Original Research Article

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Perioperative mental status assessment of patients undergoing general surgical procedures

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ABSTRACT

Background: The past few decades have seen an enormous increase in the number of patients undergoing curative and palliative surgical procedures. The objective of the present study was to assess the mental status in a patient undergoing a general surgical procedure perioperatively.

Methods: 105 patients admitted in a surgical ward, posted to undergo an elective surgical procedure were evaluated to assess their psychological status. Each patient was subjected to a Brief Psychiatric Rating Scale questionnaire twice, once preoperatively and postoperatively. Both sessions were conducted in a calm environment and the patient was administered adequate analgesia to eliminate bias due to pain. The preoperative and postoperative scores were calculated and compared.

Results: BPRS is a psychiatric rating scale used in various psychiatric conditions. Using this scale, we were able to detect the presence of a baseline low mood in a patient undergoing a surgical procedure. The average score preoperatively was 35.84 and postoperatively was 32.68. These scores were higher in patients undergoing surgeries for malignant conditions and also in those with co-morbid conditions like diabetes mellitus. Although there was an improvement in the postoperative scores, there was no significant difference between the preoperative and postoperative scores.

Conclusions: A surgical procedure puts a patient through immense psychological stress manifested as low mood and reduced motivation on the part of the patient to participate in their own rehabilitation programme. This affects the overall outcome of a surgical procedure and increases the morbidity. Knowledge of this on part of the operating surgeon and thus proper counselling of the patient, addressing both the psychological and surgical aspects of the disease process will help improve the overall surgical experience.

Keywords: BPRS, General surgery, Mental status, Perioperative, Psychiatric assessment

INTRODUCTION

The past few decades have seen an enormous increase in the number of patients undergoing curative and palliative surgical procedures.¹ This can be attributed to the decreasing costs of advanced surgical procedures, improved safety profile of modern surgical instruments, efficient anesthesia practices and enhanced use of standard surgical protocols largely backed by robust

clinical research data, which cumulatively have led to higher patient survival rates and increased acceptance of surgical treatment among the patient population. Although there has been extensive clinical research aimed at refining the surgical aspects of care in a patient admitted to a general surgical ward, there has traditionally been little interest amongst the surgeons in assessing the psychological status of these patients.² Authors experience in dealing with patients consulting a

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surgeon, for an illness requiring a surgical intervention, tells us that these patients are usually plagued by a lower sense of well-being, not only physically but also mentally, as compared to the general population. This is even more true in patients undergoing extensive resections or amputations.3-5 This overall low psychological well-being can be attributed to the nature of the illness or to the proposed surgical procedure and the resultant morbidity arising out of it or due to the patient's pre-illness psychological status itself.⁶ The preexisting low mood can manifest itself post operatively as a decreased level of satisfaction with the surgical results in spite of outcomes comparable to a standard or as a reduced motivation and lower involvement in postoperative rehabilitative measures or as a pervasive low mood post-surgery.⁷

All these factors contribute significantly to the overall postoperative morbidity and affect efficient recovery of the patients from the effects of the surgical procedure. Hence, authors realized the need for a study that evaluated the preoperative psychological status of the patients and compare the same with post-operative changes in a patient undergoing a general surgical procedure, thus enabling us to tackle these issues more effectively.

METHODS

This was an observational study conducted in a tertiary care hospital (Victoria Hospital), Bengaluru from May

2017 to August 2017, for a period of 4 months. A total of 105 patients were included in the study after an informed consent was obtained from all patients.

Inclusion criteria

- All patients admitted in a general surgery ward undergoing an elective surgical procedure, including but not limited to hernia repair, thyroidectomy, breast surgery, surgery for varicose veins
- All patients over 18 years of age and below 60 years
- Patients with adequate comprehension skills to understand the questionnaire administered to them in their own language.

Exclusion criteria

- Patients admitted in a general surgery ward, not undergoing an active general surgical procedure
- Patients not consenting to be a part of the study
- Patient with a pre-existing psychiatric illness diagnosed before or after admission to the hospital.

All patients who consented and met the inclusion criteria were subjected to a standard questionnaire as per the Brief Psychiatric Rating Scale,⁸ once preoperatively, 2 days before surgery and once postoperatively, 2 days after the procedure (Table 1).

Table 1: The Brief Psychiatric Rating Scale.8

	Not assessed	Not present	Very mild	Mild	Moderate	Moderately severe	Severe	Extremely severe
Somatic concern								
Anxiety								
Emotional withdrawal								
Conceptual								
disorganization								
Guilt feelings								
Tension								
Mannerisms and								
posturing								
Grandiosity								
Depressive mood								
Hostility								
Suspiciousness								
Hallucinatory behavior								
Motor retardation								
Uncooperativeness								
Unusual thought								
content								
Blunted affect								
Excitement								
Disorientation								

Adequate analgesia was given to make sure the patient was not in pain which would otherwise confound the outlook of the patient towards the results of surgery and the patient assessed in a calm environment to remove undue external influence. The results were tabulated, and the outcomes compared.

RESULTS

A total of 105 patients were included in the study, and the study was conducted for a duration of 4 months. 66 male and 39 female patients were enrolled in the study (Figure 1).

The age group ranged from 19 years to 58 years while the mean age was 37 years (Figure 2).

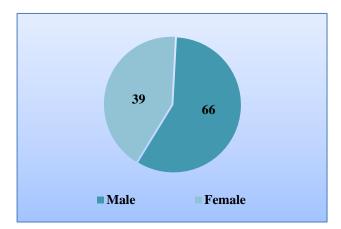


Figure 1: Gender ratio.

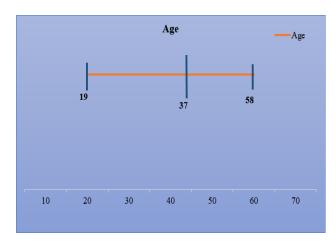


Figure 2: Age distribution.

Among the patients included in the study, 12 had diabetes mellitus, 18 had hypertension and 10 had both diabetes mellitus and hypertension as co-morbidity (Figure 3).

Patients with co-existent chronic kidney disease, chronic liver disease, cardiac illness and other chronic diseases were excluded from the study as these diseases would result in a pre-existing low mood independent of the surgical illness and confound our results.

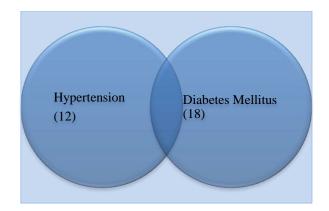


Figure 3: Co-morbidities.

34 out of the 105 patients were admitted for hernia repair (inguinal, femoral, ventral and incisional), 15 for thyroidectomy for both benign and malignant lesions of the thyroid, 14 for varicose veins surgery, 12 patients had carcinoma breast, 4 had benign breast lesions, 9 were admitted for cholecystectomy, 6 for appendectomy. Hemorrhoids, fistula in ano and anal fissure accounted for a total of 7 cases, hydrocele accounted for 4 cases (Figure 4).

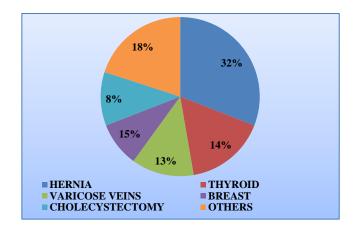


Figure 4: Case distribution.

The questionnaire was applied to all patients preoperatively 2 days before surgery and again 2 days after the procedure and the scores were calculated. The preoperative score ranged from a maximum of 49 seen in a patient with carcinoma breast to a minimum score of 26 seen in a patient undergoing appendectomy while the range for postoperative scores was 24 to 48 (Table 2).

Table 2: Pre-operative and post-operative scores.

	Min	Max	Average
Pre-OP	26	49	35.84
Post-OP	24	48	32.86

The average preoperative score was 35.84 and the average postoperative score was 32.68 (Figure 5 and Figure 6).

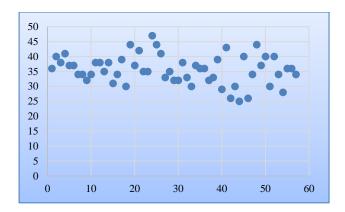


Figure 5: Preoperative score distribution.

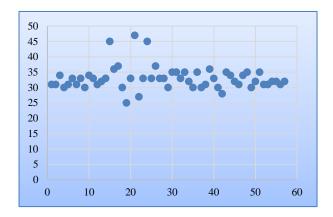


Figure 6: Post-operative score distribution.

This average preoperative score was relatively higher in patients with co-morbid conditions (38.26) and in those undergoing surgery for carcinoma (45.75), with scores for carcinoma understandably being higher than those in patients with chronic co-morbid conditions (Figure 7).

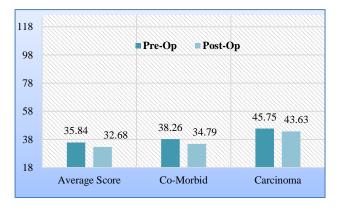


Figure 7: Comparison of pre-operative and postoperative scores.

The average post-operative scores in the above mentioned two categories of patients were 34.79 and 43.63 respectively (Figure 8). Average score among females was 39.04 preoperatively and 35.96 postoperatively while those among males was 33.52 preoperatively and 30.3 postoperatively (Figure 9).

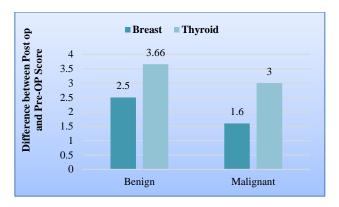


Figure 8: Comparison between benign and malignant conditions.

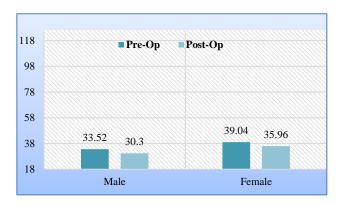


Figure 9: Comparison between benign and malignant conditions.

The average preoperative score for patients with hernia was 33.35 while postoperatively it was 29.71. The same in patients with benign thyroid disease were 37.83 and 34.17 respectively. In patients with malignant thyroid conditions the preoperative score was 44.67 and the postoperative score was 41.67. Patients with a benign breast lesion had a preoperative score of 37.5 and a postoperative score of 35. The preoperative score in those with malignant breast lesions was 46.4 while postoperatively it was 44.8. In patients with varicose veins and those undergoing cholecystectomy the preoperative scores were 33.71 and 32.17 respectively while the postoperative scores were 30.29 and 29.17. The patients posted for appendectomy had a preoperative score of 27 and a postoperative score of 25. Hemorrhoids, fissure and fistula in ano patients together had a preoperative score 36.71 which changed to 33.29 postoperatively. Those undergoing scrotal surgery had scores of 34 and 32 before and after surgery respectively (Figure 10). There was an overall improvement seen in the postoperative scores in patients with an uneventful post-operative course, with maximal improvement seen in patients with benign conditions (3.33 in benign vs 2.12 in malignant).

There was no specific follow up required for the purpose of our study other than that required for the surgical conditions treated.

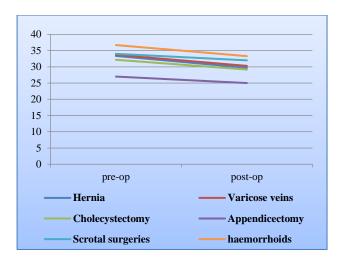


Figure 10: Case distribution.

DISCUSSION

A disease in itself causes a lot of psychological stress in addition to the physical burden it results in to the patient. A surgical illness adds in the apprehension of having to undergo an operative procedure which further brings down the morale of the patient. Present study attempts to identify the magnitude of this psychological impairment caused by a physical illness in a patient undergoing an elective general surgical procedure.

Authors, in present study, included only those patients below 60 years of age as the influence of familial and social factors, psychological status of the patient tends to be higher beyond this age group. Authors also excluded those below 18 years of age because the psychological test applied, BPRS, needed a basic comprehension level which according to the researchers was reasonable after this age and also the same BPRS was modified as BPRS-C to be used in children and adolescents less than 18 years of age, which is different from the standard BPRS used in our study. 9,10

The male and female distribution in present study was 1.69:1 with more males undergoing surgery than females. In many studies conducted in the west, there is an inverse relationship between the number of male and female patients with more female patients presenting to the hospital compared to male patients. In a study by Weiss et al on the overview of hospital stays in the United States, 2012, the authors showed male to female ratio of 1:1.36.11 This discrepancy can be attributed to the fact that in our country many female patients hesitate to visit the general surgical OPD due to various social factors and also there is a stigma to undergo a surgical procedure in this patient population, unless the condition is particularly bothersome. Many Indian studies on various surgical conditions show a male preponderance like the one in present study. Sangwan et al. in their study on Abdominal wall hernias in a rural population in India showed a male to female ratio of 7:1.12 Similarly in a study by Mishra et al. on the epidemiological factors and

the clinical profile of varicose veins the male to female ratio was 2.33:1.¹³ So present study can be considered representative of the general surgery patient population in India.

The scale that we selected for psychological assessment of the patients was the Brief Psychiatric Rating Scale. This system was developed in 1962 by Overall et al.¹⁴ It was specifically developed in an effort to meet the need for an effective, fast and economical method of assessing treatment change in psychiatric research. It originally contained 16 ordered category rating scales to be completed during a 20-minute clinical interview. The scale was later modified to include 2 more categories to make it a total of 18 assessment categories. There were further modifications made and an extended BPRS postulated which consists of 24 categories of mood symptoms. Each of the 16 scales was developed to assess patient symptomatology in a relatively discrete symptom area while at the same time yielding a rather comprehensive description of major symptom characteristics. Each category is scored using a 7-point Likert scale. The overall scores range from 18 to 126. Higher score implies a more significant problem.

Table 3: Perioperative rapid evaluation of mental status scoring in surgical patients.

	Score
Somatic concern	
Whether concern over present bodily health. Y/N	1
Whether complaints have a realistic basis or	
not.	
Anxiety	
Worry, fear, or over-concern for present or future.	1
Tension	
Physical and motor manifestations of tension	
"nervousness", and heightened activation	1
level.	
Depressive mood	
Despondency in mood, sadness	1
Uncooperativeness	
Evidence of resistance, unfriendliness,	
resentment, and lack of readiness to cooperate	1
with the interviewer.	
Disorientation /withdrawal	
Confusion or lack of proper association for	1
person, place or time.	1
Excitement	
Heightened emotional tone, agitation, increased reactivity	1

^{*}Further psychological assessment needed - Y/N

There is limited data available with respect to the use of psychological assessment in patients undergoing elective general surgical procedures. In one such study conducted by Mustafa et al, the authors used various scales including BPRS to assess the psychiatric morbidity among medical and surgical inpatients.¹⁵ This study

comprised of 339 patients admitted under both general medicine and general surgery. The authors concluded that the prevalence of psychiatric morbidity is high among general medical and surgical inpatients, and despite this high prevalence only a few patients with problems are recognized by the treating doctors. They called for an increase liaison between the treating physicians and psychiatrists to solve this problem.

With this background in mind, authors would like to propose a simplified adaptation of the above-mentioned scale with certain modifications for usage in day to day Surgical practice (Table 3). Here authors will be giving a score of one each for the below mentioned symptoms and any score more than 4 out of a maximum cumulative score of 9 would be requiring referral for further psychological counselling. It is important to note that further validation studies on a larger population would be necessary for this proposal.

CONCLUSION

We are of the opinion that, there exist a sizeable population of patients reporting to a general surgery OPD, with a pre-existing low mood due to their surgical illness which is made worse by their co-existent chronic illnesses. This can result in a significant postoperative morbidity, lack of motivation, reduced involvement of the patient in the postoperative rehabilitative programmes and hence impaired recovery of the patient. This problem could effectively be tackled if surgeons understand that the problem is real, its magnitude and make a concerted effort to explain in detail to the patient about his condition and the procedure and try to alleviate the already existing anxiety and low mood. This gesture on the part of the operating team can go a long way in allaying the fears of the patient and thus elevating his overall mood before surgery. This also helps the patient in having realistic expectations towards the surgical outcomes and enable an enhanced participation in his own recovery program postoperatively.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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