

Depression and anxiety in patients undergoing elective and emergency surgery: Cross-sectional study from Allama Iqbal Memorial Teaching Hospital, Sialkot

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Abstract

Objective: To determine the frequency of depression and anxiety in post-operative patients undergoing elective and emergency surgery.

Methods: The cross-sectional analytical study was conducted at the Department of Surgery and Department of Psychiatry of the Allama Iqbal Memorial Teaching Hospital, Sialkot, Pakistan, from September 2013 to April 2016, and comprised patients due for elective or emergency surgery. Patients admitted to the surgical wards, including general surgical, neurosurgical, urological and orthopaedic wards, undergoing major surgical procedures were enrolled. The patients were divided into elective surgery group 1 and emergency surgery group 2. The hospital anxiety and depression scale was used to screen for symptoms of anxiety and depression. SPSS 22 was used for data analysis.

Results: Of the 6,624 patients, 4,635(69.97%) were in group 1 and 1,989(30.03%) in group 2. The mean age of patients was 36.75±10.3 years in group 1 and 39.11±11.4 years in group 2. There were 1,715(37%) males and 2,920(63%) females in group 1, while 518(26%) males and 1,471(74%) females were in group 2. Anxiety was present in 914(45.95%) and 656(32%) patients at 0 and 3 weeks in patients undergoing emergency surgery, while in elective surgery patients it was noted in 509(10.93%) and 1,390(29.87%) subjects, respectively. Depression was present in 218(10.96%) and 616(30.97%) patients at 0 and 3 weeks in patients undergoing emergency surgery, while in elective surgery it was noted in 463(9.98%) and 1,488(32.1%) respectively.

Conclusion: Depression and anxiety were quite frequent in patients undergoing major surgeries. Anxiety was more common in patients who underwent emergency surgeries.

Keywords: Elective surgery, Emergency surgery, Depression, Anxiety, Major surgery. (JPMA 67: 884; 2017)

Introduction

Depression and anxiety disorders are common in patients hospitalised for various reasons. It is important to study the risk factors for early diagnosis of depression and anxiety disorders in patients undergoing surgery.¹ Depression and anxiety symptoms are important problems in surgical patients, especially in females and those with probability of mood disorders or lower educational status. Patients having longer hospitalisation, in particular those with co-morbid pathologies, complications of surgery, lack of familial support, and the need for repeated surgeries, are also at increased risk of these disorders.² Depression and anxiety are widely diagnosed particularly in those who are waiting for the surgery in hospitals and who have to face the chronic complications related to the surgery.

Psychological disorders reduce the adjustment of patients in hospitals and are also connected with adverse outcomes and unexpected results.³ The mechanism of psychological disorders and its related adverse effects in hospitalised patients has been demonstrated to reduce through screening (strategy) and early detection of those at risk. However, it is not enough to screen those who are at higher risk for mood-related disorders in hospital setting alone,^{4,5} given the fact that risk factors of anxiety and depressive disorders interact variably with the other stressors of hospital admission for surgery.^{4,5} Risk identification in hospitalised patients for mood disorders can help in identifying those who have a higher probability to develop poor outcome. This is of particular importance given the fact that depression and anxiety disorders have been associated with re-admission, higher physical morbidity, and even post-discharge psychiatric morbidity.^{6,7}

Hazard stratification on hospitalised patients to temperament issue helps in distinguishing those individuals who are expected to create poor results with high possibility. This is expected from specific importance attached to the variable of re-admission, higher post-

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operative complications post-discharge psychiatric morbidity and mortality.^{8,9}

The Hospital Anxiety and Depression Scale (HADS) has been widely used as a screening instrument in hospitalised patients. Its use in community and importance in outpatients and inpatients settings has been well accepted.¹⁰ Most of the surgical work, especially emergency and complicated elective surgeries, is being carried out in the public sector health care set-ups; moreover, specialised psychiatry departments are integrated in the teaching hospitals to manage such patients. No study has been conducted in our region to evaluate the quantum of such symptoms and their management in post-operative patients.

The current study was planned to determine the frequency of depression and anxiety in patients undergoing elective and emergency surgery.

Patients and Methods

The cross-sectional, analytical study was conducted at the Department of Surgery and Department of Psychiatry of the Allama Iqbal Memorial Teaching Hospital, Sialkot, Pakistan, from September 2013 to April 2016, and comprised patients due for elective and emergency surgery. Patients were admitted in the surgical wards, including general surgical, neurosurgical, urological and orthopaedic wards. The non-probability convenience sampling strategy was used. Patients aged 18 years or above, undergoing major surgical procedure and who gave written informed consent were included. Participants were divided into two groups. Group 1 comprised elective surgery patients from surgical outpatients department (OPD) and inpatients, while group 2 had emergency surgery patients taken from emergency and trauma centre.

Major surgery was defined as the surgical procedure of such quantum which required specialised general or spinal anaesthesia and the surgery requiring hospital admission (post-operatively) for a minimum of two days. Elective surgery was defined as the surgery of patients having (some) pre-operative diagnosis, have been investigated for operability, co-morbid physical pathologies treated and risk for anaesthetic complications assessed through outpatients department. Patients were then admitted to surgical wards. Emergency surgery was defined as surgery on patients reporting in emergency with complaints of short duration, with uncertain diagnosis having not much time for treatment of co-morbid pathologies or pre-anaesthesia evaluation and optimisation, and underwent surgery within 24 hours of reporting to emergency department of hospital. This

study was independent of the nature of disabilities as patients from all disciplines of surgery were included and the individual disabilities could not be matched and synchronised.

The subjects enrolled related to surgical procedure for which general anaesthesia or spinal anaesthesia was required to be administered by qualified anaesthesiologist. The surgeries were done by experienced surgeons not below the rank of senior registrars. Patients undergoing minor surgeries under local anaesthesia or not requiring hospital admission or were unconscious, disoriented, on current psychotropic medications, with past history of psychiatric illness were excluded.

Anxiety and depression was assessed by HADS (Urdu version). It consisted of 14 items, seven on depression subscale (HADS-D) and seven on anxiety subscale (HADS-A). Each item was scored on a four-point scale from "0" (not present) to "3" (considerable) and the items were added giving HADS-D and HADS-A score from "0" (minimal symptom load) to "21" (maximum symptom load). Based on literature, cases of anxiety or depression were defined by a score of 8 or more on HADS-A or HADS-D, respectively. Cronbach's alpha for HAD-A and HAD-D was 0.84 and 0.81, respectively.

A senior medical officer administered the HADS at the first inpatient visit. This was either 12 hours at 0 week after admission for electively scheduled surgeries or 12-48 hours after the surgery for patients undergoing emergency surgery. The interview was repeated within 2-3 weeks or before the patient was discharged. Demographics and other clinical and surgical characteristics of patients were also recorded.

Study followed the guidelines of the declaration of Helsinki.

Data was analysed using SPSS 22.

Results

Of the 11,050 patients, 6,624(59.9%) were included. Of them, 4,635(69.97%) were in group 1 and 1,989(30.03%) in group 2. The mean age of patients was 36.75±10.3 years in group 1, and 39.11±11.4 years in group 2. There were 1,715(37%) males and 2,920(63%) females in group 1, while there were 518(26%) males and 1,471(74%) females in group 2 (Table-1).

Differential statistics of elective and emergency patients showed there were 3,661(55.26%) general surgical patients, 2,046(30.88%) orthopaedic surgery patients, 478(7.21%) neurosurgical patients and 439(6.62%)

Table-1: General statistics of patients (n=6624).

		Elective Surgery (Group I)	Emergency Surgery (Group II)
Total surgeries	11050	8079	2971
Patients fulfilling inclusion criteria	6624	4635	1989
Age (Range, Mean, SD)		18-67 years (mean 36.75years) SD (±10.3)	18-54 years (mean 39.11 years) SD (±11.4)
Gender M:F(1:1.96)	n(2233:4391) (33.71%:66.28%)	n(1715:2920) (37%:63%)	n(518:1471) (26%:74%)

SD: Standard deviation
M:F: Male-to-female ratio.

Table-2: Patients in different surgical specialties.

Patients/ Specialty	Total	Differential Statistics n= 6624	
		Elective Surgery (Group I)	Emergency Surgery (Group II)
General surgical	3661(55.26%)	2546	1115
Orthopaedic surgery	2046(30.88%)	1356	690
Neurosurgery	478(7.21%)	311	167
Urological surgery	439(6.62%)	422	17
Total		4635	1989

Table-3: Frequency of depression and anxiety in Elective and Emergency surgeries.

Variables	Group I- Elective surgery n= 4635	Group II- Emergency surgery n= 1989
Depression at 0 week	463 (9.98%)	218(10.96%)
Depression at 3 weeks	1488(32.10%)	616(30.97%)
Anxiety at 0 week	509(10.93%)	914(45.95%)
Anxiety at 3 weeks	1390(29.87%)	656(32.98%)

urological surgery patients (Table-2).

Moreover, anxiety was present in 914(45.95%) and 656(32.98%) patients at 0 and 3 weeks in patients undergoing emergency surgery. In elective surgery patients, it was noted in 509(10.93%) and 1,390(29.87%) subjects at 0 and 3 weeks, respectively. Depression was present in 218(10.96%) and 616(30.97%) patients at 0 and 3 weeks in group 2 and 463(9.98%) and 1,488(32.1%) patients in group 1, respectively (Table-3).

Discussion

The present study aimed to assess the frequency of depression and anxiety in elective and emergency post-operative inpatients. The results of this study showed that approximately one third of patients have depression and anxiety. The results showed that the anxiety is higher in emergency surgery patients at the time of admission than elective surgery. The psychological condition of the patients in surgery varies based on the type of surgery.

The type of surgery has a high influence on the frequency of depression and anxiety as reported in previous research by Basak F. et al.¹¹ A recent study has explored the pre-operative anxiety and fears associated with anaesthesia, surgical failures, lack of information related to illness and death by Brown S. and in the study by Clarke et al.^{12,13} Patients experienced anxiety without prior information and preparation for surgery as shown by Karanci et al.¹⁴ De Oliveira et al.¹⁵ found that the over elaboration of peri-operative mortality risk increased the pre-operative anxiety in patients and they tried to minimise the misleading consequences. The findings of our study are the significantly reduced rates of anxiety in pre-operative to post-operative emergency surgery group. The results are supported by study of Karanci et al.¹⁴ Spielberg et al.¹⁶ described that the rate of state anxiety was high before surgery, but begins to decrease throughout healing.

In elective surgery, anxiety scores increased after surgery at the third week. Some explanations highlighted by literature are post-operative complications, longer hospital stay, etc. The frequency of depression was also significantly increased at the time of third week in both groups, elective and emergency surgical patients, than first week of admission.

There are a number of underlying predictors that increase the symptoms of depression for newly admitted patients in hospital as reoperation, surgical complications, sleep

disturbance, temperature effects, loss of energy, and lack of social support highlighted by Karanci et al.¹⁴ Depression has strong bonding with both types of surgeries. Literature also depicts their association with different types of surgeries like coronary artery bypass grafting, spine, orthopaedic, low weight loss during bariatric surgery reports 30% to 40% rates of depression in a review highlighted by Ghoneim.¹⁷ Surgery is also linked to adverse effects that lead to cognitive impairment like inattention, executive dysfunctions, memory impairment, attention and decrement in visuospatial skills. These impairments enhance the symptoms of depression after surgery as concluded by Ghoneim.¹⁷ Previous studies also support the present findings as there is positive association between the depression and physical pain as shown by Nejatiasafa et al.¹⁸ It deteriorates the patient's psychological state and leads to desperation for recovery as suggested by Prina et al.¹⁹

In a study by Daratha et al.²⁰ examining hospital inpatients setting, only 2.3% of adult patients who were hospitalised for any medical conditions were diagnosed with co-occurring mood disorders. Our study, with a large sample size examining surgical patients shows much higher frequency of anxiety and depression. In contrast, a study by Rentsch et al,²¹ looking at hospitalised patients in an internal medicine department, identified an estimate of 26% of patients with depressive disorders. These results are comparable to our study.

The HADS scale was used in this study which could have a bearing on the results. The choice of cut-off value for case definition can also lead to variation of results. In most studies an optimal balance between sensitivity and specificity is achieved when caseness is defined. This study employed a score of 8 or above on both HADS-A and HADS-D. The sensitivity and specificity for both HADS-A and HADS-D of approximately 0.80 were very similar to the sensitivity and specificity achieved by the General Health Questionnaire (GHQ). Correlations between HADS and other commonly used questionnaires were in the range 0.49 to 0.83. HADS was found to perform well in assessing the symptom severity and caseness of anxiety disorders and depression in both somatic, psychiatric and primary care patients as well as medical and surgical patients.¹¹ However, caseness defined by HADS does not correspond exactly with definite mental illness as assessed by International Classification of Diseases 10th Revision (ICD-10) or Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V), which remains the gold standard for the diagnosis of depression and anxiety. However, HADS is useful in screening of emotional distress in patients under

investigation and treatment in medical and surgical departments. A review of the 747 identified papers that used HADS was performed and it was found that most factor analyses demonstrated a two-factor solution in good accordance with the HADS subscales for anxiety (HADS-A) and depression (HADS-D), respectively. The correlations between the two subscales vary from 0.40 to 0.74 (mean 0.56). Cronbach's alpha varies from 0.68 to 0.93 (mean score 0.83) for HADS-A and from 0.67 to 0.90 (mean score 0.82) for HADS-D.

Conclusion

Depression and anxiety were quite frequent in the patients undergoing major surgery. Anxiety at 0 week was more marked in patients who underwent surgeries in emergency.

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Conflict of Interest: None.

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