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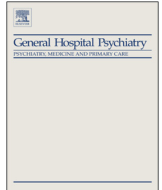

Emergency Psychiatry in the General Hospital

The emergency room is the interface between community and health care institution. Whether through outreach or in-hospital service, the psychiatrist in the general hospital must have specialized skill and knowledge to attend the increased numbers of mentally ill, substance abusers, homeless individuals, and those with greater acuity and comorbidity than previously known. This Special Section will address those overlapping aspects of psychiatric, medicine, neurology, psychopharmacology, and psychology of essential interest to the psychiatrist who provides emergency consultation and treatment to the general hospital population.

Inpatient medical–surgical suicidal behavior: a 12-year case–control study ☆

Julia Shekunov, M.D. [a], Jennifer R. Geske, M.S. [b], J. Michael Bostwick, M.D. [c,*]

[a] Northwestern University Department of Psychiatry, Evanston, IL, USA
[b] Division of Biomedical Statistics and Informatics, Mayo Clinic, Rochester, MN, USA
[c] Department of Psychiatry and Psychology, Mayo Clinic, Rochester, MN 55905, USA

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ABSTRACT

Objective: To describe a medical center's 12-year experience with medically or surgically hospitalized suicide attempters, with the goal of extending the limited literature on this sentinel event.

Patients and Methods: Eight Mayo Clinic Rochester patients' self-inflicting injuries serious enough to trigger mandatory reporting while hospitalized on a medical/surgical unit from January 1, 1998 to December 31, 2010 were matched with four same-sex and same-age controls, admitted to the same unit within 2 months. Cases were identified from Sentinel Event Tracking System and Minnesota Adverse Events Statute records. Data were analyzed with conditional logistic regression.

Results: Eight of 777,404 medical/surgical inpatients admitted during 12 years attempted suicide, with significantly more non-Caucasian patients among cases than controls (P=.020). Of 8 attempts, 1 was fatal. More cases than controls had undergone inpatient psychiatric evaluation prior to attempt (P=.020), and elevated risk of attempt was significantly associated with increased number of prior attempts (0.049). Near their attempts, each attempter had an identifiable stressor including *inadequately controlled pain* in 3, *agitation and anxiety* in 2 each, and *acute delirium, insomnia and psychosocial difficulties* in 1 each.

Conclusion: First, this study's findings underscore the rarity of reported inpatient medical/surgical suicidal behavior. In this sample, suicide attempters were distinct from nonattempters by the increased likelihood of prior suicide attempts as well as inpatient psychiatric consultations before their attempts. When patients have these characteristics, medical teams should take particular notice and initiate heightened watchfulness for suicidal behavior.

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1. Introduction

Suicide accounts for approximately 1.5% of all deaths each year, making it the 10th leading cause of death in the US [1]. Completed inpatient suicide is the fifth most common sentinel event reported to The Joint Commission [2]. While most of these suicides units occur on inpatient psychiatric units, some do occur on medical and surgical (med/surg) units as well. Multiple chronic medical illnesses are associated with increased risk of suicide attempts [3]. Since many patients with these medical conditions have comorbid mental disorders, it stands to reason that psychiatric disease may mediate the relationship between medical illness and suicide [4].

Despite the link between chronic medical illness and suicidality, the medical literature on inpatient med/surg suicide is limited, with most reports describing deaths on psychiatric units.

For example, in one of the most widely cited studies of inpatient suicide [5], only 4 of 76 suicide attempts occurred on med/surg units, with the remainder on psychiatric units (Fawcett, written personal communication, 2007). American case reports about inpatient med/surg suicide in men began to appear in the late 1950s and early 60s, with two Veterans Administration hospital-based case–control studies adding to the budding literature [6,7]. The decades that followed added more case reports and case series [8–11]. More recent studies are retrospective and descriptive in nature, providing insights from Hong Kong [12] and Taiwan [13,14], as well as from Finland, in which a psychological autopsy study of all suicides in the nation in a

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* Corresponding author. Mayo Clinic Department of Psychiatry, Rochester, MN 55905, USA. Tel.: +1 507 284 3143.
E-mail address: Bostwick.John@mayo.edu (J.M. Bostwick).

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given year showed only 1.9% to have taken place on med/surg units [4]. Many of these reports include little detail about inpatients' psychiatric symptoms during hospitalization or medical prognosis prior to the suicide attempt and less than half report demographic information such as marital and employment status or race [15]. In addition, they focus on completed suicide rather than suicide attempts not necessarily resulting in death.

Available data suggest that nonpsychiatric patients dying by suicide differ from suicide victims on psychiatric inpatient units in several regards. Compared with suicidal inpatients on psychiatric units, general hospital suicide victims communicate suicidality less often, perform suicidal acts sooner after admission and use more violent suicide means [13]. Generally, very few patients had been admitted to a med/surg bed as the result of a suicide attempt [12]. Unlike patients who kill themselves outside of hospitals, these patients were older, more likely to have major depression or delirium and less likely to have alcohol dependence or personality disorders. Despite high rates of mental disorders, rates of psychiatric consultation were typically low [4]. Risk of completed suicide typically rose in patients who had left the hospital against medical advice. Male sex and use of violent means also were associated with increased risk [13].

In considering acute risk factors for inpatient suicide, suicidal patients harming themselves on med/surg units were more likely to be agitated or delirious immediately prior to the suicide attempt than those making their attempt on a psychiatric unit. Both med/surg and psychiatric suicides were typically impulsive, often angry and frequently precipitated by a discernible stress such as loss of emotional support from staff or family or severe physical discomfort stemming from pain or respiratory distress [16,17]. Suicidal behavior in a hospital setting has also been associated with withdrawal states from alcohol and episodes of disorganization and reaction to delusions or hallucinations in schizophrenic patients [10].

In sum, the majority of our knowledge about patients who die by suicide in a med/surg inpatient setting continues to stem from case reports, with a paucity of analyzable data from the United States. This study's goal is to describe one medical center's 12-year experience with med/surg inpatients who made suicide attempts while in the hospital, with the goal of exploring the characteristics and possible risk factors specific to this population. To the best of our knowledge, this is the first American case–control study on this topic in 40 years.

2. Methods

We conducted a matched case–control study to examine the strength of association between demographic and clinical characteristics of medical/surgical inpatients who engaged in self-injurious behavior serious enough to trigger mandatory reporting compared to those who did not. We retrospectively reviewed the medical records of all Mayo Clinic Rochester patients who attempted suicide while hospitalized on a medical or surgical unit at Saint Marys Hospital or Rochester Methodist Hospital between January 1, 1998 and December 31, 2010. These patients were identified using records kept under the Minnesota Adverse Events Statute since its inception in 1998, as well as the resources of the Sentinel Event Tracking System database. Having identified cases, we then used Mayo Clinic's electronic medical record system to obtain demographic information, details of the hospital admission during which the suicide attempt occurred, details about the attempt itself and each patient's past psychiatric history. Each case was matched with four controls of the same sex and age (within 1 year), who had been admitted to the same unit within 2 months but had not attempted suicide during their hospitalization. Controls were selected using a Web-based query-building tool, the Data Discovery and Query Builder, which is linked to a near real-time normalized replica of Mayo Clinic's electronic medical record, the Mayo Clinic Life Sciences System. This study was approved by the institutional and departmental review boards of the Mayo Clinic and adhered to Health Insurance Portability and Accounting Act of 1996 tenets.

Data were analyzed using conditional logistic regression to account for 4:1 matching and address both categorical and continuos variables. Descriptive statistics for quantitative variables are presented as a mean and standard deviation and qualitative variables as *n* (percentage). We have considered a *P* value of $<.05$ as statistically significant. Potential variables associated with suicide attempts were tested using conditional logistic regression. Each case was matched with four controls using sex, age within 1 year and admission to the same unit within 2 months. Statistical analyses were conducted using Statistical Analysis Software (SAS) version 9.2 (SAS Institute, Cary, NC, USA).

3. Results

Eight suicide attempts occurred on medical or surgical inpatient units of Mayo Clinic's two Rochester hospitals between 1998 and 2010, among 777,404 total med/surg admissions. Of the eight attempts, one — an overdose — was ultimately fatal as a consequence of the attempt. Pertinent historical and clinical characteristics of these eight patients as well as of 32 patients who were matched as controls are shown in

Table 1
Comparison of demographics and clinical characteristics between medical/surgical inpatients who attempted suicide and those who did not during hospitalization

Demographics	Cases (n=8)		Controls (n=32)		*P* value
	n	%	*n*	%	
Caucasian	4	50.0	30	93.8	0.020*
Married	5	62.5	20	62.5	1.000
Employed	4	50.0	13	76.5	0.440
Condition or disorder					
Active neurologic condition	2	25.0	10	31.3	0.740
Active rheumatologic condition	2	25.0	9	28.1	0.850
Active hematologic condition	3	37.5	8	25.0	0.497
Active cardiac condition	2	25.0	7	21.9	0.850
Active nephrologic/urologic condition	2	25.0	6	18.8	0.707
Active malignancy	2	25.0	6	18.8	0.539
Active endocrine condition	0	0.0	8	25.0	–
Active gastrointestinal condition	3	37.5	15	48.4	0.619
Active dermatologic condition	1	12.5	2	6.3	0.539
Active pulmonary condition	1	12.5	4	12.5	1.000
Agitation	2	25.0	1	3.1	0.997
Anxiety	2	25.0	5	15.6	0.438
Depressed mood	1	12.5	2	6.3	0.539
Psychosis	1	12.5	2	6.3	0.378
Delirium	1	12.5	2	6.3	0.571
Insomnia	1	12.5	3	9.4	0.790
Shortness of breath	1	12.5	1	3.1	0.327
Pain	3	37.5	10	31.3	0.716
Any psychiatric diagnosis	7	87.5	18	56.3	0.124
Major depression	5	62.5	14	43.8	0.361
Anxiety disorder	0	0.0	7	21.9	–
PTSD	2	25.0	1	3.1	0.090
Eating disorder	1	12.5	1	3.1	0.327
Schizophrenia	0	0.0	1	3.1	0.997
Attention deficit hyperactivity disorder	1	12.5	2	6.3	0.539
Alcohol dependence	2	25.0	3	9.4	0.261
Personality disorder	3	37.5	2	6.3	–
History of substance abuse	3	37.5	6	18.8	0.287
Degree of supervision (1:1)	5	62.5	0	0.0	–
Psychiatric family history	4	50.0	11	34.4	0.368
Seen by psychiatry consult service during hospitalization	4	50.0	2	6.3	0.020*
	Mean±S.D.	Range	Mean±S.D.	Range	
Length of admission	8.9±6.9	(1, 23)	5.4±6.5	(1, 31)	0.185
Number of psychiatric admissions	1.3±1.6	(0, 4)	0.4±1.1	(0, 5)	0.142
Number of prior suicide attempts	1.0±1.3	(0,3)	0.1±0.6	(0, 3)	0.049*

* $P<.05$ indicates a statistically significant comparison between patients who attempted suicide and those who did not.

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