26(4):466-71.

13. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale: an updated literature review. J Psychosom Res. 2002;52(2):69-77.

14. Montazeri A, Vahdaninia M, Ebrahimi M, Jarvandi S. The Hospital Anxiety and Depression Scale (HADS): translation and validation study of the Iranian version. Health Qual Life Outcomes. 2003;1:14.

15. Daubs MD, Patel AA, Willick SE, et al. Clinical impression versus standardized questionnaire: the spinal surgeon's ability to assess psychological distress. J Bone Joint Surg Am. 2010;92(18):2878-83.