The Role of Psychiatry in the Management of Acute Trauma Surgery Patients

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Background: Trauma is a leading cause of death and disability in the United States, with high prevalence and recidivism in individuals with psychiatric and substance abuse disorders. Half of these disorders go undiagnosed by the trauma team, resulting in adverse public health and economic consequences.

Method: In a 16-week pilot study in the emergency department of an inner-city tertiary care hospital, a psychiatrist was integrated into the trauma surgery team by responding to all traumas and rounding with the staff 1 shift per week (March 1, 2000, through June 31, 2000). During this 16-week period, 375 patients passed through the trauma surgery service. Data on the frequency of psychiatric consultations were compared with those for a retrospectively selected control group consisting of all 360 patients passing through the trauma surgery service during the corresponding 16 weeks of the previous year (March 1, 1999, through June 31, 1999). To determine the prevalence of psychopathology, eligible patients seen during the psychiatrist's shift (N = 28) were assessed with a semistructured interview, and charts for eligible patients seen in the corresponding shift during the previous year (N = 18) were assessed according to the same criteria. Before the study, a 10-item, self-report questionnaire was completed by 16 (73%) of the 22 emergency medicine physicians who serve as front-line staff members. The survey assessed physicians' attitudes toward psychiatric consultation for psychopathology and addictions in trauma patients.

Results: Based on DSM-IV screening criteria, the prevalence of preexisting psychopathology was 68% (19/28), but before the psychiatrist's involvement, only 12% (2/16) of physicians surveyed had considered consulting psychiatry, even for patients with gross psychopathology. Before the psychiatrist's integration into the 16-week study period, 75% (9/12) of trauma patients were discharged without psychiatric consultation despite the fact that more than half had documented substance abuse. After the psychiatrist joined the team, staff awareness of psychopathology sharpened. The number of patients treated for a psychiatric disorder that was often the proximal cause of the traumatic event nearly doubled, even on shifts not covered in the study.

Conclusions: The ability to identify and treat coexisting psychopathology requires trauma surgeons to routinely incorporate a psychiatrist into their evaluation and treatment algorithm. Such a change in physician awareness and motivation hinges on a psychiatrist's visible presence (even if brief) and regular, active participation in the emergency department.

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Half of all trauma patients in the general hospital setting are estimated to have a preexisting psychiatric disorder, and in patients with penetrating wounds, the figure approaches 90%.[1,2] This association is not surprising since psychiatric disorders produce behavioral patterns that often result in traumatic events. Depending on the hospital (and their various definitions of abuse, dependence, intoxication, etc.), studies have repeatedly shown that one quarter to one half of all acute trauma patients are intoxicated with alcohol or other drugs,[3–10] and more than a third meet criteria for at least 1 other psychiatric disorder.[11] Substance abuse or dependence disorders are often associated with mood disorders in this population. In one sample of acute traumatic burn patients, more than two thirds had preexisting psychopathology, of which more than half suffered from major depression and were more likely to have sustained burns in the setting of risk-taking behavior.[12]

Despite the high prevalence of psychiatric disorders in trauma patients, at least half of preexisting psychopathology goes unrecognized by the trauma surgical staff.[13–15] Two thirds of trauma centers routinely screen for substance abuse, but more than a third of those that screen for substance abuse do not obtain drug histories or employ drug and alcohol counselors.[6,16] However, a lack of services is not just a tertiary care hospital concern, since the availability of psychiatric and addiction services in community-based primary care centers may be even more limited.

The need to intervene is critical since trauma is the fifth-ranked cause of death in the United States.[17] For patients that survive, the estimated rate of trauma re-

currence (sometimes termed "recidivism") ranges from a minimum of 13%[18] to approximately 25%[19–21] to above 40%,[22] with a 5-year mortality rate of 20%.[23] Relevant to health care economics, this cohort is known for prolonged hospital stays and greater utilization of expensive health care resources.[24–27]

Our investigation asks whether integrating a psychiatrist into the trauma surgery service (surgical/emergency medicine staff and residents) improves staff recognition of preexisting psychopathology in trauma patients. We also report the results of a survey questionnaire of emergency medicine physicians, reflecting their perceptions and attitudes toward psychiatric services in the management of acute trauma patients. This study suggests strategies that incorporate psychiatric services into novel situations and provide early identification of preexisting psychiatric disorders that would otherwise not be recognized.

METHOD

This investigation used a historical comparison group to assess the impact of an intervention—adding a psychiatrist part-time to the trauma service—on the recognition and referral for psychiatric treatment of trauma patients. The study included (1) a chart audit (emergency department [ED] record and inpatient record), retrospective for a matching time during the previous year and concurrent with intervention; (2) a semistructured interview (a copy of the interview is available from the authors on request) by the psychiatrist of patients presenting during the intervention sessions; and (3) an attitude questionnaire of the initial responding ED physicians.

Following study approval by the institution's Human Studies Committee, a psychiatrist was incorporated into the trauma surgery service at Massachusetts General Hospital, an inner-city tertiary care hospital, by being onsite and responding to consecutive traumas in the ED for 16 weeks (March 1, 2000, through June 31, 2000). The psychiatrist (J.K.F.) took one of the 14 weekly 12-hour shifts (Tuesday from 6 p.m. to Wednesday 6 a.m.), including attending morning rounds with the trauma service.

To determine the prevalence of psychopathology in the trauma surgery patient population, consecutive patients during the psychiatrist's shift were interviewed with a semi-structured psychiatric interview. Of the 31 patients examined, 28 were eligible for the study: 1 was excluded because of death and 2 due to transfers off the service within 24 hours. Broad screening criteria for inferring preexisting DSM-IV psychopathology[28] in these 28 patients included (1) a positive toxicology screen for alcohol or substances of abuse, (2) currently prescribed psychiatric medication (mood stabilizers, antidepressants, and antipsychotic agents), or (3) a self-inflicted wound.

Also studied were all subsequent intrahospitalization psychiatric consultations for patients presenting during the psychiatrist's shift and then admitted to inpatient status by the trauma service. Similarly rated (i.e., positive toxicology screen, currently prescribed psychiatric medication, self-inflicted wound) by chart review for the 16-week study period were the 344 patients passing through the trauma surgery service during the other 13 shifts of the week not covered by the study.

The same screening criteria were used to compare these data with those of a retrospectively selected control group consisting of all 360 patients passing through the trauma surgery service during the corresponding 16 weeks of the previous year (March 1, 1999, through June 31, 1999). Of the 26 patients from the previous year in the shift corresponding to the psychiatrist's (J.K.F.'s) shift, 18 were eligible for review: 1 was excluded because of death and 7 due to transfers off the service within 24 hours. (These patients were included, however, in the overall rating of psychiatric consultation requests by the trauma surgery service.) The same protocol for evaluating inpatient psychiatric consultations for the study group, which included an order for a psychiatric consultation followed by a note documented in the chart, was used for the control group. The p values for differences in frequency distribution were determined with Fisher exact test.

An attitude survey of the 22 active emergency medicine staff physicians was conducted prior to the psychiatrist's integration into the trauma surgery service. Since emergency medicine physicians are the initial attending of record for all trauma patients, they were asked to respond to 10 psychiatric assessment statements by marking a scale graded from "strongly agree" at negative 25 mm to "strongly disagree" at positive 25 mm on the rating bar for each question (Table 1).

RESULTS

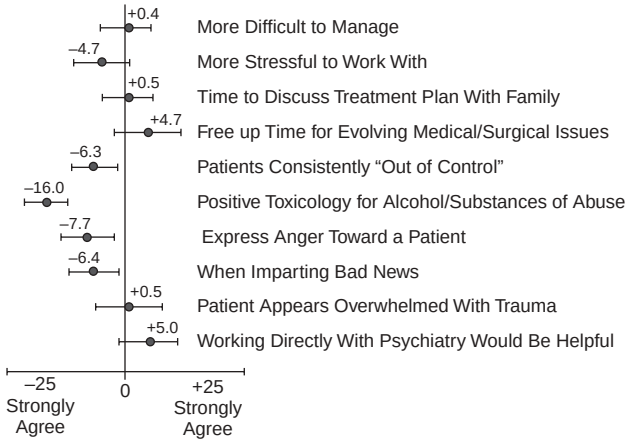
In the survey of emergency medicine physicians, 16 responses (73%) were received and are depicted in Figure 1. The 6 emergency physicians who did not participate were employed part-time and had limited communication with the ED. The mean responses indicate that respondents collectively believe a psychiatrist would be helpful in the management of trauma patients and that the psychiatrist's involvement would allow more time available for the trauma team to address evolving medical and surgical issues. Responding emergency physicians as a group do not consider consulting psychiatry, even when trauma patients present with a positive toxicology screen for alcohol or a substance of abuse, nor do they believe these patients are more stressful to work with compared with nontrauma patients who present to the ED. In addition, even when they express anger toward a patient, have to impart bad news, or find a trauma patient constantly "out of control," they do not consider consulting psychiatry.

Table 1. Questionnaire Items: Trauma Surgeons' Attitudes Toward Psychiatric Consultation[a]

1. Trauma patients are more difficult to manage than other patients in the ED.[b]
2. I find it more stressful to work with trauma patients than with other patients in the ED.
3. When the stressed family members of trauma patients arrive in the ED, I generally feel I do not have time to discuss the treatment plan with them.
4. If one of our psychiatrists addressed specific psychosocial concerns of trauma patients (eg, grief, death and dying), this would free up time for me to address evolving medical/surgical issues.
5. When trauma patients are "out of control," I consider consulting psychiatry.
6. When trauma patients have positive toxicology screens (for alcohol or other substances of abuse), I think about consulting the psychiatry service.
7. If I express anger to a trauma patient, I think about consulting the psychiatry service.
8. When imparting "bad news" to trauma patients, I think about consulting the psychiatry service.
9. If a trauma patient appears overwhelmed by his/her trauma and by its treatment, I think about consulting the psychiatry service.
10. Having a skilled psychiatrist work directly with the trauma service may be helpful in the management of trauma patients.

[a]Of 22 ED physicians, 16 (73%) responded.
[b]Respondents were asked to mark an "x" on a 50-mm graded scale from "strongly agree" to "strongly disagree" for each item. Results are graphed in Figure 1.
Abbreviation: ED = emergency department.

Figure 1. Sixteen Emergency Physicians' Collective Responses to Questionnaire Items[a]



[a]Bar length indicates standard deviation.

Table 2 summarizes the effect of having a psychiatrist on-site with the trauma team. Of the 18 eligible patients admitted to the trauma surgery service in the retrospective review, 12 (67%) met criteria for preexisting psychopathology. Of these, 3 (25%) eventually received an in-house consultation from the psychiatry staff by the usual referral procedure, upon request from the inpatient team. The distribution of preexisting psychopathology for these controls is included in Table 2.

Of the 28 eligible patients that passed through the trauma surgery service during the 16-week study period, 19 (68%) met the criteria for preexisting psychopathology. As shown in Table 2, of the 17 patients admitted to the hospital, 11 (65%) met criteria for preexisting psychopathology, and all 11 (100% by study design) of those patients received a psychiatric consultation while still in the ED. For the trauma patients not admitted to inpatient status during the study period (N = 11) but discharged home from the ED, 8 (73%) met criteria for preexisting psychopathology. Although none of the discharged patients was referred for a full psychiatric consultation, a brief psychiatric evaluation was provided and intervention performed if deemed necessary by the psychiatrist.

Table 3 compares psychiatric diagnoses resulting from in-house psychiatric consultations for both patients in the retrospective control group and those in the study group. For the retrospective prestudy baseline period, the inpatient psychiatric consultation rate for the 360 patients admitted during all 14 shifts per week (not just the 1-shift-per-week comparison window) was 55 (15%). Medical records were not available to identify those patients discharged from the ED. The number of psychiatric consultations generated for the 375 patients admitted to the trauma surgery service during all shifts of the 16-week study period was 98 (26%).

Comparing the study cohort and the retrospective prestudy baseline group for sample size, there was no significant difference with respect to (1) the 2 time periods (N = 375 study sample, N = 360 controls); (2) subgroup of consecutively admitted patients during the psychiatrist's shift versus controls (N = 31 study sample, N = 26 controls); (3) study-eligible patients (N = 28 study sample, N = 18 controls); (4) patients admitted to inpatient status (N = 17 study sample, N = 12 control group); (5) discharged from the ED and not admitted (N = 11 study sample, N = 7 control group); or (6) patients with preexisting psychopathology (N = 19 study sample, N = 12 control group). The only significant difference between the study sample and controls (p = .0004) was for patients eventually receiving inpatient psychiatric consultation: 98 (26%) of 375 study patients versus 55 (15%) of 360 controls.

Comparing the study sample with control patients demographically, there was no significant difference

Table 2. Psychiatric Consultation Rate Versus Prevalence of Psychopathology in Trauma Patients

Variable	Prestudy Baseline[b,c] (N = 18)	Study Period[a] Admitted to Hospital[d] (N = 17)	Study Period[a] Discharged From ED[e] (N = 11)	Combined (N = 28)
Preexisting psychopathology, N	12	11	8	19
Positive toxicology, N (%)	7 (39)	5 (29)	6 (55)	11 (39)
Psychiatric medication, N (%)	2 (11)	3 (18)	1 (9)	4 (14)
Toxicology and medication, N (%)	2 (11)	2 (12)	1 (9)	3 (11)
Self-inflicted wound, N (%)	1 (6)	1 (6)	0 (0)	1 (4)
Consultations in hospital among those with preexisting psychopathology, N (%)	3 (25)	11 (100)	0 (0)	NA

[a]Comprising 7 female and 21 male patients, with a mean age of 35 years.
[b]Medical records were not available for patients discharged from the ED in the prestudy baseline segment.
[c]Study-eligible patients, 5 females and 13 males, with a mean age of 42 years.
[d]Denominator is 17 patients admitted to hospital: 7 female and 10 male patients, with a mean age of 39 years.
[e]All 8 patients with preexisting psychopathology were male, with a mean age of 29 years.
Abbreviations: ED = emergency department, NA = not applicable.

Table 3. Psychiatric Consultations (with diagnosis) for the Trauma Surgery Service

Variable	Baseline Cohort[a] (N = 360 patients)	Study Cohort[b] (N = 375 patients)
Psychiatric consultations, N (%)	55 (15)	98 (26)
Consultation diagnosis, N (%)		
Substance abuse	31 (56)	65 (66)
Mood disorder	10 (18)	10 (10)
Acute stress reaction	10 (18)	9 (9)
Delirium	2 (4)	4 (4)
Dementia	1 (2)	3 (3)
Psychosis	1 (2)	3 (3)
Personality disorder	0 (0)	4 (4)

[a]March 1–June 31, 1999.
[b]Psychiatrist integrated into trauma surgery team, March 1–June 31, 2000.

between the subgroups with respect to age or gender. For the control group (N = 18), there were 13 males and 5 females with a mean age of 42 years versus the study group (N = 28), with 21 males and 7 females and a mean age of 35 years (p = .7383). The 28 study-eligible patients contained, however, a subgroup of 8 individuals with preexisting pathology and discharge from the ED—all male, mean age of 29 years.

DISCUSSION

This study confirms a body of literature demonstrating that the prevalence of preexisting psychiatric disorders in the trauma surgery population is high and that this psychopathology often goes unrecognized—68% (study group) and 75% (control group) in this study. However, this is the first investigation that substantiates that incorporating a psychiatrist into the trauma service increases the recognition and treatment of the disorder that is often the proximal cause of the traumatic event. When a psychiatrist actively participated in the trauma service during the 16-week study, identification and treatment of psychopathology for the entire service was increased by 78%. Although this study did not estimate the economic savings potentially associated with increased psychiatric interventions, some literature suggests it may be considerable by reducing length of stay and trauma recidivism.[29,30]

This study also demonstrates that even in tertiary settings, in which multidisciplinary resources are thought to be more available than in community hospitals, psychiatric conditions that might have led to trauma, and might lead to future additional trauma or medical interventions, are frequently missed given the focus on immediate trauma care. Psychiatric assessment, even using simple indicators such as substance use or concurrent psychiatric medication, can identify patients for psychiatric attention. Many community hospital settings do not have on-site 24-hour psychiatric coverage. Therefore, primary care physicians might be required to respond to their patients presenting in the ED or to provide critical information such as premorbid psychiatric conditions. Primary care physicians are uniquely positioned to maintain vigilance and rescreen for such conditions as they assume responsibility for the patient either during the hospitalization or at discharge.

Although the number of psychiatric consultations during the 16-week study period nearly doubled, the proportion of patients with mood and anxiety disorders recognized by the trauma surgery service remained unchanged. These data suggest that the trauma team is able to identify these psychiatric disorders unassisted. When a psychiatrist was incorporated, however, a broader range of psychiatric disorders (psychosis, delirium, and dementia) was recognized, and the number of patients recognized and treated for substance abuse or dependence more than doubled. Furthermore, 4 patients in the study group were identified with personality disorders; this diagnosis was not recognized in the control group, yet patients with personality disorders are known particularly for management difficulties that require early recognition and intervention.[31]

Clinical data acquired by a psychiatrist during the patient's initial presentation can help the trauma team

recognize psychopathology and ensure appropriate treatment once the patient is stabilized, and provide acute interventions when indicated. For example, one patient in this study presented with a stab wound requiring immediate surgery. The psychiatrist was able to perform a brief interview just prior to the patient's intubation and quickly determined that the patient's self-inflicted wound was related to command auditory hallucinations. The patient was started on haloperidol and taken to the operating room while the psychiatric consultation service was alerted for postoperative follow-up.

During a patient's initial presentation, the psychiatrist remained in the periphery, but supplemental history was often obtained that led to psychiatric intervention and appropriate follow-up. For example, several patients presented with emergency medical technicians' or police reports of alcohol or drug paraphernalia at the scene of motor vehicle accidents. Such clinical evidence of abuse indicated the need for alcohol detoxification, screening for psychiatric disorders, and addiction counseling.

Traditionally, it has been the surgeon's responsibility to recognize alcohol-related trauma,[7] but when trauma coexists with more subtle types of psychopathology, the surgeon has little or no training to identify these conditions.[15] We found that 88% of the emergency physicians surveyed do not even consider consulting psychiatry when a trauma patient presents with a positive toxicology screen for alcohol or substance abuse. Since the initial work-up of trauma patients in most level I trauma centers is initiated by a surgical or ED resident, the expectation that they will have the experience, knowledge, or time to pursue psychosocial factors often precipitating the trauma is unrealistic. With the incorporation of a psychiatrist, however, psychopathology is more likely to be identified and treated.

Alcohol interventions may reduce trauma recurrences by as much as 47%, indicating that routine screening and counseling for alcohol problems can play a role in the reduction of trauma.[29] An effective trauma prevention program should coordinate professionals not traditionally considered to play a role in the ED and ensure that interventions begin as soon as possible after the patient's arrival.[22] Noteworthy in this connection is the nonhospitalized study subgroup of 8 younger males with preexisting pathology. These were mainly uninjured but intoxicated drivers involved in motor vehicle accidents and brought to the ED for observation and clearance before discharge home. The present study captured this group for psychiatric evaluation and drug and alcohol intervention while, in the usual course of events, opportunity for intervention would have been lost.

Although having a psychiatrist incorporated into the trauma surgery service 1 day a week increased the recognition and treatment of preexisting psychopathology from 55 to 98 consults, relative to the prevalence of psychopathology recognized in the study group (68%), the 98 psychiatric consultations represented only 26% of the total number of patients on the trauma service in the 16-week study period. Therefore, many patients with preexisting psychopathology went unrecognized during the other 6 days of the week not covered in this investigation. When a psychiatrist responds routinely to trauma alerts, the number of psychiatric consultations increases, and this increased intervention ultimately may lead to reductions in future events requiring emergency trauma intervention. However, further investigation is required to determine the clinical impact of increasing the number of psychiatric conditions identified and treated.

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