

* This English manuscript is a translation of a paper originally published in *Psychiatria et Neurologia Japonica*, Vol.125, No.10, pp. 860-867. This manuscript was translated by the Japanese Society of Psychiatry and Neurology with the assistance of machine translation and was published with the author's confirmation and permission. If you wish to cite this paper, please use the original paper as the reference.

Special Feature Article

Recent Trends and Role of Psychiatric Care of Patients with Acute Drug Intoxication Taken to Critical Care Centers after Suicide Attempt

Hisatoshi ARAI¹, Syunya HOSHINO², Tadahiro ISHIDA³, Koji MATSUO¹, Hitoshi MIYAOKA²

1 Department of Psychiatry, Saitama Medical University

2 Department of Psychiatry, Kitasato University School of Medicine

3 Department of Social Medicine, Fukuoka University Graduate School

Psychiatria et Neurologia Japonica 125: 860-867, 2023

Abstract

Patients who are injured as a result of a suicide attempt are often taken to critical care centers. Many of them have acute drug intoxication due to drug overdose. In particular, patients with acute intoxication due to an overdose of psychotropic drugs account for a large proportion of the patients taken to critical care centers after a suicide attempt. The length of hospitalization of patients with acute drug intoxication after they receive treatment for physical conditions during the acute stage is often shorter than that of patients with serious physical disorders. The number of suicidal persons has been on a downward trend in recent years thanks to various suicide prevention measures focusing on the cooperation between critical care centers and psychiatric care. However, careful consideration and development of measures are continuously needed because patients with acute drug intoxication still account for a large proportion of the patients who are taken to critical care centers. The medical institutions that provide care to the patients after being treated for physical conditions at critical care centers also seem to largely affect the prognosis of the patients. In particular, the ideal form of the cooperation between critical care centers and mental clinics should be considered because a large

proportion of patients who attempted suicide regularly visit a mental clinic. There have been concerns about the increase in the number of suicidal persons and the increase in the proportion of young people attempting suicide because of the effects of COVID-19 since fiscal 2020. In this study, we examined the clinical features of the patients who were taken to critical care centers for acute drug intoxication due to drug overdose, which accounts for a large proportion of suicide attempts. We also examined future suicide prevention measures.

Keywords: acute drug intoxication, role of psychiatrists, COVID-19, suicide attempt, psychosocial intervention

Introduction

Emergency departments receive many patients transported due to suicide attempts, with some reports indicating that 12.8% of all transported patients were suicide attempters.³⁾ Among these, cases of acute drug poisoning due to psychotropic drug overdose accounted for a high proportion. Patients transported to emergency departments due to overdose are predominantly young women in their 20s and 30s, and they are considered to exhibit a tendency to repeat such behavior.⁸⁾ Furthermore, many patients transported to emergency medical facilities due to overdose do not present with severe physical complications. Consequently, their hospital stays are relatively short, and they are often discharged without sufficient assessment of the psychological and social factors

underlying the overdose or their future suicide risk.¹¹⁾ As a result, we sometimes encounter cases where patients subsequently repeat self-harm behaviors or experience further deterioration of their condition. This tendency has been noted in previous reports and actual clinical settings. Similarly, in the emergency medical care setting where we work, we also have the impression that the proportion of transport cases involving acute drug poisoning is high. Regarding the psychosocial issues triggering psychotropic drug overdoses aimed at self-harm or suicide attempts, family problems are most frequently reported (33.1%), followed by health (18.6%), relationship (12.4%), work-related (12.4%), and financial (11.7%) problems.¹⁰⁾ Many patients who overdose on psychotropic drugs are also noted to have unstable interpersonal

relationships, exemplified by family problems, and a high proportion are unemployed, indicating a link to social isolation. This highlights the necessity of multidisciplinary intervention.¹⁰⁾ Since fiscal year 2020, concerns have grown about an increase in suicide attempts, particularly among younger individuals and women, partly due to the impact of COVID-19.⁷⁾

This paper aims to examine the clinical characteristics of patients transported to the emergency department due to acute drug poisoning, a common method to attempt suicide, based on clinical statistics from the Kitasato University Hospital Emergency and Disaster Medical Center (hereinafter referred to as “the center”), where the first author (Arai) was previously affiliated. It further considers the role of psychiatric care and future suicide prevention measures.

I. Regarding Acute Drug Poisoning Cases Transported to Our Center Due to Suicide Attempts

The Kitasato University Hospital Emergency and Disaster Medical Center is located in Sagami-hara City, a government-designated city in the central and northern region of Kanagawa Prefecture, and it is the sole tertiary emergency medical facility in the city. It serves a medical care area of over 1.5 million people, including

Sagami-hara City (population: 720,000) and the adjacent cities of Zama, Yamato, and Ayase, as well as Machida City in Tokyo. The center receives many patients transported due to suicide attempts. A retrospective review of medical records was conducted to clarify their clinical characteristics and provide data for suicide prevention measures. Furthermore, we examined the clinical characteristics and cooperation with psychiatric clinics for cases transported to our center due to acute drug poisoning from suicide attempts. This study was approved by the Ethics Committee of Kitasato University School of Medicine (Approval Number: B15-146).

1. Subjects and Methods

The study included 115 cases admitted to the Kitasato University Hospital Emergency and Disaster Medical Center for acute drug poisoning between April 1, 2015, and December 31, 2015. A retrospective review was conducted using medical records and inpatient logs to examine age, sex, presence or absence of a regular medical institution, psychiatric diagnosis (ICD-10 classification), type of drug and prescribing source, length of hospitalization, and outcome.

2. Results

1) Sex and age (Figure 1)

Among patients transported to our center, 150 suicide attempters were hospitalized during the study period. Of these, 115 involved acute drug poisoning, accounting for approximately 77% of the total.

The sex breakdown of the 115 acute drug poisoning cases was 20 males (17%) and 95 females (83%). During this study period, one male was hospitalized three times and one female was hospitalized twice, with both being due to acute drug poisoning.

Regarding the age distribution by sex, female patients peaked in their 30s, with those aged in their 20s to 40s accounting for 78%. Male patients showed some variation across age groups, but no clear age-related differences.

2) Patients' regular medical institutions (Figure 2)

For female patients, the order was: psychiatric clinics (46%), psychiatric hospitals (19%), no regular outpatient facility (14%), and general hospital psychiatric departments (13%). For men, psychiatric hospitals accounted for 30%, followed by no outpatient facility at 25%. Among cases with a history of psychiatric care, 78% were female and 50% were male patients.

3) Psychiatric diagnosis (ICD-10 Classification) (Figure 3)

The proportion of mental disorders by sex was examined based on the disease

classification (ICD-10). Psychiatric diagnoses were made by the hospital's psychiatrists at the time of admission.

Among female patients: F3 (Mood Disorders) accounted for 57%, F6 (Personality Disorders) for 13%, F2 (Schizophrenia) for 12%, and F4 (Neurotic, Stress-Related, and Substance-Induced Disorders) for 11%. Among men, F3 (Mood Disorders) was the most common, accounting for 40%.

4) Types of drugs and prescribing sources for acute drug poisoning (Figure 4)

The types of drugs were: sleeping pills in 53 cases (46%), anxiolytics in 45 cases (39%), antipsychotics in 34 cases (30%), antidepressants in 30 cases (26%), and cold/pain medications in 24 cases (21%). When prescribing locations were investigated specifically for psychotropic drugs: psychiatric clinics accounted for 43 cases (37%), psychiatric hospitals for 18 cases (16%), and general hospital psychiatric departments for 12 cases (10%).

5) Length of hospitalization (Figure 5)

The median length of hospitalization was 2 days for male and female patients, with approximately 95% showing a length of hospitalization of shorter than one week.

6) Outcomes (Figure 6)

For females, the order was: psychiatric clinic referral (46%), transfer (admission) (17%), and

psychiatric hospital (single-specialty hospital) referral (14%). For males, the order was: psychiatric hospital (single-specialty hospital) referral (25%), cases in which only a referral letter (an information sheet without a specified destination) was prepared (20%), and cases in which neither outpatient consultation by the lead author nor referral to a medical institution was provided (15%).

II. Considerations from This Survey

1. Backgrounds of patients transported for acute drug poisoning

Among suicide attempters transported to our center and admitted, cases of acute drug poisoning accounted for approximately 77% of the total. This result is consistent with reports⁴⁾ indicating that a large proportion of patients transported to critical care centers are brought in due to suicide attempts or self-harm, with many cases involving acute drug poisoning, such as overdose. Regarding sex and age, female patients in their 20s to 40s accounted for approximately 80%, reflecting the high proportion of young women observed in studies at other institutions.¹²⁾ Although the reasons for drug overdose were not investigated in this study, the literature suggests psychosocial factors such as interpersonal relationship problems with close individuals, like family

members or partners,¹⁰⁾ and anxiety about abandonment by others who are the objects of psychological dependence⁵⁾ as potential psychological backgrounds. Given these points, it was considered necessary to conduct a more detailed evaluation, particularly focusing on psychosocial background factors centered on interpersonal relationship building, and to further examine issues and countermeasures. Regarding regular medical institutions, a higher proportion of female patients visited psychiatric clinics; however, the reasons for this were unclear due to the small number of both male and female patients.

2. Psychiatric diagnosis

In the psychiatric diagnoses identified in this survey, F3 (mood disorders) accounted for the highest proportion in both women and men, representing over half of the cases among women. For mood disorders, pharmacotherapy centered on antidepressants can be effective in some cases, while improvement can be achieved through psychosocial interventions in others. Individuals transported to critical care centers often show acute situations, such as those with mood disorders presenting as self-harm or heightened impulsivity, or cases where complex issues like the family environment, economic problems,

and interpersonal relationships are involved.

In the emergency medical setting, collecting patient information about the behavioral characteristics of self-harm or suicide attempts can be difficult, and the environment may not always allow for a psychiatric evaluation. Consequently, a diagnosis of emotionally unstable personality disorder (EUPD) tends to be made more readily. Therefore, caution is necessary regarding psychiatric diagnoses.¹⁰⁾ Repeated self-harm and suicide attempts are core symptoms of patients with personality disorders, and healthcare providers frequently encounter challenging situations when managing these conditions in clinical practice.

In acute drug poisoning cases, psychiatric evaluations often require confirmation based on information gathered and examinations conducted within a very short time-frame. Evaluations are frequently difficult due to insufficient information, patients being in a drowsy state during the examination, or the lack of an established relationship between the physician and patient.

Furthermore, F2 (schizophrenia) accounts for approximately 10% of cases among women. While clear comparisons are difficult due to the smaller overall number of male patients, it has been

noted that family and those around the patient often find it challenging to judge the nature of abnormal schizophrenic experiences.¹⁾ Reports also indicate that the suicide risk rate is more than eight times higher than in the general population.²⁾ Therefore, particular caution is required when assessing psychiatric symptoms.

Psychiatric diagnosis and assessment of the urgency of suicidal ideation influence subsequent treatment plans. Therefore, consultation with multiple professionals, including psychiatrists, emergency physicians, psychologists, and mental health counselors, is desirable whenever possible. Patients repeatedly transported to emergency departments due to suicide attempts primarily involving drug overdose may gradually shift their methods to those with higher success rates, such as hanging or falls, eventually resulting in actual suicide. For refractory cases where psychiatric symptoms worsen, it is crucial to maintain an open mind toward reassessing psychiatric evaluations and diagnoses. Furthermore, impulsive behavior involving alcohol consumption during overdose attempts can lead to even more lethal outcomes. Therefore, in acute drug poisoning cases, it is important to confirm any association with alcohol consumption.

3. Types of drugs and prescription sources in acute drug poisoning

Regarding the drugs involved in acute poisoning, sleeping pills accounted for 46%, anxiolytics 39%, antipsychotics 30%, and antidepressants 26%, with psychotropic drugs comprising 85% of the total. Regarding the drugs used for overdosing, most were psychotropic drugs, primarily benzodiazepine-type sleeping pills, prescribed by the patients' regular medical institutions. Similar to previous reports,¹²⁾ benzodiazepine-type sleeping pills constituted a high proportion.

Although our study did not investigate the impact of psychotropic drugs on psychiatric symptoms, caution is warranted. This is because many patients transported to emergency departments are prescribed multiple medications, and recent studies have highlighted the risk of psychotropic drugs inducing impulsivity.⁶⁾⁹⁾

Regarding the prescribing sources for acute drug poisoning (limited to psychotropic drugs), the order was: psychiatric clinics, psychiatric hospitals (single-specialty hospitals), and general hospital psychiatric departments, being consistent with previous reports.¹⁰⁾

Regarding psychiatric hospitals, there is often existing communication when they are the destinations for transferring inpatients, promoting cooperation. However, there is limited

interaction with psychiatric clinics, and so how to share information and collaborate remain ongoing challenges.

Furthermore, among cases transported due to drug overdose, some patients obtained psychotropic drugs via the Internet, while others received prescriptions from multiple medical institutions. Collaboration with family members and prescribing medical institutions, including regular monitoring of medication adherence, was also deemed necessary.

4. Length of hospital stay and outcomes

The median length of hospitalization was 2 days for both males and females, with approximately 95% of cases involving hospitalization of shorter than one week. Previous reports¹⁰⁾¹²⁾ also indicated short hospital stays for acute drug poisoning cases, consistent with the findings of this study. Critical care centers provide urgent physical treatment for life-threatening conditions such as high-energy trauma (e.g., multiple injuries) or stroke, and with limited bed capacity, early bed coordination is essential.

Regarding outcomes, a high rate of both male and female patients transitioned to outpatient care at their regular medical institution following physical treatment.

Opportunities for direct communication between emergency

medical services and psychiatric clinics or single-specialty psychiatric hospitals are expected to increase further. Therefore, determining how to cooperate effectively is crucial, as the nature of this collaboration is likely to significantly influence the patient's subsequent course. Furthermore, depending on the condition, outpatient psychiatric care may be necessary after discharge. If the patient lacks a regular medical institution, discussions are held with the patient and family. Following intervention by a mental health and welfare specialist, information about accessible psychiatric outpatient facilities is provided. If a treatment facility cannot be determined, an information sheet is prepared without a specific destination, allowing the patient and family to consider options. Alternatively, treatment is provided at the outpatient department of the university where the lead author is affiliated or at the psychiatric outpatient department of the same hospital. For individuals living alone, when the patient independently faces difficulties in daily living or financial problems, a mental health and welfare intervention is conducted. With the patient's consent, they cooperate with city administrative staff and judicial scriveners to gain psychological and social support.

III. Future Challenges for Acute Drug Poisoning Patients

Regarding suicide rates in Japan, according to the National Police Agency's Suicide Statistics Master Data, the number of suicides in 2020 was 21,081, an increase of 912 from the previous year. Compared with 2019, the largest increase in 2020 was among those in their 20s, rising by 404 people.⁷⁾ Our investigation also indicates that acute drug poisoning cases involve a high rate of young and female patients, necessitating continued vigilance.

When treating patients transported due to acute drug poisoning, healthcare providers may encounter cases where intervention is challenging. Specifically, patients often exhibit poor insight into their illness, have limited family support, and present with complex psychiatric symptoms. Furthermore, while the initial method of attempted suicide may be drug overdose, impulsivity can increase over time, leading to higher-success-rate suicide methods such as hanging or falls.

Drug overdoses tend to recur frequently. However, since the initial episode may not involve severe physical complications, the underlying factors driving psychotropic drug overdose are often inadequately assessed.

Moreover, in emergency departments, intensive physical inpatient treatment is often followed by discharge or

transfer within a short period. This is particularly common in acute drug poisoning, where discharge often occurs within days. Consequently, securing sufficient time to assess the background and psychosocial factors leading to suicide attempts can be challenging.¹¹⁾

Moreover, when attempting to confirm information from outpatient facilities, it can be difficult to obtain details if the attending physician is unavailable or it is a holiday, even after contacting the facility. This can result in insufficient information gathering during the short-term emergency department hospitalization. Therefore, it is crucial to rapidly share patient information, primarily among psychiatrists and emergency physicians, and involve as many multidisciplinary team members as possible when discussing treatment plans and discharge decisions.

In recent years, with an increasing proportion of patients attending psychiatric clinics, it is desirable not only to exchange information sheets for cases of repeated overdose but also, when a patient's condition is unstable, to arrange opportunities to discuss future measures with the consent of the patient and family.

Conclusion

We examined the clinical characteristics of patients transported

to critical care centers due to acute drug poisoning, a common method among suicide attempters. In critical care medicine, patients injured due to suicide attempts are frequently transported, with the majority being those suffering from acute drug poisoning due to overdose. Therefore, it is necessary to continue developing careful countermeasures. In particular, it was considered important to examine the nature of cooperation with psychiatric clinics, where patient visit rates are high, and consider responses for young people, who account for a large proportion of acute drug poisoning cases.

Through the symposium where this paper was presented, it became clear that the proportion of acute drug poisoning transport cases varies due to differences in the structure of emergency medical institutions within regions. Regarding the destination for acute drug poisoning transports, as seen in our report, university hospital emergency centers may be the primary destination, while in some regions, secondary emergency hospitals or other medical institutions may be the main responders. Moving forward, it will be necessary to investigate the characteristics of acute drug poisoning cases while considering the differences in regional medical systems.

Given the anticipated psychological impact of COVID-19, including fear and isolation, we aim to examine the clinical characteristics of patients transported to critical care centers due to acute drug poisoning by overdose, a method frequently used in suicide attempts, and consider future suicide prevention measures.

Editor's Note: This special feature article is based on the symposium held at the 117th Annual Meeting of the Japanese Society of Psychiatry and Neurology, with Hisatoshi Arai (Department of Psychiatry, Saitama Medical University) as the representative.

There are no conflicts of interest to disclose related to this paper.

References

- 1) Nozomu Asukai: Mental Disorders as Risk Factors for Suicide—A Diagnostic Study of Suicide Attempt Survivors Using Methods with High Mortality Risk. *Journal of Psychiatry and Neurology*, 96 (6); 415-443, 1994 (in Japanese)
- 2) Harris, E. C., Barraclough, B.: Suicide as an outcome for mental disorders. A meta-analysis. *Br J Psychiatry*, 170; 205-228, 1997 (in Japanese)
- 3) Ayako Ide: Psychiatric Issues in Emergency Medical Centres. *Clinical Psychiatry*, 43 (6); 873-877, 2014 (in Japanese)
- 4) Yoshito Kamijo: From the perspective of an emergency physician with psychiatry as a subspecialty—focusing on borderline personality disorder. *Research on Poisoning*, 23 (1); 26-29, 2010 (in Japanese)
- 5) Yoshito Kamijo: The Reality of Acute Drug Poisoning—Focusing on Overdose of Psychiatric Medications. *Pharmacy Journal*, 66 (11); 2769-2773, 2015 (in Japanese)
- 6) Takanori Kise, Tsuyoshi Kondo: Current Status and Management of Overdose. *Journal of Psychiatric Treatment*, 26 (10); 1217-1225, 2011 (in Japanese)
- 7) Ministry of Health, Labour and Welfare Suicide Prevention Promotion Office, National Police Agency Community Safety Bureau Community Safety Planning Division: Situation of Suicides in 2020. (https://www.npa.go.jp/safetylife/seianki/jisatsu/R03/R02_jisatuno_joukyou.pdf) (Reference 2021-12-25) (in Japanese)
- 8) Hitoshi Misawa, On Kato: Recent Trends in Overdose Cases: Data from the National Centre for Global Health and Medicine Compared with Five Years Ago. *Journal of Psychiatric*

Treatment, 22 (3); 343-346, 2007 (in Japanese)

9) Reiko Sato, Tomoki Yamada: From the Psychiatrist's Perspective. Addiction Research, 23 (1); 16-21, 2010 (in Japanese)

10) Michiko Takai, Yoshito Kamijo, Ayako Ide: Considerations on the Reality of Acute Psychotropic Drug Poisoning and Related Psychosocial Factors—Recommendations from the Perspective of Clinical Psychologists. Japanese Journal of Emergency Medicine, 18 (1); 22-29, 2015 (in Japanese)

11) Tomoki Yamada, Kosuke Hino: Overdose and Crisis Intervention in Emergency Medical Centres.

Proceedings of the 107th Annual Meeting of the Japanese Society of Psychiatry and Neurology, SS154-162, 2012 (in Japanese)

12) Nobuyuki Yanagiya, Koji Yamakawa, Takehiko Furusawa et al.: A Study of Acute Drug Poisoning Cases. Nagano Red Cross Hospital Medical Journal, 25; 11-15, 2011 (in Japanese)

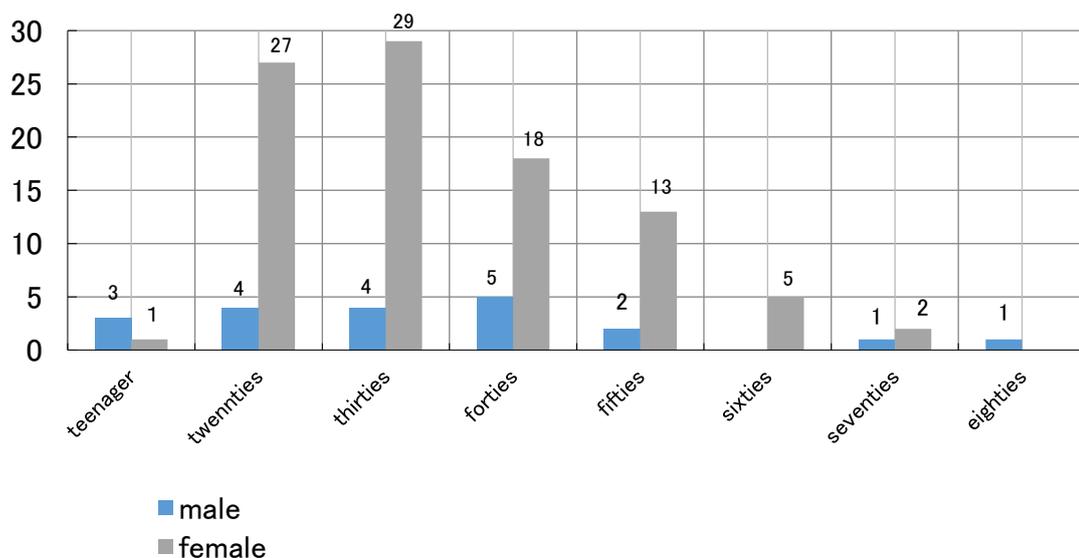


Figure 1: Sex and age distribution (acute drug poisoning)

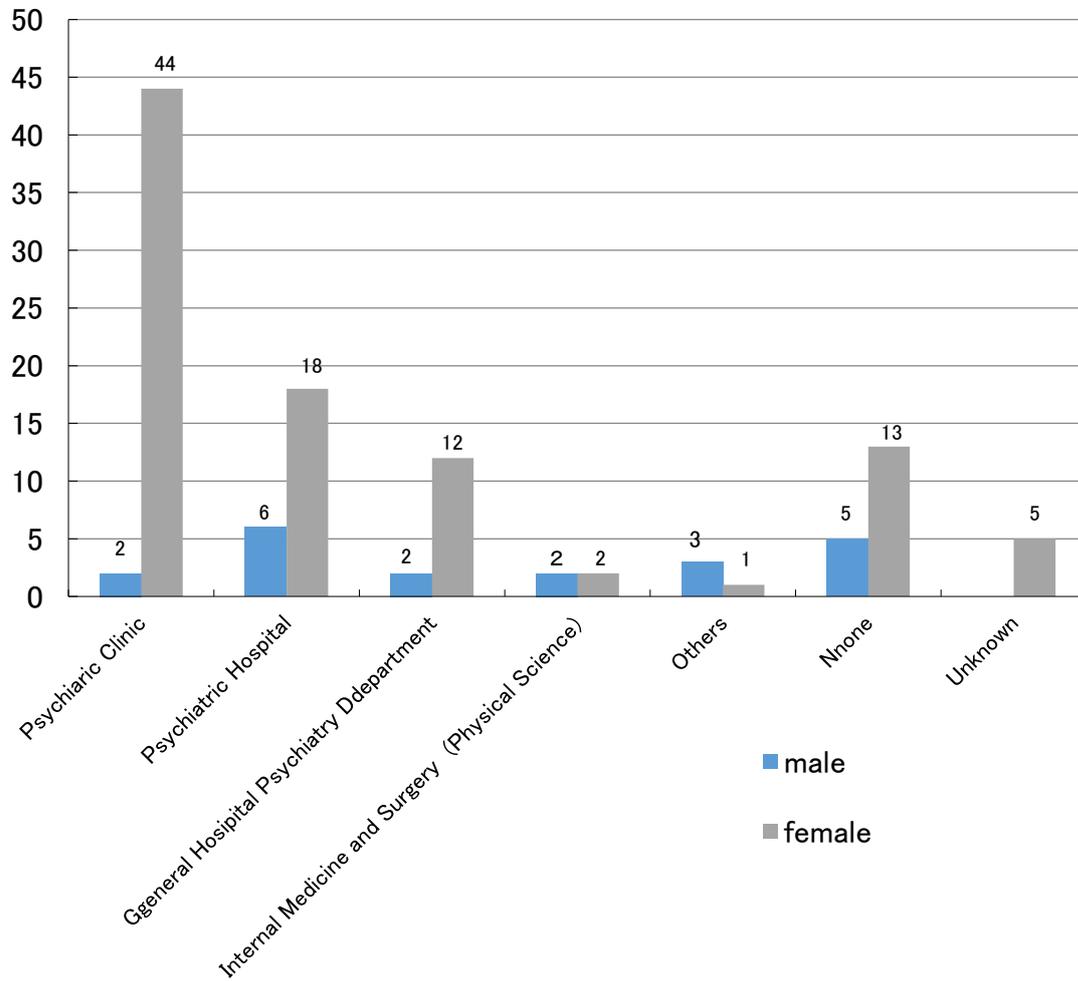
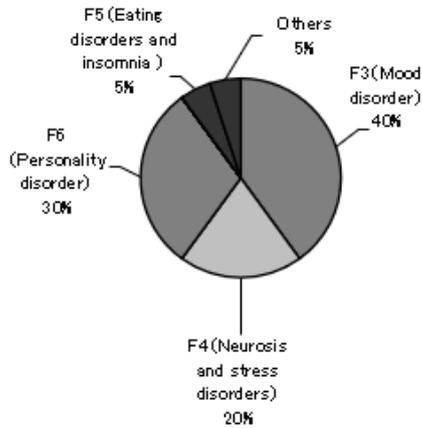


Figure 2: Patients' regular medical institutions (acute drug poisoning)
(Number of people)

male (n=20)



female (n=95)

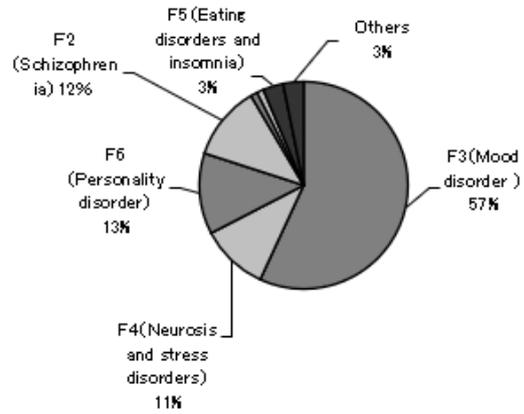
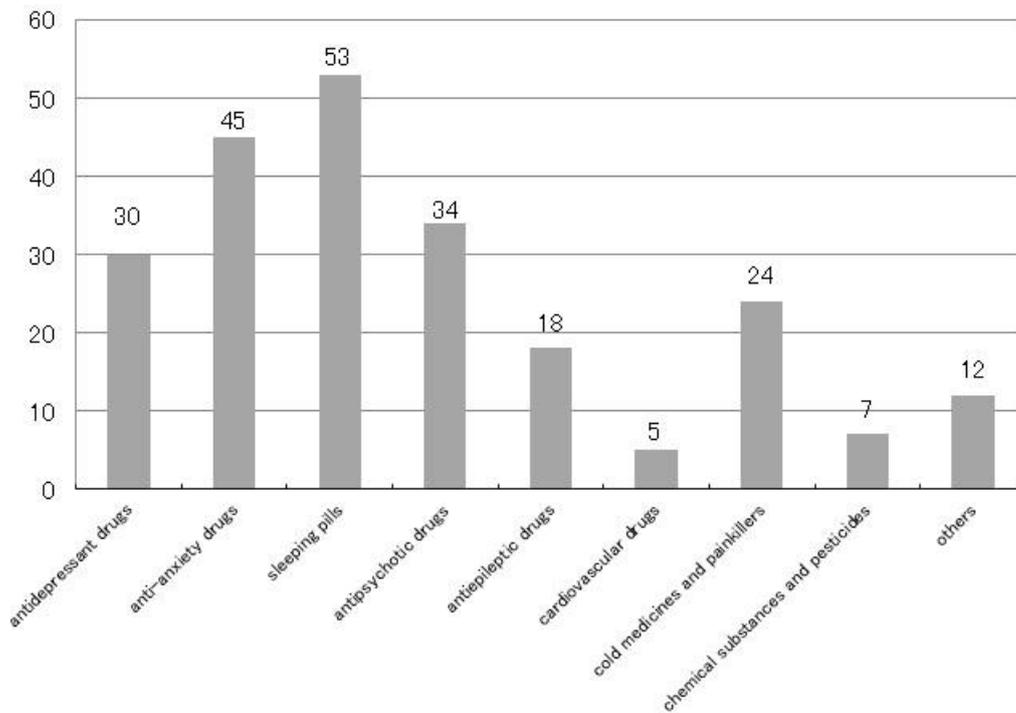


Figure 3: Psychiatric diagnosis (ICD-10) (acute drug poisoning)

a. Types of acute drug poisoning

(Number of people)



b. Prescription of medication (Psychotropic drugs only)

(Number of people)

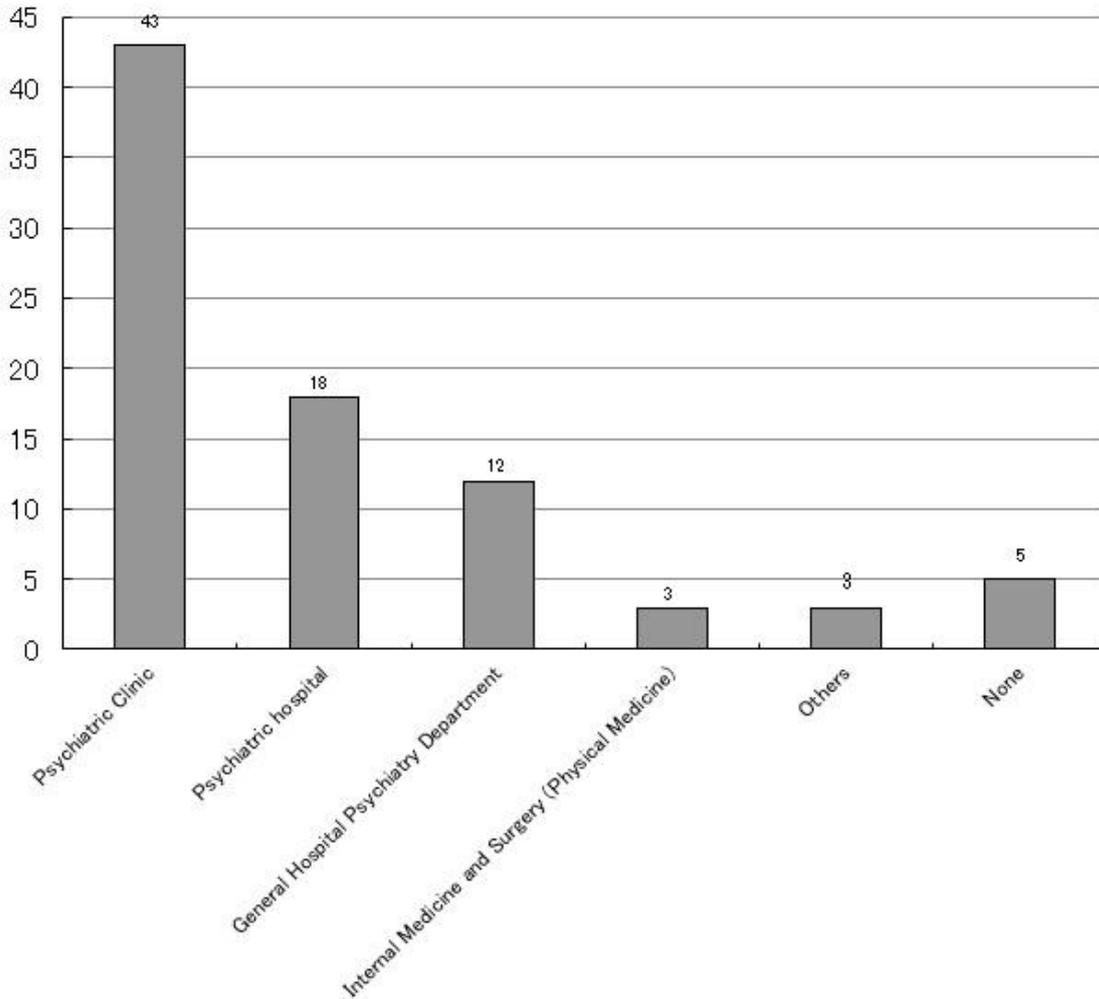


Figure 4: Types of drugs and prescribing sources for acute drug poisoning

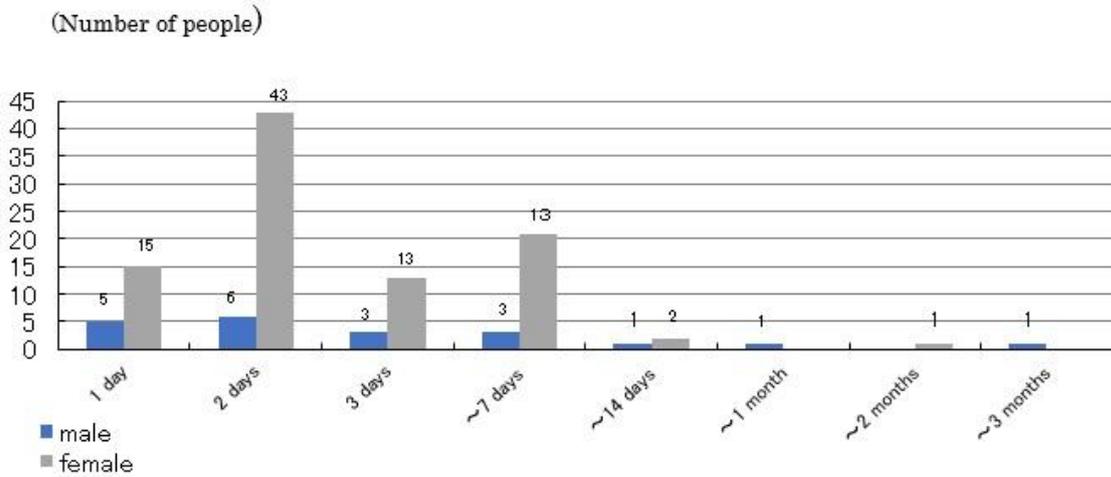


Figure 5: Length of hospitalization

Length of hospitalization [median (minimum–maximum)]: male 2.0 days (1–90 days), female 2.0 days (1–50 days)

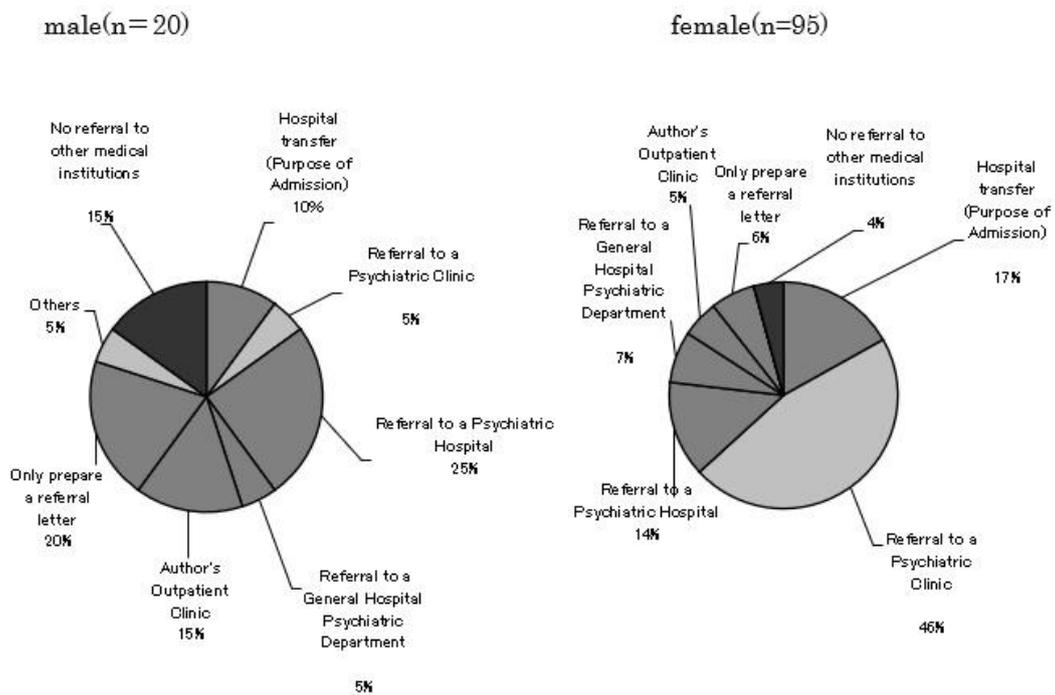


Figure 6: Outcomes (acute drug poisoning)