

## Evaluation of Suicide Attempt Patients at an Emergency Medical Center in Tokyo

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Emergency medicine deals with a broad spectrum of illnesses and injuries. Many patients seen in the emergency room require active psychiatric intervention. In particular, emergency rooms must provide tertiary emergency medical care to be able to appropriately manage suicidal patients. Suicidal patients often present with problems reflecting the geographical and social environment in which they live. The age distribution of these patients and means used to attempt suicide can vary considerably. The present study retrospectively evaluated the cases of suicidal patients hospitalized over the last 5 years (1991 to 1995) through the Emergency Critical Care Medical Center at Tokyo Women's Medical University in Shinjuku. There were 303 patients admitted with a diagnosis of suicidal ideation, representing 8.5% of all hospitalized patients. The overall male/female ratio was 2/3. The mean patient age was 35.9 years. Eighteen patients (5.9%) subsequently died in the hospital. The method of suicide attempt included substance ingestion in approximately 68% of patients and self-inflicted injury in approximately 32% of patients. The most frequently ingested substance was prescription medicine, and the most common form of self-inflicted injury was jumping from a building. Only 15% of the substance ingestion patients had a known prior history of psychiatric disorders. In contrast, 45% of the self-inflicted injury patients had been treated for a psychiatric condition. Of the substance ingestion patients, 66% were discharged home. Of the self-inflicted injury patients, 55% were transferred for further care. Sixty percent of those transferred to the hospital required psychiatric follow-up during hospitalization. The method of suicide attempt, previous psychiatric history, patient clinical course, and specific treatment given varies considerably in different patients with suicidal ideation. A teamwork approach involving the emergency physician, psychiatrist, nurses, and social workers is necessary for successful management.

### Introduction

Many types of diseases and injuries are treated in emergency medical settings. Psychiatric intervention is often required in many of these patients<sup>1)</sup>. The ability to diagnose and treat patients with suicidal ideation is a particularly important function at tertiary care emergency

medical centers<sup>2)</sup>. The large number of suicidal patients seen is a reflection of the geographical and social setting of these hospital facilities. There are distinct differences in patient age groups and the means used to attempt suicide. We conducted a retrospective analysis of suicidal patients recently treated at our emergency medi-

cal department located in Shinjuku (the center of metropolitan Tokyo). This study reviews specific features and issues in this group of patients.

### Methods

The evaluation criteria for "suicidal attempt" were based on criteria established in 1988 by the Mental Health Research Council of the Japan Emergency Medicine Society<sup>3)</sup>. According to these criteria, there must be concrete evidence of suicidal intent such as a statement by the patient, a suicide note, eyewitness accounts, and/or corroborative autopsy findings. In addition, two or more of the following must be evident: an expressed wish to die by the patient, previous history of suicidal ideation, history of a psychiatric disorder, obvious psychiatric symptomatology, and/or an obvious motive for wanting to commit suicide.

The present investigation retrospectively reviewed 303 patients with suicidal ideation who required hospitalization at our medical center over a 5-year period from January 1991 to December 1995. The patient records were reviewed in detail, including patient age, gender, means used to attempt suicide, previous psychiatric history, and follow-up clinical course.

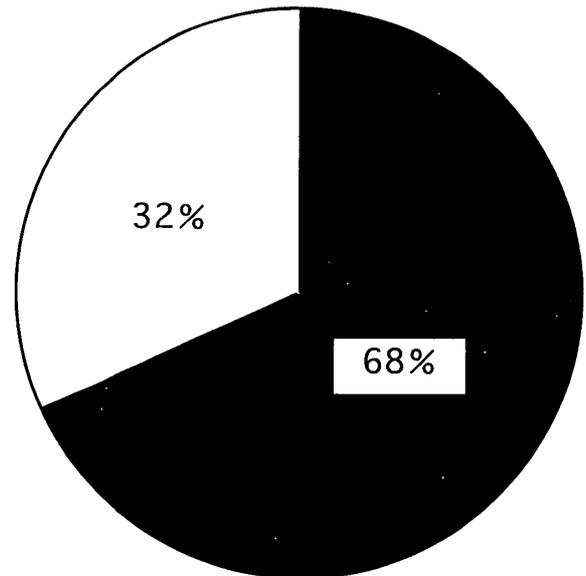
### Results

The 303 suicidal patients accounted for 8.5% of all patients admitted to the emergency and critical care medical center. The overall male/female ratio was 2/3. Eighteen patients died while hospitalized, representing a mortality rate of 5.9% (Table 1).

The attempted means of suicide were broadly divided into "substance ingestion" or "self-inflicted injury". The characteristics of the substance ingestion patients and the self-inflicted injury patients differed considerably. The information below describes and contrasts the differences between these two groups. There were more than twice as many substance ingestion patients (ac-

**Table 1** Suicide attempted cases at Tokyo Women's Medical University Emergency Critical Care Medical Center (1991. Jan. ~ 1995. Dec.)

| Cases                   | Patients (%) |
|-------------------------|--------------|
| All admission cases     | 3,854(100)   |
| Suicide attempted cases | 303(8.5)     |
| Dead cases              | 18(5.9)      |



**Fig. 1** Methods of suicide attempt  
 □ substance ingestion, ■ self-inflicted injury.

counting for 68% of the total) as self-inflicted injury patients (Fig. 1).

#### 1. Gender (Fig. 2)

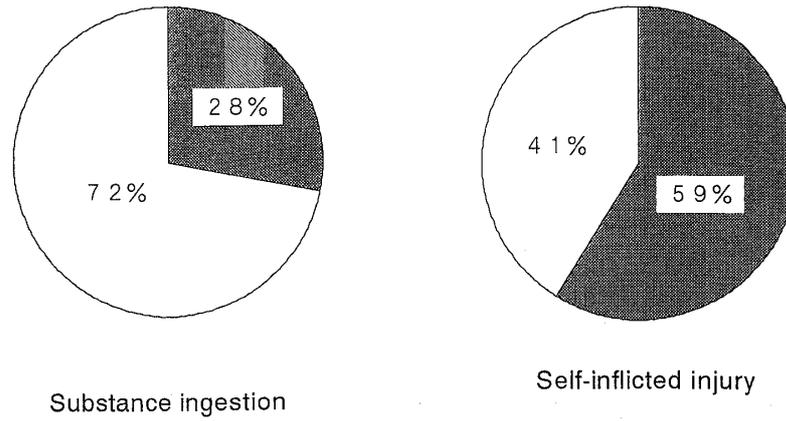
For the substance ingestion patients the male/female ratio was 2/5. For the self-inflicted injury patients the male/female ratio was 7/5.

#### 2. Age (Fig. 3)

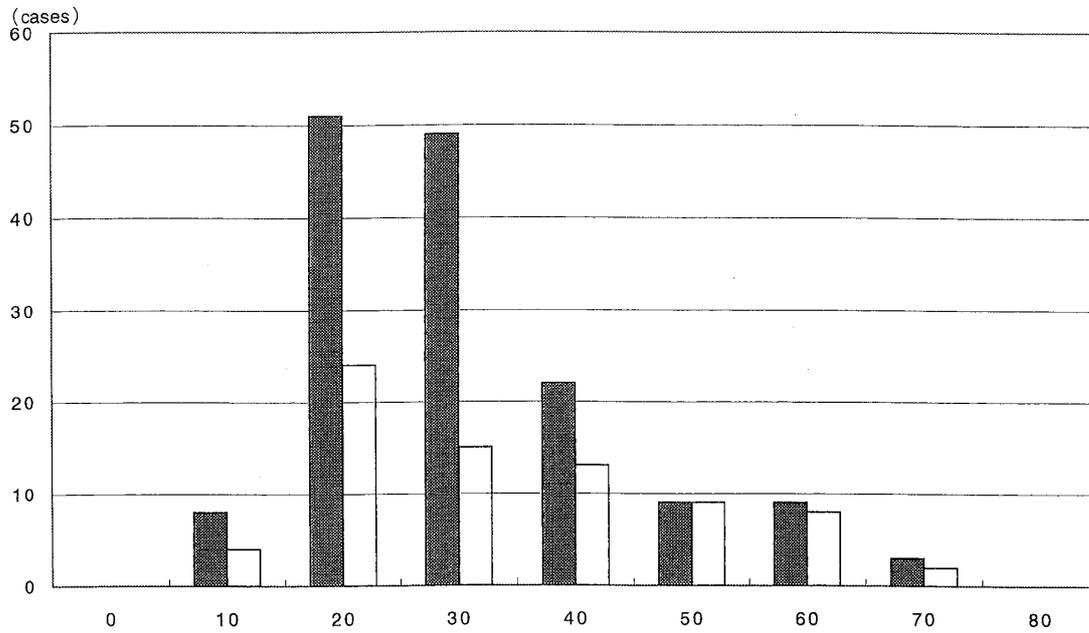
The mean age of all suicidal patients was 35.9 years. The peak age distribution for the substance ingestion patients was in the 20s, whereas the peak age for self-inflicted injury patients showed a bimodal distribution, with peaks in the 20s and 40s.

#### 3. Method of suicide attempt

Medication was the predominant type of substance ingested (187 patients, 90.8%). Only 8 patients (3.9%) ingested some form of agricultural



**Fig. 2** Gender distribution of suicide attempted cases  
 ■ male, □ female.



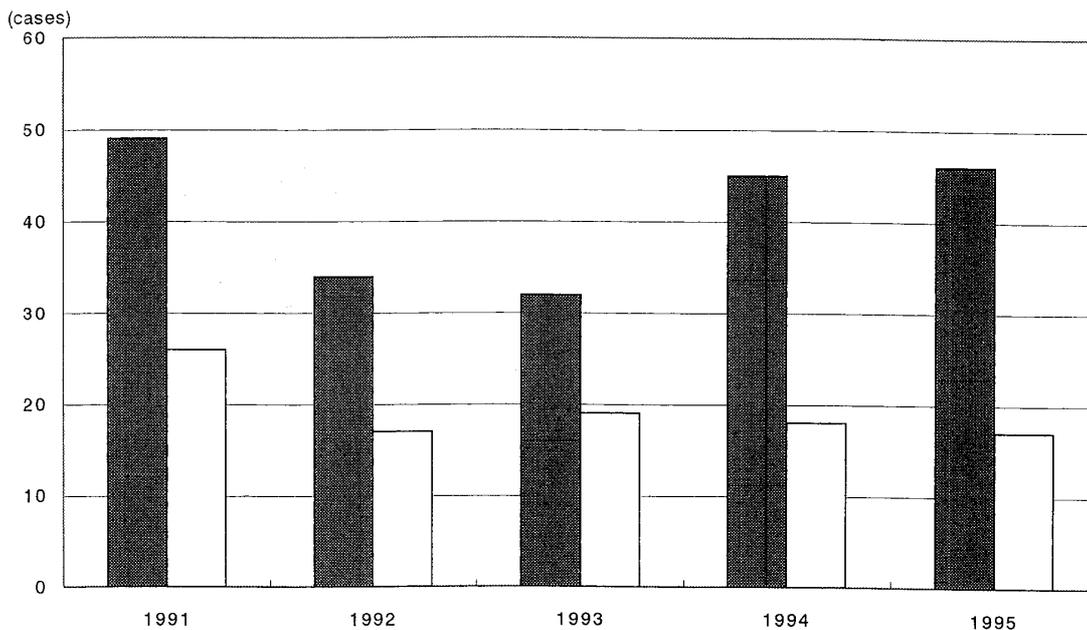
**Fig. 3** Age distribution of suicide attempted cases  
 ■ substance ingestion, □ self-inflicted injury.

**Table 2** Materials of substances ingested in suicide attempted cases

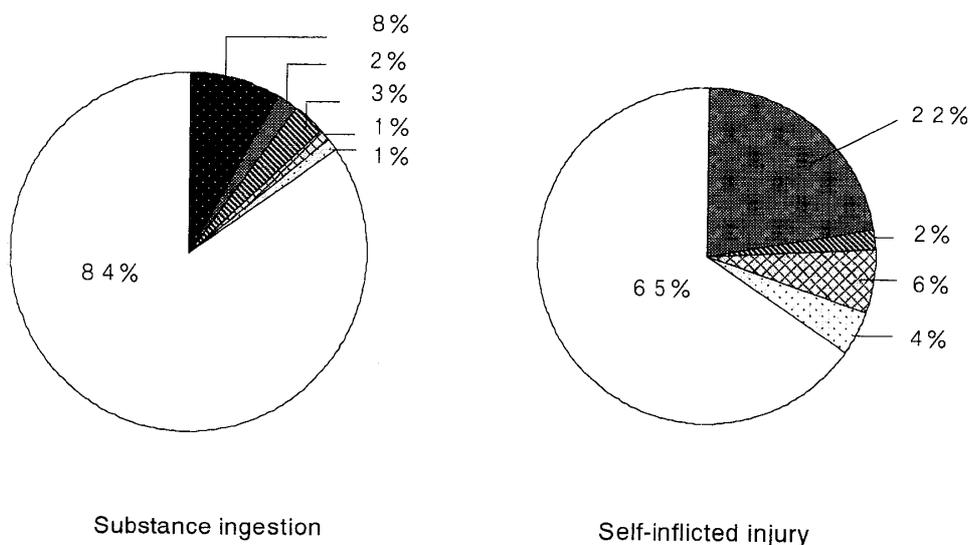
| Substances            | Cases |
|-----------------------|-------|
| Medicine              | 187   |
| Agricultural chemical | 8     |
| House chemical        | 3     |
| Industrial chemical   | 2     |
| Others                | 6     |
| Total                 | 206   |

**Table 3** Causes of self-inflicted injury in suicide attempted cases

| Causes          | Cases |
|-----------------|-------|
| Fall            | 40    |
| Diving          | 13    |
| Stab, cut wound | 36    |
| Hanging         | 5     |
| Others          | 4     |
| Total           | 98    |



**Fig. 4** Suicide attempt cases at Tokyo Women's Medical University Emergency Critical Care Medical Center (1991. Jan.~1995. Dec.)  
 ■ substance ingestion, □ self-inflicted injury.



**Fig. 5** Psychiatric history in suicide attempted cases  
 ■depression, ▨schizophrenia, ▩neurosis, ▤alcoholism, ▥others, □without treatment.

chemical (Table 2).

Of the 98 self-inflicted injury patients, 40 (40.8%) leaped from a building, 36 (36.7%) stabbed or cut themselves, and 13 (13.3%) jumped in front of a train (Table 3).

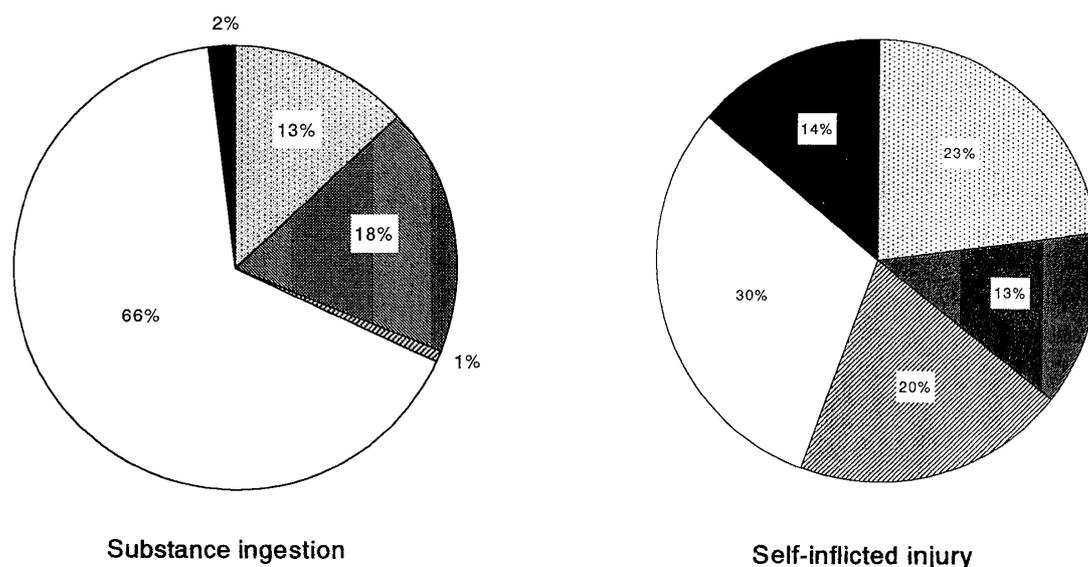
**4. Changes over time (Fig. 4)**

The nature of the suicide attempt (ratio of sub-

stance ingestion to self-inflicted injury cases) did not substantially change over the 5-year review period.

**5. Underlying psychiatric factors (Fig. 5)**

Less than 16% of the substance ingestion patients had a previous history of treatment for psychiatric disease. The most common diagnosis



**Fig. 6** Clinical outcome in suicide attempted cases

▨ psychiatric ward, ■ psychiatric hospital, ▨ general hospital, □ home, ■ death.

**Table 4** Cases concerned by the social workers

1. To help in solving financial problems
2. To help in solving and controlling psychological and social problems
3. To help at the time of medical examination and treatment
4. To help patients when they are leaving the hospital
5. Local activities

was depression, followed by anxiety neurosis and schizophrenia.

On the other hand, 45% of the self-inflicted injury patients had a prior history of treatment for

psychiatric disease. Schizophrenia was the most common diagnosis (19%) followed by depression (16%).

#### 6. Clinical course (Fig. 6)

Of the substance ingestion patients, 66% were discharged to home with follow-up care, while 31% required inpatient psychiatric care due to physician concerns about another suicide attempt.

Many of the self-inflicted injury patients sustained multiple injuries and/or required surgery. Thirty-one percent could be discharged home with follow-up care. Twenty percent of the pa-

**Table 5** Duties and responsibilities of social workers

| Case-<br>No. | Age  | Gender | Nation    | Method                         | Problem  | Decision  |
|--------------|------|--------|-----------|--------------------------------|--|---|
| 1            | 28 y | female | Hong Kong | drug overdose                  | illegal resident   | Application of the "Laws Concerning Handling of Ill or Dead Travelers".                             |
| 2            | 30 y | female | Korea     | ingested pesticide             | Her husband was away at the time on a long business trip.  | National Health Insurance was confirmed. Her friend was asked to be her guarantor.                  |
| 3            | 41 y | male   | Japan     | ingested organic solvent       | He had been living on his own since he divorced and was not making his National Health Insurance payments. | His ex-wife contacted, and procedures were begun for him to join National Health Insurance program. |
| 4            | 61 y | female | Japan     | stabbed herself in the abdomen | She had been living on her own since her common-law partner.   | An application for life insurance was made to the Social Welfare Bureau.                            |
| 5            | 49 y | male   | Japan     | threw himself under a train    | His relatives refused to be guarantor.   | Life insurance coverage was confirmed.  |
| 6            | ?    | female | Japan     | jumping                        | She died in the hospital, her identity remains unknown.  | An application for life insurance was made at the location where incident occurred.                 |

tients admitted for psychiatric care were considered appropriate for admission to a general medical care ward, and thus were transferred to these units.

### 7. Underlying social factors

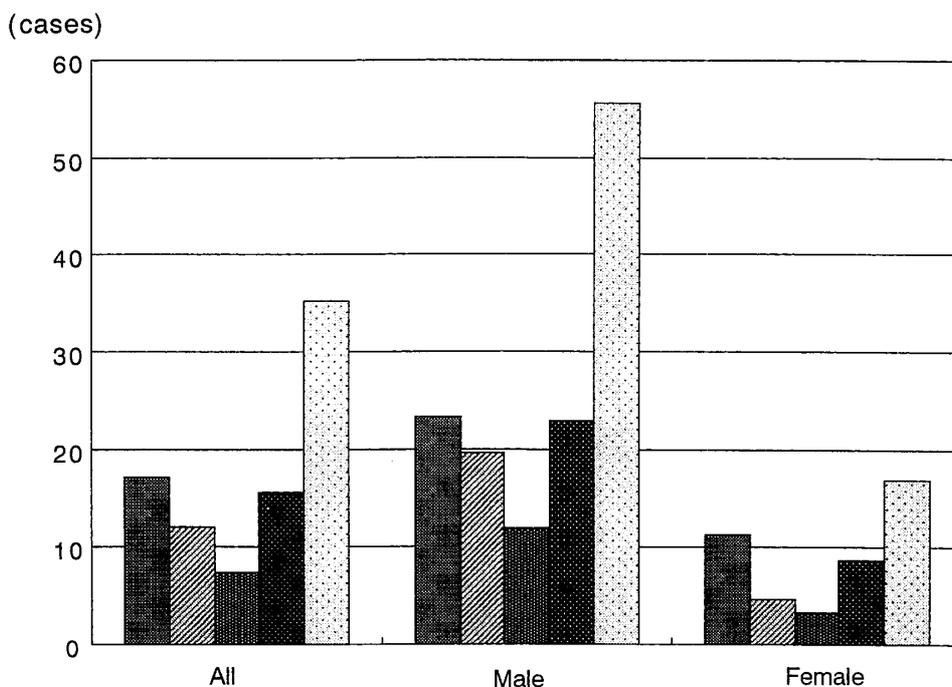
The suicidal patients often lacked insurance or other means to pay medical expenses. These problems could not be adequately handled by the hospital medical staff alone. We actively recruited the services of a social worker in the cases such as shown in Table 4. The duties and responsibilities of the social workers are shown in the diagram (Table 5).

### Discussion

The psychiatric literature broadly categorizes patients with suicidal ideation into those who have attempted suicide and those who have actually committed suicide. Although the actual number of persons who have attempted suicide is not known, the Japanese Ministry of Health and Wel-

fare does maintain vital statistics that are published annually regarding the number of persons that have actually committed suicide. Those figures indicate that 21,420 people (17.2 per 100,000 population) committed suicide during 1995<sup>4)</sup>. Suicide represents the seventh leading cause of death in Japan, exceeding the number of deaths attributed to motor vehicle injuries. A comparison with 1995 statistics from other countries shows that in each country the males who successfully committed suicide outnumbered the females by almost 2 to 1. The suicide rate (per 100,000 population) was nearly equal in Japan, the United States, and Germany. The rate in England was lower, while the rate in the eastern European country of Hungary was approximately twice that of Japan (Fig. 7)<sup>5)</sup>.

Patients with suicidal ideation admitted to our hospital accounted for 8.5% of the total number of patients admitted. This percentage is on the



**Fig. 7** International comparison of suicide morbidity: per 100,000 (1993) Vital Statistics (Japanese Ministry of Health and Welfare)<sup>4)</sup>, World Health Statistics Annual (WHO)<sup>5)</sup>.

■ Japan, ▨ U.S.A., ▤ England, ■ Germany, ▩ Hungary.

high side in comparison to survey results from other tertiary emergency care facilities (range, 0.5 to 9.3%)<sup>2)</sup>. At our emergency medical center, substance ingestion patients accounting for 68% were more higher than past investigations (accounting for 40~50%) in some medical centers of Tokyo<sup>6)</sup>. Medication was the predominant type of substance ingested in metropolitan and this tendency of substance-ingested patients were observed in another country<sup>7)</sup>, but at suburban emergency centers patients ingested some form of agricultural chemical were much more visited.

Suicidal patients can be broadly divided into two groups: patients with milder suicidal intent such as those who attempt suicide by drug ingestion (often with an "attention please" overtone in their attempt); and patients with a stronger suicidal intent such as those who employ more drastic means of self-injury (e. g., jumping off a building). The male-to-female ratio and age distribution differed between these two groups. Female outnumber male by almost 2 to 1 in the substance ingestion group, whereas there was a preponderance of male in the self-inflicted injury group. The peak age distribution for the substance ingestion group was in the 20s, while the age distribution for the self-inflicted injury group showed a bimodal pattern with peaks in the 20s and 40s. There was also a distinct difference in the prior history of known psychiatric disease between the two groups. Over 84% of the substance ingestion patients had no known history of a previous mental disorder. Those who did, were most likely to have been diagnosed with depression or anxiety neurosis.

On the other hand, 45% of the self-inflicted injury patients had a known prior mental disorder. These patients were previously diagnosed more often with schizophrenia than with depression. The findings in our study also emphasize the difficulty of using psychiatric intervention to predict

the likelihood of a suicide attempt. In contrast to the 66% of substance ingestion patients who could be discharged to home with follow-up, only 31% of the self-inflicted injury patients could be discharged. These patients often sustained fractures as part of their injuries and required surgical intervention. Patients transferred to the general medical hospital while receiving follow-up psychiatric care accounted for 20% of all cases.

Successful diagnosis and treatment of patients with suicidal ideation by tertiary emergency care facilities requires the ability to successfully coordinate a number of different problems. The first requirement is the availability of competent psychiatric intervention. Since opening, our medical center has maintained an on-call rotation of a psychiatric resident (physician in training) who is always available. The ability to readily provide psychiatric intervention permits a smooth transition of care and helps to allay some of the concerns of the emergency physician, nurses, and other ICU personnel with regard to psychiatric issues. Another advantage is that the psychiatric resident on-call can facilitate arrangement of psychiatric follow-up care in order to prevent further suicide attempts.

Social factors pertaining to the suicidal patient also need to be addressed. Medical centers such as ours located in large cities often deal with suicidal patients who live alone or who are foreigners residing in Japan. This commonly presents a problem from the standpoint of recurrent suicide attempt prevention in which enlisting the help of the patient's relatives or a legal guardian is necessary when discharging the patient. The absence of relatives or other significant patient contacts represents an increased burden on the medical staff. In addition, these suicidal patients often lack insurance or other means to pay medical expenses. All of these problems cannot be adequately handled by the hospital medical staff

alone. We actively recruit the services of a social worker in such cases. These include filing of appropriate applications pertaining to so-called "travel laws" for foreigners illegally residing in Japan, retroactive filing for national health insurance coverage for patients who have previously not enrolled, filing of social services related applications for patients unable to pay, finding sponsors for foreign residents, and searching for relatives of patients that live alone.

The emergency medical care of suicidal patients requires both active medical intervention as well as significant input from associated social support services. A teamwork approach among specialty medical and non-medical staff is crucial for successful management of these patients.

### Conclusion

The cases of suicidal patients hospitalized over the last 5 years (1991 to 1995) through the Emergency Critical Care Medical Center at Tokyo Women's Medical University in Shinjuku. There were 303 patients admitted with a diagnosis of suicidal ideation, representing 8.5% of all hospitalized patients. The overall male/female ratio was 2/3. The mean patient age was 35.9 years. The method of suicide attempt included substance ingestion in approximately 68% of patients and self-inflicted injury in approximately 32% of patients. The most frequently ingested substance was prescription medicine, and the most common

form of self-inflicted injury was jumping from a building. Only 15% of the substance ingestion patients had a known prior history of psychiatric disorders. In contrast, 45% of the self-inflicted injury patients had been treated for a psychiatric condition. Of the substance ingestion patients, 66% were discharged home. Of the self-inflicted injury patients, 55% were transferred for further care. A teamwork approach involving the emergency physician, psychiatrist, nurses, and social workers is necessary for successful management.

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## 都市型救命救急センターにおける自殺企図症例の検討

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石川 雅健・曾我 幸弘・矢口 有乃・鈴木 忠

救急医療の対象となる疾患, 病態は多岐にわたるが精神医学的介入を必要とする場合も少なくない。特に三次救急医療を担う救命救急センターにおいて, 自殺企図症例に対する対応は極めて重要な業務の一つと考えられる。また自殺企図症例はその地域の地理的, 社会的環境を大きく反映し, 年齢層, 手段などに相違がみられる。新宿副都心に近接する東京女子医科大学救命救急センターに最近5年間(1991~1995年)に入院した自殺企図症例について検討した。入院症例は303例で, 全入院症例の8.5%, 男女比0.6, 平均年齢35.9歳, 死亡例18例(5.9%)であった。手段としては服薬(68%)と自損(32%)に大別されるが, 服薬では医薬品, 自損では飛び降りが最も多かった。精神科受診歴は服薬例では15%に過ぎなかったが, 自損例は45%と高率であった。転帰は服薬例では自宅退院が66%に対し, 自損例は転科転院例が55%で転院例の6割は一般後方病院での精神科フォローを要した。自殺企図症例は手段により, 背景および転帰が異なり, その対応も一様ではなく, 救急医, 精神科医, 看護婦, さらにソーシャルワーカーを加えたチーム医療が必要である。