



## CASE REPORT

# Suicide by jumping from a height in a university hospital: two cases

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### ABSTRACT

Suicide among inpatients can be devastating for other patients and hospital staff. Studies show that cases of inpatient suicides in general hospitals receive less attention than inpatient suicides in psychiatric hospitals. Studies on cases of inpatient suicide in general hospitals are usually in the form of case reports or case series, and potential suicide risk factors are unknown. Many significant differences are reported between inpatient suicides in general hospitals and inpatient suicides in psychiatry clinics. Here we report two cases of completed suicide after jumping from a height while receiving inpatient treatment at a University Hospital. As serious physical illnesses are frequently accompanied by psychiatric disorders that increase suicide risk, measures should be taken to prevent inpatient suicides in hospitals admitting patients with physical illnesses. Hospitals should keep regular records about inpatients who attempt or commit suicide during their treatment in the hospital or during treatment breaks, because this would provide valuable data to examine and prevent cases of inpatient suicide.

**Keywords:** General hospital, inpatient, suicide.

### INTRODUCTION

Suicide is among the 10 main causes of death in many countries, thus making it a critical public health issue. The World Health Organization defines “suicidal behavior” as intentional self-inflicted harm with the purpose of killing oneself, and “completed suicide” is defined as engaging in behavior that endangers one’s own life and ends in death. Suicide risk is higher among individuals with any psychiatric disorders, especially major depression, personality disorders, and schizophrenia (1,2).

Studies on completed suicide among hospitalized patients are scarce. Suicide rates among inpatients vary depending on the characteristics of the hospital where the patients are admitted. In general or psychiatric

hospitals, suicide rates are reported to be between between 5-15 and 100-400 per hundred thousand, respectively. These cases account for 1%-5% of all suicides. Suicide among inpatients can be devastating for other patients and hospital staff. Studies show that inpatient suicides in general hospitals receive less attention than cases in psychiatric hospitals. Studies on inpatient suicide in general hospitals usually are in the form of case reports or case series, and potential risk factors for such suicides are unknown (3,4).

This presentation of two cases aims to examine the factors involved in completed suicide in hospitals. We report two cases of completed suicide by jumping from a height during inpatient treatment at Eskisehir Osmangazi University Hospital.

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We initially contacted the hospital management to identify inpatients who had committed suicide. However, the data-processing and file archive system of the hospital did not maintain separate records for these cases. Hence, we reviewed a list of forensic cases recorded between 2003 and 2017, maintained by the hospital police. (In Turkey, police officers are assigned to hospitals by the state police department.) We eventually identified the case records of two patients from this list who had committed suicide in the hospital by jumping from a height.

## CASE 1

AB, a 63-year-old female patient, elementary school graduate and mother of three children, had undergone coronary artery bypass surgery in the cardiovascular surgery department on 12/30/2015, and she was transferred to the nephrology inpatient clinic on 01/11/2016 for the treatment of acute renal insufficiency. The patient had no known prior psychiatric history or suicide attempts. Her medical history was remarkable for diabetes mellitus, hypertension, goiter, coronary artery disease, and coronary artery bypass surgery, but her family history was unremarkable. Psychiatric consultation was requested on 01/14/2016 due to her "depressive state". An examination revealed related findings such as fatigue, nausea, and vomiting. The patient had no history of prior psychiatric consultations. She was conscious, oriented, and cooperative during the examination. While she had no hallucinations, she had anhedonia. In differential diagnosis, delirium and major depressive disorder were ruled out. The consultation report stated that these findings might be related to her current medical condition. She was diagnosed with "depressive disorder due to another medical condition, with depressive features" according to DSM-5 criteria. Her laboratory values after blood examination on 01/14/2016 were as follows (with reference values in parentheses): sodium: 126 mEq/L (135-150 mEq/L), potassium: 3.39 mEq/L (3.5-5.5 mEq/L), chlorine: 82.5 mEq/L (98-107 mEq/L), glucose: 160 mg/dL (70-110 mg/dL), blood urea nitrogen: 35 mg/dL (8-23 mg/dL), creatinine: 3.32 mg/dL (0.5-0.9 mg/dL), C-reactive protein: 7.99 mg/dL (0-0.8 mg/dL), hemoglobin: 9.9 g/dL (12-14 g/dL), hematocrit: 29.1% (39.5%-50.3%), leucocytes:  $16.1 \times 10^3/\mu\text{L}$  ( $4.3\text{-}10.3 \times 10^3/\mu\text{L}$ ), and platelets:  $732 \times 10^3/\mu\text{L}$  ( $156\text{-}373 \times 10^3/\mu\text{L}$ ). As she did not have suicidal thoughts, a reevaluation was advised if her complaints did not resolve after

treatment according to laboratory results. As per the report, she jumped off the window of her room on the ninth floor on the evening of 01/17/2016. A relative of the patient had left her alone briefly and notified the nursing team when she could not find the patient in her bed upon returning to the room. The hospital police officer, after searching the premises, found the patient's body on the ground in the hospital yard. Subsequently, we found out that, as of 01/17/2016 earlier on the day, it had been found that laboratory parameters had improved (sodium: 129 mEq/L, potassium: 4.02 mEq/L, chlorine: 94 mEq/L, glucose: 126 mg/dL, blood urea nitrogen: 22 mg/dL, creatinine: 2.53 mg/dL,) after the psychiatric consultation as a result of the treatment administered. In addition, the psychiatric symptoms noted on the initial clinical evaluation had improved, and the patient had made no statements to the treatment team or her family regarding any intent to inflict harm on herself.

## CASE 2

CD was a 60-year-old male patient whose case records indicated that he had been admitted to the cardiovascular surgery department for peripheral artery disease several times over the last few years. He was readmitted to the department of cardiovascular surgery on 08/27/2013, and he underwent a consultation by a pulmonologist on 09/03/2013 for dyspnea, for which he had undergone bronchoscopy. A preliminary diagnosis of metastatic malignancy was made on the basis of bronchoscopy findings, and the patient was scheduled for further evaluations. He was transferred to the department of pulmonology on 09/05/2013 for further examination and treatment and was discharged on 09/12/2013 with a preliminary diagnosis of metastatic bronchial cancer. The patient was admitted to the department of cardiovascular surgery on 11/14/2013 with complaints of achy and heavy feeling in his legs, and he was discharged home with conservative treatment on 11/25/2013 without any symptom relief. Two days later, the patient returned to the cardiovascular surgery outpatient clinic for examination because his complaints did not improve, and he jumped off the waiting room window in the inpatient cardiovascular surgery clinic on the third floor, where he had been sent after examination to wait until admission procedures were completed. The patient had no known psychiatric history or previous suicide attempts. His medical history was remarkable for diabetes mellitus, hypertension, peripheral artery disease, and right and left femoropopliteal graft surgery.

He was scheduled to undergo left foot amputation. He had a history of smoking two packs of cigarettes daily for 48 years, and he had recently been on conservative treatment with regular follow-up with a preliminary diagnosis of metastatic bronchial cancer. The patient had not received psychiatric consultations during his previous admissions or during the final admission, and his laboratory values were within normal limits.

## DISCUSSION

Suicide risk is reported to be 3-12 times higher among people with psychiatric disorders, and almost all people who attempt suicide or die as a consequence are diagnosed with at least one psychiatric disorder (5,6). On the other hand, it is known that the prevalence of physical illness in completed suicide cases varies between 25% and 70% (7). Some studies argue that the main cause of completed suicide among people with physical illness is the physical illness itself (8,9). It is reported that among inpatients in general hospitals, suicide risk increases with older age, male sex, being in the terminal stage of a painful illness, having symptoms such as dyspnea and agitation, or having symptoms that do not respond to treatment (10). In the second case presented above, the patient was in the terminal stage of a painful illness, had complained of dyspnea, and had symptoms related to this physical illness that did not improve after treatment. Chronic pain is a serious health problem, often leading to depression (11). Chronic pain conditions are reported to be uniquely associated with suicidal ideation and suicidal attempts (12). For the second case, chronic pain might be considered the cause of suicidal behavior.

Many significant differences are reported between inpatient suicides in general hospitals and inpatient suicides in psychiatry clinics. Contrary to expectations, most inpatients that commit suicide in general hospitals do not have known psychiatric disorders or a history of self-inflicted harm. This creates difficulties when assessing the suicide risk among inpatients in general hospitals (13,14). Neither of the cases reported above had a past or current psychiatric disorder or a history of self-harm. This suggests that characteristics associated with the risk of inpatient suicide in general hospitals need to be identified. However, both patients received potentially fatal medical diagnoses immediately before committing suicide. Physical illnesses may result in stress creating a feeling of threat to one's narcissistic integrity, worries about loss of attention, approval, and love, damage to organs or parts of the body, loss of

physical functions, separation, loss of independence, and fear of death (15). Therefore, inpatients that are diagnosed with a potentially fatal disease or conditions that can result in important losses should routinely undergo detailed examinations to evaluate whether they have suicidal thoughts, and their risk of attempting suicide needs to be assessed. Patients who receive treatment after a suicide attempt and have not yet been admitted to the psychiatry clinic, patients with dementia and/or delirium who are agitated and impulsive, recently diagnosed patients, and patients who are under severe stress because of chronic illnesses should be assessed for suicide risk with particular care (14). Assigning companions to patients with these characteristics, having the companions work in shifts, and informing them about the suicide risk can facilitate the prevention of suicidal behavior. The patient in the first case was recently diagnosed with a disease, and the patient in the second case had a chronic condition with which he evidently was unable to cope.

Compared to the general population, the frequency of depression is two times higher among people with hypertension, congestive heart failure, coronary artery disease, diabetes mellitus, and cerebrovascular disease; three times higher in people with obstructive lung disease; and four times higher in people who have a recent history of kidney disease (16,17). The first case had undergone bypass surgery for coronary artery disease, after which she was admitted to the nephrology inpatient clinic after developing acute renal insufficiency. Compared to other age groups, depression is more common in older age groups but is more difficult to diagnose clinically. Because physical symptoms are more prominent among the presenting complaints of elderly people with depressive disorder, the presentation pattern of depression is different from that in young or middle-aged patients. In addition, both depression and older age increase the suicide risk. People of an older age account for one-fifth of all cases of completed suicide (18). Therefore, depression in older age is important as it significantly increases the suicide risk.

The evaluation of completed suicide by inpatients in psychiatry hospitals shows that most patients are male, usually did not talk about their suicidal thoughts before the suicide, chose methods that can be described as violent, made fewer contacts with their families or hospital staff, had been diagnosed with depressive disorder, and had a history of repeated suicide attempts. A comparison of inpatients undergoing treatment for psychiatric disorders and for physical illnesses shows

that those receiving treatment for physical illnesses choose more violent methods, attempt suicide at later hours of the day, talk less about suicide, and attempt suicide after spending less time in the hospital following their admission (3). In this context, it is notable that in the first case reported, the patient committed suicide six days after she was admitted to the nephrology inpatient clinic, whereas the second case committed suicide while his admission procedure was still ongoing; both patients did not mention their suicidal thoughts to their families or clinic staff before their attempts. In addition, patients in both cases chose to jump from a height, a method that can be described as violent. Jumping from a height was reported to be the most commonly used method in suicide attempts by inpatients in the UK as of 1995 (19). In a study evaluating cases attempting suicide by jumping from a height, it was stated that the majority of them had a psychiatric diagnosis and a history of previous suicide attempt (20). However, these characteristics do not apply to our cases. It may mean that general hospital inpatients attempting suicide by jumping from a height are a separate group that does not share features or properties with the general population or psychiatric inpatients.

Given that serious physical illnesses are frequently accompanied by psychiatric disorders (e.g., depression) that increase suicide risk, measures should be taken to prevent inpatient suicides in hospitals when admitting patients with physical illnesses. These measures include installing window grilles in frequently visited rooms of the clinic that nurses can check easily and frequently, or installing windows with limited openings and shatterproof glass, employing psychologists at these clinics, providing in-service training to clinic staff on suicide on a regular basis as part of liaison training, requesting immediate psychiatric examination for patients who have suicidal thoughts or signs and symptoms that might indicate a psychiatric disorder, and transferring these patients to a psychiatry clinic as soon as their medical condition allows. Although suicide prevention programs were found to be effective in decreasing the suicide incidence, preventing suicide is not always possible (21).

When searching for reported cases of completed suicide, we found that the hospital did not maintain regular and separate records about completed suicides by inpatients. The cases were identified by conducting a retrospective investigation of the list of forensic cases maintained by the hospital police officer. It is thus possible that the actual number of cases might be higher. Another notable finding was that in hospital

records, the cause of death was recorded as “cardiac arrest” in both of the cases, while “suicide” was not mentioned as a secondary cause of death. Hospitals should keep regular records about inpatients who attempt suicide or die by suicide during their treatment in the hospital or during treatment breaks, because this would provide valuable data to examine and prevent cases of inpatient suicide.

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Category 1	Concept/Design	A.E.
	Literature review	A.E., E.A., G.D., F.K.
	Data analysis/Interpretation	E.A., G.D.
	Case follow-up (if applicable)	G.D.
Category 2	Drafting manuscript	E.A., G.D., F.K., A.E.
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Category 3	Final approval and accountability	A.E., E.A., G.D., F.K.
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