Characteristics, procedural differences, and costs of inpatients with drug poisoning in acute care hospitals in Japan

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Abstract

Objectives: This study aimed to describe the clinical and procedural characteristics of drug poisoning, to examine procedural differences between drug poisoning repeaters and non-repeaters, and to estimate the costs of drug poisoning.
Methods: A retrospective cohort study of a nationally representative sample of 6585 inpatients with drug poisoning was conducted, using the administrative database of the Diagnosis Procedure Combination/Per-Diem Payment System in 2008.
Results: Although only 3% of patients required surgery and 65% were discharged from the hospitals within 3 days, greater than 30% were admitted to tertiary emergency care (i.e., high-level emergency care) centers that provide care to severely ill and trauma patients who require intensive care. Only 30% of patients received psychiatric consultation during hospitalization. In addition, repeaters were less likely to be admitted to hospitals by ambulance (67% vs. 76%) and more likely to be discharged within 3 days (77% vs. 65%) than non-repeaters. The annual economic burden of drug poisoning in Japan was $66 million (¥7.7 billion), with the population aged 20–39 years accounting for 50% of these costs.
Conclusion: This study highlights the need for optimally allocating resources and improving prevention strategies.
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Keywords: Overdose; Self-poisoning; Suicide; Hospital readmissions; Cost-of-illness

1. Introduction

Acute drug poisoning is a major public health concern across the world. In the United States, for example, the annual incidence rate of emergency department visits for drug poisoning are 232 per 100,000 population [1]. Acute drug poisoning is one of the top 50 causes of emergency hospital admissions in Japan [2]. Over 75% of these patients deliberately (i.e., self-poisoning for suicidal purpose) rather than accidentally poisoned themselves [3–5].

Although many previous studies have investigated the epidemiological characteristics of drug poisoning, most studies have been based on a single center [4], highly selected institutions [6,7], or a selected catchment area [8–10]. Few have been done using a nationally representative sample [1,3,11]. Moreover, some of these studies [3,11] are now outdated. In addition, little attempt has been made to estimate the costs of drug poisoning [1,12,13]. We thus aimed to describe the clinical and procedural characteristics of drug poisoning, to examine procedural differences between repeaters and non-repeaters, and to estimate the costs of drug poisoning using a nationally representative sample of inpatients.

2. Methods

2.1. Data source

Using the nationwide discharge administrative database of the Diagnosis Procedure Combination/Per-Diem Payment System (DPC/PDPS), we conducted a retrospective cohort study. The DPC/PDPS is a Japanese case-mix classification system launched in 2002 by the Ministry of Health, Labour and Welfare of Japan [14]. The 2008 DPC/PDPS database includes clinical and procedural information from all inpatients discharged from the 855 participating hospitals between July 1 and December 31. The 2.86 million inpatients in the database represented approximately 40% of all inpatient admissions to acute care hospitals excluding psychiatric and tuberculosis hospitals [15]. The study protocol was approved by the institutional review board of the University of Occupational and Environmental Health, Fukuoka, Japan.

2.2. Participants

We included patients with an initial diagnosis of drug poisoning (ICD-10 codes: T360–T509) [16]. We included all types of drug poisoning (i.e., deliberate, accidental, and undetermined intent) as in previous studies [8,17] because data on external causes (V01–Y98) are not recorded in the database. To maintain the focus on deliberate drug poisoning, we included only emergency hospitalized patients aged 12 or above.

2.3. Definition of repeated episodes

We defined the first episode for each patient during the study period (i.e., from July 1 to December 31, 2008) as the "index episode." We also defined all subsequent episodes treated in the same hospitals during the study period as "repeated episodes." The date of December 31, 2008, was used as the censoring point for non-repeated patients.

2.4. Definition of direct medical costs

As proxies for direct medical costs of the index episode, we used total charges based on a standardized fee-for-service payment system. Total charges are considered to be good estimates of direct medical costs [18]. Costs are expressed in US dollars using the purchasing power parity value of Japan in 2008 ($1.00=¥117) [19].

2.5. Clinical and procedural characteristics during the index episode

Concerning the index episode, clinical and procedural data available from the database included (1) age, (2) gender, (3) doctor diagnosis of comorbid neuropsychiatric disorders, (4) toxic agents based on the initial diagnosis of drug poisoning, (5) use of ambulance service, (6) level of consciousness assessed by the Japan Coma Scale (JCS) [20], (7) admission to emergency care centers that provide care to severely ill and trauma patients who require intensive care [21], (8) use of endotracheal intubation, (9) use of blood purification therapy, (10) requirement for surgery, (11) length of stay (days), (12) use of psychiatric consultation, and (13) death during hospitalization. Age was categorized into five groups: 12–19, 20–29, 30–39, 40–49, and 50 years

or older. Comorbidity of neuropsychiatric disorders was classified using the criteria developed by the Global Burden of Disease study with some modifications (Table 1) [22]. Based on scores on the JCS, patients were divided into three groups: (1) awake without any stimuli (JCS=I), (2) able to be aroused only with stimulus (JCS=II), and (3) unable to be aroused using any forceful stimuli (JCS=III).

2.6. Statistical analyses

First, we conducted univariate analyses to summarize patient clinical and procedural characteristics during the

Table 1
Clinical and procedural characteristics

Characteristic	Total (N=6585)	
	N	%
Age		
12–19	534	8.1
20–29	1700	25.8
30–39	1552	23.6
40–49	999	15.2
≥ 50	1800	27.3
Gender women	4825	73.3
Neuropsychiatric disorders (ICD-10 codes)		
Any (F01–F99, G06–G98)	3120	47.4
Unipolar depression (F32, F33)	1532	23.3
Bipolar depression (F30, F31)	113	1.7
Schizophrenia (F2)	499	7.6
Epilepsy (G40, G41)	179	2.7
Alcohol dependence (F10)	122	1.9
Alzheimer (F01, F03, G30, G31)	58	0.9
Parkinson (G20, G21)	38	0.6
Drug abuse (F11–F16, F18–F19)	33	0.5
PTSD (F431)	6	0.1
OCD (F42)	18	0.3
Panic disorder (F400, F410)	72	1.1
Insomnia (F51)	9	0.1
Emotionally unstable personality disorder (F603)	120	1.8
Other	937	14.2
Toxic agent		
Sedative/hypnotics	1395	21.2
Antipsychotics	250	3.8
Antidepressants	250	3.8
Nonopioids	224	3.4
Other	377	5.7
Not specified	4105	62.3
Ambulance services	4967	75.4
Level of consciousness (JCS score)		
Awake without any stimuli (I)	3487	53.0
Arousable only with stimulus (II)	1336	20.3
Unarousable using any stimuli (III)	1762	26.8
Admission to tertiary emergency care centers	2484	37.7
Endotracheal intubation	765	11.6
Blood purification therapy	132	2.0
Surgery	197	3.0
Length of stay ≤ 3 days	4287	65.1
Death during hospitalization	41	0.6
Psychiatric consultation	1962	29.8

JCS, the Japan Coma Scale; OCD, obsessive–compulsive disorder; PTSD, post traumatic stress disorder.

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index episode. We reported medians and interquartile ranges (IQRs) for continuous variables and frequencies and percentages for categorical variables. Second, we computed procedural differences in proportions with 95% confidence intervals (CIs) between repeaters and non-repeaters during the index episodes. Third, we estimated direct medical costs as the product of two components: the annual number of discharged patients and median costs per episode. The estimated number of discharged patients with a primary diagnosis of drug poisoning (*ICD-10* diagnostic code: T360–T509) per month was retrieved from the Patient Survey 2008 [23], conducted by the Ministry of Health, Labour and Welfare of Japan. To obtain the annual number of discharged patients, the number of discharged patients per month was multiplied by 12 months. Using information from the index episode, we computed median costs per episode by gender and age. A two-sided *P* value less than .05 was considered to be statistically significant. All statistical analyses were performed with R version 2.4.1 [24].

3. Results

3.1. Clinical and procedural characteristics

The clinical and procedural characteristics of study participants are shown in Table 1. During the 6-month study period, 6585 patients visited 703 hospitals due to drug poisoning. Their ages ranged from 12 to 99 years (median: 36; IQR: 26–52). The gender ratio (women:men) was 2.7:1.

Regarding comorbid neuropsychiatric disorders, 3120 patients (47.4%) received at least one neuropsychiatric diagnosis. The most prevalent neuropsychiatric diagnosis was unipolar depression (1532 patients [23.3%]). With respect to the substances ingested in drug poisoning, sedatives/hypnotics (1395 patients [21.2%]) were the most popular substances although most of the substances (4105 patients [62.3%]) could not be specified in the database.

Regarding the severities and outcomes of drug poisoning, 4967 patients (75.4%) used ambulance services for transportation, 3487 patients (53.0%) had clear consciousness (JCS= I), 2484 patients (37.7%) were admitted to tertiary emergency care centers, 765 patients (11.6%) required endotracheal intubation, 132 patients (2.0%) required blood purification therapy, and 197 patients (3.0%) required surgery. Most patients (4287 patients [65.1%]) were discharged within 3 days. Few patients (41 patients [0.6%]) died during the index episode.

Regarding specialist psychiatric assessments, 1962 patients (29.8%) underwent psychiatric consultation in the 703 hospitals. In 465 (66.1%) hospitals, none of the patients who were admitted due to drug poisoning received psychiatric consultation. Of 703 hospitals, 378 (53.8%) were unable to provide psychiatric consultations to any hospitalized patients during the study period.

3.2. Procedural differences between repeaters and non-repeaters

The follow-up duration ranged from 1 to 184 days (median: 96 days; IQR: 50–138). Among the 6544 patients who survived during the index episode, 221 (3.4%; 95% CI= 3.0%–3.8%) had a repeated episode of drug poisoning within 6 months. Procedural differences in proportions between repeaters and non-repeaters are presented in Table 2. Patients with repeated episodes were less likely to come by ambulance (148 patients [67.0%]) than those without (4785 patients [75.7%]). In addition, repeaters were more likely to be discharged within 3 days (171 patients [77.4%]) than nonrepeaters (4104 patients [64.9%]) with a proportional difference of −12.5% (95% CI=−17.6 to −6.4). There was no difference in proportions of patients receiving psychiatric consolation between repeaters (72 patients [32.6%]) and non-repeaters (1886 patients [29.8%]).

3.3. Costs of drug poisoning

The annual number of discharged patients was 37 200 in 2008 as estimated from information in the Patients Survey (Table 3). The median cost per episode was $1,776 in this study. The annual inpatient direct medical costs totaled $66 million (¥7.7 billion) in 2008 US dollar terms. The population aged 20–39 years account for 50% of these costs.

4. Discussion

There are four major findings from this retrospective cohort study of a nationally representative sample of inpatients with drug poisoning. First, we established that 33% of patients with drug poisoning were admitted to tertiary emergency care centers that provide tertiary emergency medical services for patients in serious condition rather than hospitals that provide secondary medical services

Table 2
Procedural differences between repeaters and non-repeaters during the index episodes

Characteristic	Repeaters (*n*=221)		Non-repeaters (*n*=6323)		PD (95% CI)[a]
	n	%	*N*	%	
Ambulance services	148	67.0	4785	75.7	−8.7 (−15.2 to −2.7)*
Admission to tertiary emergency care centers	88	39.8	2382	37.7	2.1 (−4.2 to 8.8)
Endotracheal intubation	28	12.7	705	11.1	1.5 (−2.3 to 6.6)
Blood purification therapy	2	0.9	117	1.9	−0.9 (−1.7 to 1.4)
Surgery	3	1.4	182	2.9	−1.5 (−2.5 to 1.1)
Length of stay ≤3 days	171	77.4	4104	64.9	12.5 (6.4 to 17.6)*
Psychiatric consultation	72	32.6	1886	29.8	2.8 (−3.2 to 9.3)

CI, Confidence Interval, PD, proportional difference.
[a] Differences in proportions between repeaters and non-repeaters during the index episodes.
* *P*<.05.

Table 3
Direct medical costs of drug poisoning

Age (y)	No. of discharged[a]			Median costs per hospitalization (US$ 2008)			Direct medical costs (US$ 2008)		
	Men	Women	Total[b]	Men	Women	Total[b]	Men	Women	Total[b]
12–19	1200	2400	2400	1372.84	1372.91	1372.87	1 647 407	3 294 972	3 294 893
20–29	2400	7200	9600	1837.93	1627.83	1695.66	4 411 041	11 720 377	16 278 308
30–39	2400	7200	9600	1868.65	1625.07	1702.62	4 484 766	11 700 537	16 345 137
40–49	1200	3600	6000	2056.07	1786.09	1834.01	2 467 283	6 429 930	11 004 042
≥50	1200	4800	8400	2100.37	1994.12	2040.57	2 520 446	9 571 779	17 140 811
Total[b]	9600	26 400	37 200	1936.77	1721.38	1776.63	18 593 003	45 444 358	66 090 722

[a] The estimated annual number of discharged patients are from the Patient Survey 2008 [23].
[b] The subgroup numbers may not add up to the total numbers due to considerable rounding errors.

[21]. However, only 2% of patients required blood purification therapy, only 3% required surgery, 65% were discharged within 3 days, and few (0.3%) died during hospitalization. Similar findings were reported by Heyerdahl et al. [25], who found that 381 (40%) of 947 inpatients with acute poisoning were treated in intensive care units, although the median length of stay was only one day. In addition, Schwake et al. [26] found that 244 (91%) of 269 inpatients with deliberate drug poisoning did not require advanced treatments in intensive care units. These results suggest that more patients with drug poisoning could be treated in hospitals that provide secondary emergency medical care rather than in tertiary emergency care centers.

Second, only 30% of patients with drug poisoning received psychiatric consultation during hospitalization in acute care hospitals. Over half (54%) of hospitals did not provide psychiatric consultations to any hospitalized patients during the study period. Our results might be explained by a lack of psychiatrists in acute care hospitals. Although the clinical guideline recommends that "all" patients presenting to emergency departments with self-harm should receive a specialist psychosocial assessment [27], psychiatrists are typically not available in acute care hospitals. Non-specialist staffs often lack the training to conduct detailed psychosocial assessments [28]. Because a specialist psychosocial assessment appears to be beneficial in reducing risk for repetition [29], mental health policy makers should make liaison psychiatrists available to provide training and support for non-specialist staff dealing with self-harm [30].

Third, our results suggest that repeaters were less likely to be admitted to hospitals by ambulance (67% vs. 76%) and more likely to be discharged within 3 days (77% vs. 65%) than non-repeaters. These results coincide with those reported by Taylor et al. [31], who found that repeaters were less sick medically as evidenced by their lower priority triage categories. One possibility is that patients with repeated episodes less frequently undertake dangerous drug poisoning. Although repeaters might have a less severe clinical course, they would have a higher risk of subsequent death by suicide [32]. Nevertheless, we found that only 33% of repeaters received psychiatric consultation.

Fourth, the annual economic burden of drug poisoning in Japan was $66 million (¥7.7 billion), and the population aged 20–39 years constituted 50% of these costs. This result suggests that policy makers and clinicians need to optimally allocate resources toward these populations and move to improve prevention strategies.

Despite these notable insights, our study had several limitations. First, the specific types of drug poisoning (i.e., deliberate, accidental, or undetermined intent) could not be described because they were coded with the same diagnostic code in the DPC/PDPS database. Although we included only emergency hospitalized patients aged 12 or above to maintain the focus on deliberate drug poisoning, some patients might be admitted due to accidental drug poisoning. Second, the repetition rate (3%) within 6 months may be underestimated because the health policy in Japan is based on free access to any hospital and we could identify only the same-hospital readmission rates within the study period in the database. Third, the coding of neuropsychiatric disorders and substances ingested in drug poisoning might be inaccurate in the database because patients have not been assessed using standardized diagnostic interviews or tests. Fourth, the current findings may not be generalized to patients treated in outpatient settings or in psychiatric hospitals. Finally, suicide completers who died outside of hospitals could not be identified in the database.

5. Conclusion

This study established that a significant proportion of drug poisoning patients are treated in tertiary emergency care centers and that most patients do not receive specialist psychosocial assessments. Patients aged 20–39 years impose a substantial economic burden. Collectively, these results underscore the need for optimally allocating resources and improving prevention strategies.

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Comparison of emergency hospital admissions for drug poisoning and major diseases: a retrospective observational study using a nationwide administrative discharge database

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ABSTRACT

Objective: To compare the clinical and procedural characteristics of emergency hospital admissions for drug poisoning and major diseases.
Design: Retrospective observational study.
Setting: Discharged patients from 855 acute care hospitals from 1 July to 31 December in 2008 in Japan.
Results: There were a total of 1 157 893 emergency hospital admissions. Among the top 100 causes, drug poisoning was ranked higher in terms of the percentage of patients using ambulance services (74.1%; second) and tertiary emergency medical services (37.8%; first). Despite higher utilisation of emergency care resources, drug poisoning ranked lower in terms of the median length of stay (2 days; 100th), percentage of requirement for surgical procedures (1.7%; 91st) and inhospital mortality ratio (0.3%; 74th).
Conclusions: Drug poisoning is unique among the top 100 causes of emergency admissions. Our findings suggest that drug poisoning imposes a greater burden on emergency care resources but has a less severe clinical course than other causes of admissions. Future research should focus on strategies to reduce the burden of drug poisoning on emergency medical systems.

ARTICLE SUMMARY

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INTRODUCTION

A better understanding of epidemiology in emergency medical services (EMS) is important for planning EMS resource use and EMS personnel training needs.[1] Drug poisoning is a major cause of admissions to acute care hospitals and places a considerable burden on EMS resources. Drug poisoning accounts for over 15% of all admissions to intensive care units.[2 3] However, most cases of drug poisoning do not result in clinical toxicity. Of patients with drug poisoning admitted to an intensive care unit, 91% do not require advanced treatments.[2] Over 75% of patients admitted to emergency

departments can be released from medical observation after a brief period (ie, 1–2 days).[4–6] Less than 1% of cases result in mortality.[7 8] These previous studies suggest that drug poisoning may impose a needless burden on high-level EMS despite their limited requirements for advanced treatments.[2 9]

Although a number of studies have examined the detailed epidemiology of drug poisoning,[2–8] only a few multicentre studies have compared resource use and clinical course of emergency hospital admissions.[10–12] It remains unknown as to whether drug poisoning imposes a greater burden on emergency care resources and has a less severe clinical course among major causes

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of admissions. We thus aimed to compare the clinical and procedural characteristics of emergency hospital admissions for drug poisoning and major diseases by using a nationwide administrative discharge database.

METHODS

Data source

We conducted an observational study using the nationwide discharge administrative database of the Diagnosis Procedure Combination/Per-Diem Payment System (DPC/PDPS), a Japanese case-mix classification system launched in 2002 by the Ministry of Health, Labour and Welfare of Japan.[13] Every year, the DPC Research Group conducts a survey of DPC/PDPS hospitals. In 2008, 855 of 1558 DPC/PDPS hospitals voluntarily participated in the survey. The DPC/PDPS database includes clinical and procedural information on *all* inpatients discharged from the participating hospitals between 1 July and 31 December. All the data for each patient were recorded as discharge. The database includes 2.86 million admissions, representing approximately 40% of all inpatient admissions to acute care hospitals in Japan (excluding psychiatric and tuberculosis hospitals).[14] In the present study, we included all emergency hospital admissions and excluded planned admissions to the DPC/PDPS hospitals.

Setting

In Japan, the EMS system is divided into three categories:[15] (1) primary EMS that provides care to patients who can be discharged without hospitalisation; (2) secondary EMS that provides care to patients who require admission to a regular inpatient bed and (3) tertiary EMS that provides care to severely ill and trauma patients who require intensive care. In 2008, there were 18 892 clinics and 963 hospitals for primary EMS, 3053 hospitals for secondary EMS, and 214 hospitals for tertiary EMS.[14] In the present study, we focused on secondary and tertiary EMS rather than primary EMS, because the DPC/PDPS database is an inpatient database. Among the 855 participating hospitals in the DPC/PDPS database, 725 provide only secondary EMS and the other 130 provide tertiary EMS. Although some of the participating hospitals also provide primary EMS, data on emergency outpatient admissions are not included in the database.

Clinical and procedural characteristics

To describe clinical and procedural characteristics of emergency hospital admissions, we used the following study variables: (1) age; (2) gender; (3) major disease categories; (4) comorbidities at admissions; (5) level of consciousness assessed by the Japan Coma Scale (JCS);[16] (6) use of ambulance service; (7) use of tertiary EMS; (8) requirement for surgical procedures that include both major surgery and suturing in an emergency department; (9) length of stay (days) and (10) inhospital mortality. Physicians recorded information on diagnoses using the International Classification of Diseases 10th revision

(ICD-10) codes. According to the ICD-10 codes, 506 major disease categories were defined in 2008 (see online supplementary table S1). In the database, patients with drug, chemical and unspecified poisoning (ICD-10 codes T360–T509, T510–T659 and T887, respectively) have the same major disease code (disease code 161070). In the present study, we modified the disease code to separate drug poisoning (modified disease code 161070a) from chemical and unspecified poisoning (modified disease code 161070b) according to their ICD-10 codes.

In the database, up to four diagnosed comorbidities per patient were recorded. Using the criteria developed by the Global Burden of Disease study with some modifications,[17] we defined comorbid status of mental illness as being diagnosed with any of the following ICD-10 codes: unipolar depressive disorders (F32–F33); bipolar affective disorder (F30–F31); schizophrenia (F20–F29); alcohol use disorders (F10); drug use disorders (F11–F16 and F18–F19); post-traumatic stress disorder (F431); obsessive-compulsive disorder (F42); panic disorder (F400 and F410) or insomnia (F51).

Statistical analyses

First, we conducted univariate analyses to summarise the clinical and procedural characteristics of all emergency admissions. Second, we selected patients diagnosed with one of the top 100 major disease codes and calculated summary statistics of 8 variables by disease code. These variables were as follows: (1) percentage of patients aged 65 years or older; (2) percentage of patients comorbid with mental illness; (3) percentage of patients admitted to hospitals with deep coma (JCS scores ≥100, corresponding to scores of ≤7 on the Glasgow Coma Scale);[16] (4) percentage of patients using ambulance services; (5) percentage of patients using tertiary EMS; (6) percentage of patients requiring surgical procedures; (7) median length of stay and (8) percentage of inhospital mortality. To maximise interpretability, we restricted this analysis to patients with 1 of the top 100 causes of admissions. We used a predictive principal component analysis (PCA) biplot to reduce the dimensionality of multivariate data (ie, 100 causes of admissions×8 variables) and then to visualise two dimensions with minimal loss of information.[18] Before conducting the predictive PCA biplot, we standardised each variable with a mean of 0 and a SD of 1 because the measurement units of 8 variables were incommensurable. In the predictive PCA biplot, the 8 variables were represented by 8 biplot axes to read off predictive values of the variables for each of the top 100 causes. All statistical analyses were performed with R version 2.14.1[19] The predictive PCA biplot was performed using the BiplotGUI package under R.[19]

RESULTS

Characteristics of all emergency hospital admissions

During the study period, there were a total of 1 157 893 emergency hospital admissions to 855 hospitals. Characteristics of these admissions are presented in

table 1. The majority (51.7%) of admissions were for patients aged ≥65 years. Patients aged 0–14 years accounted for less than one-sixth (15.3%) of the admissions. The most prevalent diagnosis was pneumonia, accounting for 10.2% of all admissions, followed by stroke (5.5%) and heart failure (2.8%). Drug poisoning ranked 41st among causes of admissions. Less than 5% of patients used tertiary EMS. Of those patients, 88.3% stayed for more than 3 days. About 7% of patients died during hospitalisation.

Comparison of drug poisoning and major diseases

The top 100 causes of admissions covered 83% (965 749 admissions) of all admissions. Characteristics by cause of admission are shown in table 2 for the top 10 causes and drug poisoning; the top 100 causes are also shown in online supplementary table S1. The predictive PCA biplot with two dimensions accounts for 62.9% of the variance in the data from the top 100 causes. The predictive PCA biplot revealed that drug poisoning was in a unique position (figure 1). Among the top 100 causes, patients with drug poisoning were less likely to be aged ≥65 years (13.4%; 86th) and most likely to be diagnosed with mental illness (33.7%; first). In addition, patients with drug poisoning were more likely to be admitted to hospitals with deep coma (26.2%; second), more likely to use ambulance services (74.1%; second) and most likely to use tertiary EMS (37.8%; first). Despite the higher utilisation of emergency care resources, clinical course of drug poisoning was less severe. Among the top 100 causes, patients with drug poisoning had the shortest median length of stay (2 days; 100th), were less likely to require surgical procedures (1.7%; 91st), and were less likely to die during hospitalisation (0.3%; 74th).

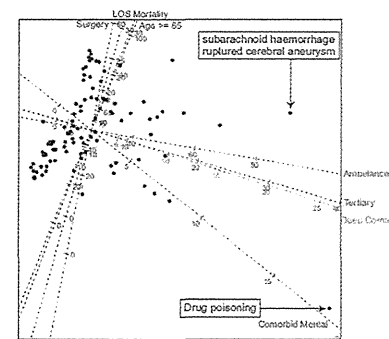In terms of the percentage of patients admitted to tertiary EMS, subarachnoid haemorrhage and ruptured

Figure 1 The predictive principal component biplot on data from the characteristics of the top 100 causes. Each dot represents one of the causes. Eight axes are positioned and calibrated so that the orthogonal projection of a dot onto an axis 'predicts' as best as is graphically possible the value of the corresponding disease on the corresponding variable. Ambulance, ambulance services; LOS, median length of stay; mortality, inhospital mortality; surgery, surgical procedures; tertiary, tertiary emergency medical services.

cerebral aneurysm (disease code 010020) ranked second (30.3%; 2nd; see the 46th row in online supplementary table S1). Patients with subarachnoid haemorrhage and ruptured cerebral aneurysm were most likely to be admitted to hospitals with deep coma (33.9%; first) and most likely to use ambulance services (76.0%; first). They had a longer median length of stay (28 days; 4th), were more likely to require surgical procedures (73.2%; 11st) and were more likely to die during hospitalisation (26.9%; 9th).

DISCUSSION

To our knowledge, this is the first study that used a nationwide administrative discharge database to compare detailed clinical and procedural characteristics of emergency hospital admissions for drug poisoning and major diseases. We found that drug poisoning was unique among the top 100 causes of emergency admissions. Patients with drug poisoning had a less severe clinical course than those with other causes, although they had higher utilisation of emergency care resources. Our findings suggest that drug poisoning imposes a higher burden on emergency care resources than other causes of emergency admissions.

Our results are consistent with those of a case–control study conducted in Australia and New Zealand.[10] That study found that the median length of stay in patients with drug poisoning was 3 days, which was much lower than the overall median length of stay (9 days) in

patients with one of the eight most common diagnoses in a tertiary intensive care unit. One possible explanation for the potential over-utilisation of high-level EMS resources is that staff with significant experience in psychosocial assessment might be more available in high-level EMS facilities. In Japan, 85% of tertiary EMS hospitals have psychiatric departments, while 23% of secondary EMS hospitals are so equipped.[14] Because most patients with drug poisoning have attempted suicide,[20] and self-harm patients should receive a specialist psychosocial assessment according to the clinical guideline,[21] patients with drug poisoning are transferred to high-level EMS in which mental health specialists are more available.

Another explanation for the potential overutilisation may relate to difficulties that confront ambulance officers. First, staff in secondary EMS hospitals might decline to manage patients with drug poisoning. A survey conducted in Osaka city revealed that ambulance officers contacted more hospitals to transport patients with drug poisoning than all patients (average number of contacted hospitals: 7.6 vs 1.8, respectively).[22] Second, ambulance officers might transport patients with drug poisoning to high-level EMS because of their deep coma. Drug poisoning ranked within the top two in terms of the percentage of patients with deep coma and percentage of patients admitted to tertiary EMS. However, patients with drug poisoning had a less severe clinical course than those with other causes. For example, in terms of the percentage of patients admitted to tertiary EMS, drug poisoning ranked first, followed by subarachnoid haemorrhage and ruptured cerebral aneurysm, which had a much more severe clinical course than drug poisoning. It would be of great value to investigate triage tools predicting the need for advanced treatments based on information not only from early admission factors,[23] but also from prehospital factors.[24]

Our study has several limitations. First, our results cannot be generalised and are limited to inpatient admissions to acute care hospitals rather than emergency outpatient admissions or emergency admissions to psychiatric hospitals, because we used the DPC/PDPS database. Second, we were unable to evaluate variables not included in the DPC/PDPS database. As a result, we could not assess other potentially important factors predicting the need for advanced treatments, such as acute physiology and chronic health evaluation scores at admission[23] or clinical management and course during prehospital period.[24] Third, we included all types of drug poisoning (ie, deliberate, accidental and undetermined intent) as in a previous study,[7] because data on external causes (ICD-10 codes V01–Y98) are not recorded in the DPC/PDPS database. As a result, we could not distinguish between deliberate and accidental drug poisoning. Fourth, although the database included approximately 40% of all inpatient admissions in Japan, participation in the survey was voluntary for each

Table 1 (heavily degraded — contents illegible)

hospital and the patient selection procedure was not based on a random sampling technique from all acute hospitals.

In conclusion, we have demonstrated that drug poisoning is unique among the top 100 causes of emergency admissions. Future research should focus on strategies to reduce the burden of drug poisoning on emergency medical systems.

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Comparison of emergency hospital admissions for drug poisoning and major diseases: a retrospective observational study using a nationwide administrative discharge database

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Notes

植え込み型除細動器の頻回作動と精神的ケア

鈴木　豪[*1]　志賀　剛[*1]　萩原　誠久[*1]

要　約

植え込み型除細動器（ICD）は心臓性突然死を予防する最も有効なデバイスであるが、そのショック作動や体内異物挿入といった観点から症例によっては心理的負荷や生活の質（QOL）に与える影響も無視できない問題である。ICD使用患者における抑うつや不安の報告や研究は多くある。しかし臨床の現場や救急医療の中で、医療者がいつ、どのような介入を行うべきか、さらにはすべての症例に介入が必要なのか、どういった症例に介入をすべきなのかといった疑問を解決することは難しいのが実情である。本稿では以下について検討したい。①ICD使用患者における心理的負荷には何がありどの程度存在するか。抑うつと不安についての考察。②そういった問題はいつまで継続するのか、作動と関連し長期間継続する症例が高頻度に存在すること。③急性期と慢性期での介入のポイントは何か：急性の鎮静、抗不安治療と慢性期の薬物療法および認知行動療法について。

はじめに

ICD（Implantable cardioveter defibrillator；以下ICD）は基礎心疾患を有し、致死性不整脈を有する低心機能症例に対して、生命予後を改善させる最も有効なデバイスである。

しかしSearsらによるとICD使用患者の24～87％の患者にうつや不安が見られ、13～38％は臨床上困難な不安を抱えていると報告している[1]。

われわれの自験例からの報告でもICD使用患者のうち32％は抑うつの状態であり、抑うつ傾向であった症例は2年の時間経過後も、その75％は抑うつが維持されていた。その維持にはICDのショック作動が関連していると考えられた[2]。

ICDの作動自体が循環器疾患の予後悪化因子であることが報告されている[3, 4]。

またわれわれは入院患者における精神的問題の解析から、抑うつとICDなどの植え込みデバイスはおのおのが独立した心血管イベントの予後悪化因子であることを報告した[5]。

以上をまとめると、ICD使用患者は

①循環器疾患全体で考えた場合でも予後不良群である。

②高頻度に精神的問題を包含し得る対象群であり、かつ急性期のみならず慢性期にも精神的問題が持続し得るという認識が必要である。

ICD使用患者の抑うつや不安を維持させる要因には作動以外にも、家族のサポートや患者の年齢、性格傾向もあげられ、それらが複雑に絡み合い、症例によっては医療者の介入が困難なケースにも遭遇する。

ICD使用患者や作動を契機に入院となった患者にどのような対応を行うべきか検討してみる。

以下に症例を提示する。頻回作動を契機に入院した症例である。この症例の治療には長い入院期間を要しているが、実際の救急医療の中でここまで時間を懸けることは困難であることが予想される。しかしながら、ICD患者の遭遇する問題点が集約されており、症例提示ののち、まとめとして、医療現場で応用ができる内容について述べてみたい。

症例提示

53歳の男性。臨床診断は肥大型心筋症、心室頻拍、高血圧症である。動悸を主訴に受診した。心電図にて心拍数180/minの持続性心室頻拍を確認され電気的除細動にて洞調律に回復した。精査の結果、肥大型心筋症の診断となった。心室頻拍に対してはカテーテルアブレーションを試みたが、心外膜起源のため断念し、ICD植え込みを行い薬物療法はEnarapril 2.5 mg、Carvedilol 20 mgとし退院となった。しかし2ヵ月後、飲酒後にICDが初回作動し、その3日後ICD頻回作動となったため緊急入院となった。

心理社会的背景としては、独身男性。独居である。学歴は高校卒業であり、職業は会社員である。

循環器的治療としては、カテーテルアブレーションが困難なVTであり薬物療法の強化が必要であった。β遮断薬変更（atenolol 100 mg）およびアミオダロンの導入を行い不整脈の減少を認めた。しかし入院経過中も入浴中に作動があり、抑うつ、不安の増強が見られたため、薬物療法として精神科医と協議した上でLorazepam 1 mgを導入した。

入院後2ヵ月の時点ではほぼ心室頻拍は抑制されたが、患者の発作、作動に対する恐怖が強くADLの拡大が得られず退院が困難な状態となった。

患者の予期不安、作動に関する恐怖が強く、臨床心理士と精神科医と協議を行った。精神科的診断はICD作動に関連した不安障害であり、抗不安薬からSSRIの変更および認知行動療法（以下CBT）の導入の方針とした。

医師、看護師が週1回のカンファレンスを臨床心理士とともに行った。心理士の指導のもと、主に看護師による介入を病棟で行い1ヵ月のプログラムを施行した。

1. 問題点の整理

いつどこで作動が起こるかわからないという予期不安から一人で行動することを避け（回避行動）、医療者の付き添いやモニターで発作が起こっていないことの確認を求める「安全確保行動」が出現した。さらに作動について考えると胸部不快感、胃のむかつきなどを自覚するという不安による身体化症状も出現していた。

2. 認知行動療法（CBT）の実施

不安日記を患者と医療スタッフで共有し、どのような場面で不安が生じるのかを記録（不安対象のセルフモニタリング）し、患者自身が不安を感じたときにどのように対処しているか（コーピング）にも注目した。ここであげられたコーピングを積極的に使用するように患者を励まし、行動拡大を進めていき、回避していた入浴や病棟外への散歩が可能になった（段階的な行動拡大の継続、リラクゼーションの導入）。CBT導入後、患者の回避行動は改善し、不安に対する対処法を獲得したことで退院に対する不安も改善した。

まとめ〜症例を通じて〜

今回提示した症例については強い予期不安と不安の身体化が強くみられた症例であり、退院困難な状態までの経験はわれわれも多くはない。そういった意味では本症例は薬物療法と心理療法などの非薬物療法までがすべて必要であった症例である。

臨床の現場では抑うつ、不安の程度はさまざまであり、すべての症例にこのような治療が必要となるわけではない。

それでは、どのような場合にいつ、どのような方法で介入が必要であるのかを述べてみる。

1. どのような場合に介入を考えるか？

Searsらによると、ICD患者の心理的危険因子は①若年、②社会的サポートが乏しい、③疾患による身体制約③ICD作動、⑤ICDそのものの受け入れが十分でないなどの要因があげられている[6]。

作動に関しては前述のわれわれの報告でも、頻回作動後に一定の頻度で作動を経験した例は長期にわたり抑うつが持続することが示された。植え込みからの期間は抑うつの持続には関連を認めなかった[2]。

したがって頻回作動を経験して入院した際には心理的負荷についてのアセスメントが望ましい。

2. いつ介入すべきか？

（a）植え込み前

植え込み型デバイスを使用する患者に対して，事前の説明は患者の device acceptance を決定するという観点から極めて重要である。要旨は突然死の回避というメリットのみならず，誤作動の可能性やデバイス感染のリスク，作動の種類とプログラミングの内容などを十分に説明する必要がある。また退院後に重要になる作動時の対応も重要である。病院への連絡や家族の対応の仕方を説明する。

近年は自宅で作動状況やリードトラブルなどを監視するホームモニタリングシステムが拡充しつつある。

ICD 使用患者に対する最も早期の介入は植え込み前の十分な説明である。

（b）植え込み後

本稿での ICU や CCU で遭遇する場合のケースは植え込み後の頻回作動症例が多いと思われる。

上記リスクに準じ，作動頻度が多い例やとくに CRTD 適応の慢性心不全の症例は心不全の重症度による抑うつが見られることがあり，両者を満たす場合は心理的負荷にも十分注意が必要である。

作動を契機に入院した場合，介入するタイミングは頻回作動を脱したとき，すなわち最低でも約3日間の作動がない，つまり不整脈の不安定状態を脱した後に ICD の作動に関連した抑うつ，予期不安などの評価を行うことが望ましいと考える。

3. どのような方法で心理的負荷の評価を行うか？

抑うつや不安に関しては各種の自己評価スケールがあり参考になる。代表的なスケールとして抑うつには SDS（Self Rating Depression Scale），BDI（Beck Depression Inventory），PHQ-9（Patient Health Questionnaire），不安については STAI（State Trait Anxiety Inventory）また HADS（Hospital Anxiety Depression Scale）は抑うつと不安の両者の評価が可能である。

また ICD 患者によく見られる不安，行動として例示にも見られたように以下のものがあげられるので参考にされたい。

①予期不安（次にまた作動するかも知れないという不安）

②避行動（作動があった場所や場面を避ける）

③空間恐怖（エレベータで作動すると乗れないなど）

これらの訴えが強く生活の質を損ねると考えられた場合は臨床心理士やリエゾン科への紹介を考慮する。

上記の反応は多かれ少なかれすべての患者にあるとも考えられるが，通常は作動がなく経過する場合は時間とともに改善していくことが多い。

しかし一定の作動がある場合や，予期不安が強く退院困難や退院後の QOL を著しく損ねると考えられた場合は介入が必要である。

4. 介入の方法は何か

介入の方法は本例のごとく薬物療法や認知行動療法などの方法がある。

（a）薬物介入

ICD 作動や不整脈発作に伴う不安の増強，抑うつ状態は心身症としての急性反応であり，急性の反応に対処するためには薬物療法が有効である。ベンゾジアゼピン系抗不安薬などは短期間での不安を緩和させるには有効な薬剤である。

SSRI は効果発現までに時間を要するため，作動急性期には即効性の期待できるベンゾジアゼピン系抗不安薬を使用し，継続して薬物療法が必要な持続する抑うつには SSRI の有効性が期待される。

（b）心理療法

認知行動療法の基本は，不安対象の具体化（セルフモニタリング）と不安を感じた際の対応（コーピング）を把握し，緊張緩和のためのスキルを獲得しながら段階的に行動の拡大を図る（エクスポージャー）ことである。不安や抑うつ，パニック症状は薬物療法で緩和が期待できるが，予期不安そのものは薬物療法で改善が難しいため認知療法が症例によっては有効であると考えられる。

看護師を中心に治療を行い，チーム医療で患者に対する包括的な関わりをもつことで，不安に対する対処法や行動変容のスキルを患者自らが獲得することが可能となる。

ICD 症例における CBT の有用性の報告が散見される[7~9]。

このような心理療法の導入には循環器内科と精神科医または臨床心理士との密な連携が非常に重要である。

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心臓疾患患者の不安とそのマネジメント*

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Key Words：heart disease, anxiety, psychological interventions, cognitive behavioral therapy

はじめに

　心臓疾患は，生命や日常生活に直接的に影響を与える疾患であり，身体だけでなく心にもさまざまな影響を及ぼすといわれている．世界精神保健機構(WHO)によると，心臓疾患患者はそれ以外の人に比べ気分障害，不安障害を併発する危険性が高いことが示されている[1]．さらに，心臓疾患患者がこれらの精神障害を併発することで，再入院率や死亡率が上昇することも明らかにされている[2]．これらの知見が明らかになるにつれて，心臓疾患患者の不安や抑うつを含めた精神的な問題に対する治療やケアの必要性が指摘されるようになってきた．実際，心臓疾患患者にかかわる医療者が患者の心理的支援を視野に入れていることは言うまでもない．しかしながら，日々の臨床において心臓疾患患者にかかわる医療者は，患者の心理面へのかかわりに苦慮している．これは，心臓疾患に伴う不安症状の特徴，循環器科の治療環境，他職種との連携の難しさが複雑に絡み合っているからである．

　本稿では，心臓疾患患者の不安を概観し，心臓疾患患者の不安に対するマネジメントについてメンタルケアシステムの構築と具体的な介入方略の視点から考察する．

心臓疾患患者の不安の特徴

　近年，心臓疾患患者の心理的問題は，うつ病に焦点が当てられ，死亡率，再入院率との関連やQOLへの影響が研究されてきた．しかし，不安も多くの心臓疾患患者が経験する心理的問題であり，うつ病をはじめとする重篤な精神疾患の前駆症状となることが少なくない．

　心臓疾患は，急性期症状と慢性期症状を繰り返し経験する疾患である．疾患の病態と重症度にもよるが，急性期には，突然の発作や急性増悪によって強い苦痛や死の恐怖を感じる．これらの経験によってPTSDやパニック障害をひき起こす患者もいる．一方，慢性期の患者は，心肺機能の低下や運動・食事などの制限によって日常生活機能や就労状態が大きく制約される．これらのことから患者は，予後への不安やイライラ，落ち込みなどのさまざまなストレスを経験することになる．このようなストレス症状は病態の改善とともに収束していくが，一部の患者においてはストレス症状はむしろ増大する方向に変化し，不安障害へと発展していく．以下にいくつかの心臓疾患を例にあげ，不安の特徴を述べる．

1．心不全

　心不全は，基礎心疾患の新規発症以降，改善と悪化を繰り返しながら，基本的には徐々に悪化していく病気である．心不全の疾病管理上，日常生活は大きく制約される．また，心不全の特徴は予後の予測が困難なことであり，患者は不確実な状態に適応することを迫られている．このような特徴を持つ心不全患者の40〜63％に不安が存在することが明らかにされ[3]，なかでもパニック障害は，10人に1人という高い割合で併発するといわれている[4]．また，心不全患者が不安症状を呈することにより心イベントや再入院に影響を与えることが示されている[3]．

　わが国の知見としては，Makayaらが心不全による入院歴のある外来患者139名を対象に，抑うつ，不安，ソーシャルサポートの程度を評価し，評価後1年間の再入院との関連を検討した．その結果，37％に不安症状を持つ患者を認め，不安症状とソーシャルサポートは1年後の再入院率と有意に関連することを明らかにしている[5]．

2．不整脈

　非致死性不整脈の一つである心房細動は，日常生活の中で予期せぬ不整脈発作をたびたびひき起こす．このような予期せぬ不整脈発作の経験が患者の不安を誘発し，増大させていく．さらに，これらの不安が自律神経系，内分泌系を介して循環動態に強く影響し，さらなる不整脈発作を起こすという悪循環を形成する．Suzukiら[6]は，発作性心房細動患者の約3割が不安障害の一つである広場恐怖の診断に合致することを示した．このような強い不安は，患者の生活状態を悪化させる大きな要因となっている．発作の頻度やその苦痛度は患者のQOLを直接的に低下させるとともに，発作への不安や外出恐怖を強め，間接的にもQOLを低下させることが示唆されている．

3．植え込み型除細動器患者

　心臓突然死の原因となる心室細動や心室頻拍などの致死性不整脈に対する治療法の一つに，植込み型除細動器(implantable cardioverter defibrillators；ICD)の植込みがある．ICDは，生命予後を飛躍的に改善する一方でショック作動や胸痛や衝撃，恐れなどを招くといわれている[7]．系統的展望論文より，ICD患者の24〜87％が不安症状を呈することが示され，不安症状を呈する要因としては，ICD患者の死への恐れ，作動への恐れ，デバイスに対する依存心があると考えられている[8]．また，作動と破局的認知(たとえば，「次に作動が起きたら死んでしまうのではないか」といった認知[9])や抑うつ的な対処行動[10]と不安の関連も示されている．

心臓疾患と不安の関連

　心臓疾患が，パニック障害や社会性不安障害，全般性不安障害などの不安障害を併発させる可能性が高いことは示してきた．これらの不安は，患者の生活を脅かしQOLを低下させるだけでなく，冠動脈疾患の死亡率や心臓突然死の予測因子であることが報告されている．その生理学的なメカニズムの説明としては，不安を含む精神的なストレスが交感神経－副腎髄質系の活性化，凝固機能亢進，自律神経系の機能異常，サイトカインの分泌亢進などの状態をひき起こし，その結果，心泊数の増加，不整脈，心筋収縮力の低下作用などを招き，心負荷を増大させることが示されている．Kawauchiらの前向き観察研究によると，不安症状がない虚血性心疾患患者と比較し，不安症状がある虚血性心疾患患者は，心イベントが3.2倍，突然死のリスクが5.7倍になることが明らかにされている[11][12]．心臓疾患の症状および治療などは不安を生起させ，不安などの心理的問題が心臓疾患を悪化させる．さらに，心臓疾患が重症化することでさらに不安が重症化するというメカニズムが形成されることがうかがえる．すなわち，心臓疾患と不安は相互作用的に影響を及ぼし，悪循環を形成しているといえる．

心疾患患者の不安に対するマネジメントの問題点

　心臓疾患患者における不安は比較的頻繁に生じる問題であり，かつその問題が症状管理や予後，あるいはQOLに影響を及ぼすことが示された．このような現状の問題を解決するには，心臓疾患患者の不安に対して早期に適切なアセスメントを行い，サポートを提供することが重要

となる．しかしながら実際の臨床現場では，心臓疾患患者の不安のマネジメントの実施を困難にさせるいくつかの問題が存在する．

まず第1に，不安の身体症状には，頭痛やめまい，発汗などの交感神経刺激症状，動悸や胸部圧迫感，過換気などがある．これらは，心臓疾患の症状と重なるため，心臓疾患患者の不安障害は重症になるまで見過ごされやすいということがある．第2に，不安を呈するすべての心臓疾患患者が精神科的対応や心理療法などの専門的ケアを必要とする状態であるわけではない．むしろ，多くの場合は病棟や外来の日常診療の中で対応可能なレベルであり，また，心臓疾患患者の治療とリンクしたメンタルケアを実践することが，患者のニーズに応えることにもつながる．しかしながら，循環器を専門とする医療者にとって不安を呈する患者は，「依存的，情緒不安定で焦燥感が強くて抑制が効かない，対応が難しい患者」とレッテルを張られ，不安に対する適切な対応につながらないことがある．第3に，多忙な日常診療の中で，メンタルケアを専門としない医療者が不安を呈する患者に対応する際，医療者自身が患者の不安状態に巻き込まれ，患者以上に疲労困憊してしまうことである．このような状況では，十分な患者理解に至らない．最後に，専門的な精神的支援が必要な場合に，専門家との連携や協働システムが十分に機能していない点があげられる．心臓疾患患者の中には，精神的支援を受けることに抵抗を持つ者も多い．また，循環器領域の医療者が，専門家による精神的支援の重要性や必要性を理解していないために，連携や協働のタイミングが遅れるという問題が生じることもある．

心疾患患者の不安マネジメントの方向性

1．メンタルケアシステムの構築

上述した問題を解決し，心臓疾患患者の不安に対する適切な介入を行うためには，心臓疾患患者のメンタルケアシステムを構築し医療者間で共有することと，そのシステムの中で個々の医療者が患者の不安に対して具体的に介入することが必要である．心臓疾患患者のメンタルケアシステムは，病院の規模や存在する医療者数

と職種によって異なった形となる．重要なことは，それぞれの施設が理想的なメンタルケアシステムではなく，現実的で実施可能なシステムを構築し，医療者間でシステムの存在を共有することである．

どのようなメンタルケアシステムが構築されようとも共通した介入基盤は，「患者の理解と信頼関係の構築」を土台とした「日常診療における支援」と，そのような日常診療レベルでのメンタルケアでは対応できない重篤な患者に対する「精神科との連携を含めた精神医療チームにおける専門的ケア」である．両者をすみ分けし，機能的に活用していくことが重要である．

2．不安に対するマネジメントの実際

心臓疾患患者の不安のマネジメントは，メンタルケアシステムの構築だけではなく，システムの中で実施される具体的な介入方略も重要である．以下に，心臓疾患患者の不安に対する効果的な介入方略として検討されているものをあげる．

a．情報提供と信頼関係の構築

心臓疾患患者の不安は，多くの場合，自分の病状や治療あるいは今後の見通しなどの医療にかかわる事柄に関連して生じていることが多い．したがって，患者が抱えている問題を医療者が理解し，可能な情報提供や具体的な対応方法の指導を行うことで，患者の不安が大きく軽減される場合が決して少なくない．このとき医療者は，患者に対して適切かつ正確な情報を提供し，それに基づいた意思決定をしてもらうことが重要となる．近年，患者－医療者コミュニケーションを円滑に進める要因として，「患者の健康問題について正しい知識を得て，それらを適切に活用する能力（ヘルスリテラシー）」が注目を集めている．たとえば，アメリカ心不全学会のガイドラインでは，心不全患者に情報提供を行う際に，患者のヘルスリテラシーを考慮することを推奨している[13]．適切な情報提供は患者との信頼関係の構築につながるため，医療者は患者の属性や生活状況，環境も踏まえて患者が必要な情報のターゲットを絞り込むとともに患者のヘルスリテラシーを見極め，その能力に合わせた対応を行うことが求められる．

b．身体症状の緩和

心臓疾患患者の不安は身体症状と相関することが多いため，身体疾患に対する治療とケアは不安に対する有効なマネジメントである．しかし，心臓疾患患者の場合，身体疾患に対する治療やケアに限界があり，身体症状の改善や生活上の制限の緩和に至らないことがある．このような場合には，以下のc～eの介入を同時に行っていく必要がある．

c．ストレス管理，リラクセーション

心臓疾患患者は，疾患そのものによるストレス反応のみならず，日常生活上の制限からもストレス反応を生じやすい．そこで，ストレス管理と不安や緊張を軽減する生活指導が有効であるといわれている．その一つとして，リラクセーション法の指導があげられる．リラクセーション法は，循環器科の医師や看護師が比較的簡単に指導できる技法である．このリラクセーション法にはいくつかの方法が存在するため，患者の状態に合わせた方法を選択し指導することが必要となる．患者はリラクセーション法を実践することで，自律神経系や筋緊張などの身体の状態をある程度コントロールすることができるようになる．

d．電話相談

不安を含めた心理的問題を抱える心臓疾患患者に対する効果的な介入として，医療者による電話相談が実施されている．たとえば，Dougherty ら[14][15]は，ICDを新たに植え込む患者を対象に，身体機能と心理的適応の向上を目的とした電話相談を用いた看護介入プログラムを提供した．ICD植込み患者の体験談などが乗った小冊子が配られ，植え込み後8週間，エキスパートの循環器看護師による電話相談が提供された．1,3カ月後に評価した結果，ICD植え込み後，一般的にみられる身体症状が減少し，不安症状の改善が認められた．同様の介入で6,12カ月後に評価した結果でも，不安スケールで改善が認められたことが明らかにされた．

e．心理教育と認知行動療法

心理教育は，心臓疾患患者に対する多くの心理的介入プログラムにみられる方法であるが，心理教育のみの介入では心理状態およびQOLの

改善が認められていないことが示されている[16]．たとえばKuhl[17]は，ICD植込み患者を対象に認知行動療法に基づく心理教育を実施した．その内容は，コービング，感情，人間関係，デバイス機能についてのトピックスや深呼吸のデモンストレーションがあり，患者が個々の状況に合わせて学習するプログラムであった．1カ月後評価の結果，不安およびQOLのスケールで有意差は認められなかった．

一方，認知行動療法は心臓疾患患者の不安症状に有効な支援であることが明らかにされている．特に認知行動療法は，ICD植込み患者の心理状態の改善，ICD植込みに関連した不安の軽減が期待できる方略の一つと考えられている．Sears ら[8]は，少なくとも1回のICD作動を体験した患者を対象に，心理的状態およびQOLの改善を目的とした6週間の認知行動療法プログラムを提供した．週1回90分のグループセッションを実施し，内容はICDに関する患者教育，リラクセーションとストレスマネジメントトレーニング，認知行動療法，ソーシャルサポートからなる．4カ月後の結果では，不安とQOLに効果が認められた．また，ICD植込み患者に限らず，「このまま死んでしまうのではないか」という不安が強い患者や，「もう，今までのような生活ができない」と漠然とした不安を持つ患者など精神症状が重篤であり，継続的なケアが必要な患者には認知行動療法の適応がよい方略である．このような患者に対しては，患者の不安の特徴とその形成・維持・増悪の心理メカニズムについての心理教育を行うとともに，症状の改善のためにどのような対応が必要であるかという認知行動療法の概要についての説明が行われる（心理教育セッション）．次に，患者の症状およびその経過を詳細に把握するためのヒアリング，生活場面における症状の記録（セルフモニタリング）を通して，不安症状の変化の特徴についての自己理解を促す．さらには，各種心理検査を実施し，詳細な状態把握へとつなげていく（アセスメントセッション）．そして，このようなアセスメントによって得られた患者の情報について病棟スタッフや心理士が意見交換をしながら患者の状態像を整理し，介入を立案，実施していく．基本的な介入は，

①不安コントロールスキルの習得，②不安場面（不安がひき起こされる状況）の整理，③不安場面における対処法の検討，④不安場面への段階的接近，⑤成功体験の蓄積と不安に関連した過剰な考え方の修正というプロセスを繰り返し行いながら活動性を向上し，日常生活への自信を取り戻していくという手順で行われる．

おわりに―心臓疾患患者の不安症状に対する今後の課題―

本論では，心臓疾患患者が抱える不安の特徴を概観した上で，不安に対するマネジメントをメンタルケアシステムの構築と具体的な介入方略の視点から紹介した．これまで心臓疾患領域では，さまざまなテクノロジーや医療技術を駆使した先端医療の発展が進み，患者の生命予後を改善してきた．そして近年，これらの治療が患者に新たなストレスや心理的な問題を生み出していることが明らかにされ，心臓疾患と抑うつに関する研究が急速に進められた．しかし，不安を呈する心臓疾患患者も数多く存在し，不安もまた心臓疾患患者のQOLや心疾患の予後に影響を与えている．今後は，心臓疾患患者に対するメンタルケアシステムの構築と効果的な介入方略の検討が期待される．

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特・集━━━━━━━━━━新しい観点からみた循環器疾患の心身医療

循環器心身症への認知行動療法：
不安・抑うつのマネジメントを中心に

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はじめに

日本心身医学会 (1991) の定義によると、「心身症とは、身体疾患のなかで、その発症や経過に心理社会的因子が密接に関与し、器質的ないし機能的障害が認められる病態をいう。ただし、神経症やうつ病などの、他の精神障害に伴う身体症状は除外する」とされている。循環器疾患に関与する心理社会的因子に関しては、従来から情動ストレスが挙げられ、本態性高血圧、虚血性心疾患、本態性低血圧などへの影響が指摘されてきた。また、近年、不安と抑うつ症状が循環器疾患の発症、経過と予後に関連することが明らかにされている。たとえば、世界精神保健調査の報告では、循環器疾患患者は、それ以外の人に比べ、気分障害、不安障害を併発する危険性が高いことが示されている[1]。さらに、Prince et al. (2007) の研究では、精神疾患が冠動脈疾患のリスクファクターと関係があり、身体疾患の予後に影響を与えることが明らかにされている[2]。

これらの知見が明らかになるにつれて、循環器疾患患者の不安や抑うつ症状を含めた心理社会的問題に対する介入の必要が指摘されるようになっ

てきた。実際、アメリカ心臓病協会は、2008 年に改定したガイドラインにおいて、循環器疾患患者に対するうつ病のスクリーニングを日常業務として行うよう勧告をしている[3]。しかしながら、我が国では、循環器疾患患者が抱える不安および抑うつ症状などの心理社会的問題の現状やそれらの問題に対する介入方法の検討が乏しく、今後の課題となっている。そこで、本稿では、循環器疾患患者が抱える心理社会的問題を概観し、これらの問題に対する介入方略を認知行動療法の視点から考察する。

循環器疾患患者の心理社会的問題

循環器疾患は、疾患の病態と重症度にもよるが、突然の発作によって強い苦痛や死の恐怖を感じたり、心肺機能の低下や運動・食事制限などによって日常生活機能や就労状態が大きく制約されることがある疾患である。このことから、患者は、不安やイライラ、落ち込みなどさまざまなストレスを経験することになる。多くの患者の場合、これらのストレス症状は病態の改善とともに収束していくが、一部の患者においては、ストレス症状は

むしろ増大する方向に変化し、不安障害やうつ病へと発展していく。

たとえば、虚血性心疾患患者に関しては、精神的、肉体的ストレスが虚血性心疾患の発症に関わる要因であることが明らかにされている[4]。また、虚血性心疾患患者は、疾患の治療のために生活習慣の改善を余儀なくされ、新たなストレッサーに曝されることから、うつ病の発症リスクは、2.8 倍 (95％CI：1.9 〜 4.2) であることも明らかにされている[5]。

心不全患者は、その経過において、食事・水分摂取の制限や体重コントロールおよび生活活動範囲、さらに排泄に至るまで細かい日常制限がある。入院および治療の長期化は社会的接触を減少させ、疎外感を感じさせるようになる。また、長い闘病生活に伴う経済的負担も生じる。このような心理、社会、経済的ストレスに曝されることから、心不全患者のうつ病の罹患率は、21.5％と高い値を示している[6]。

さらに、不整脈患者に関しては、比較的生命予後がよいとされている心房細動患者であっても、予期せぬ発作を日常生活において繰り返し経験することが多いことから、患者の多くは、生活上の不安を強く感じている。特に発作性心房細動患者は、発作への不安や外出恐怖を強く感じており、CMI (Cornell Medical Index) において神経症傾向を示す者 (Ⅲ、および Ⅳ領域) が患者の約 3 割を占めることが明らかにされている[7]。このような患者の中には、平常時から不安を強く感じている、家に閉じこもりがちである、安心できる人が一緒でないと外出できない、不安の起こりそうな状況からの回避行動が習慣化している者も多い[8]。

心室頻拍などの致死性の不整脈を有する患者においては、治療として植込み型除細器(以下、ICD) の植込みが実施されるが、この治療は、心機能の回復や生命予後の改善において有益な治療法の 1 つとして確立される一方で、身体的、精神的な侵襲性が高い機器でもある。ICD は体内にデバイス

を植込むことに加え、電気ショックを発生させるため、胸痛や強い衝撃を伴い、患者に恐怖心を与える[9]。Sears et al.の展望論文によれば、ICD 患者のうち、24 〜 46％が抑うつ、24 〜 87％が不安のカットオフ得点を超えているとの知見も得られている[10]。なかには、ICD のショック作動の経験を契機に、フラッシュバックなどのストレス症状、作動が起きた場所や状況に対する回避行動が顕著となる症例も多く、外傷後ストレス障害 (PTSD) やパニック障害などの精神疾患を発症する可能性も高いことが報告されている[10,11]。

このように、循環器疾患患者が抱えるストレスおよび不安、抑うつ症状などの心理社会的問題は数多く存在し、循環器疾患の発症、経過や予後を左右する重要な因子であると考えることができる。

循環器疾患と心理社会的問題の双方向性

これまで、循環器疾患とその患者の心理社会的問題に関しては、心理社会的問題から循環器疾患に及ぼす影響性 (リスクファクターとして) について着目されることが多かった。具体的には、ストレス下において、交感神経、アドレナリン系を中心とした一連の反応により、血圧上昇、頻脈が認められる。さらに、情動ストレス→大脳皮質→視床下部→自律神経・内分泌系の経路により引き起こされる循環器系の影響として、高血圧、虚血性心疾患・低血圧などの疾患が注目されてきた。

しかし、先に述べたように、循環器疾患に罹患することによって引き起こされる心理社会的問題の存在も無視できない。つまり、循環器疾患の症状や治療がストレッサーとなり生起する抑うつ、不安症状などの心理社会的問題の存在である。これらの心理社会的問題は、患者の生活を脅かし、QOL を低下させるだけでなく、予後をさらに悪化させる。虚血性心疾患を例にあげると、情動ストレスが虚血性心疾患患者のリスクファクターであ
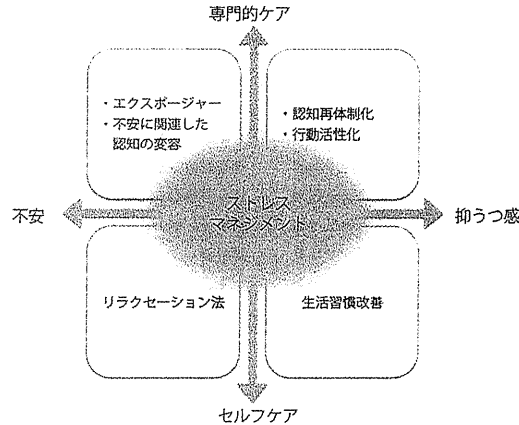
図1　循環器疾患患者の心理社会的問題に対する介入方略

るだけでなく，虚血性心疾患に罹患した患者は，それ以外の患者に比べ，うつ病の発症リスクが2.8倍となり，虚血性心疾患患者がうつ病を合併することにより，死亡率が2.3倍になることが明らかにされている[12]。同様に，ICD植込み患者においても，ICDショック作動の経験が，抑うつ症状および不安を引き起こすだけでなく，不安と抑うつ症状が不整脈を誘発し，作動を引き起こすことが明らかにされている[13,14]。

このように，心理社会的問題が循環器疾患を発症させ，循環器疾患の症状および治療などが心理社会的問題を生起させる。さらに，それらの心理社会的問題が循環器疾患を悪化させるというメカニズムが形成されている。すなわち，循環器疾患と心理社会的問題が相互作用的に影響を及ぼし，悪循環を形成しているといえる。

循環器疾患患者の心理社会的問題に対する介入方略

循環器疾患と心理社会的問題との悪循環を断ち切るためには，患者が抱えるさまざまな心理社会的問題に適切かつ具体的な介入方略を実施することが必要である。これまで，認知行動療法は，日常生活の多くの問題の解決に幅広く用いられ，効果を示してきた。そこで，以下に，このような循環器疾患患者のさまざまな心理社会的問題に対して実施される認知行動療法を基盤とした介入方略を紹介する。

図1は，循環器疾患患者の心理社会的問題に対する介入方略を示したものである。横軸には，循環器疾患患者における心理社会的問題の内容を不安と抑うつ症状に分けて設定した。不安と抑うつ症状に関しては，「脅威・嫌悪状況予測」が不安を引き起こし，「将来否定」が抑うつ気分を起こすことと示されている[15]。たとえば，不整脈患者のように「いつ発作やICD作動が起こるかわからない」など患者の脅威・嫌悪状況が明らかとなる患者は，不安が強く生起する。一方で心不全患者のように病態の改善と再発を繰り返す患者は，「いつ病状が悪化して生死をさまようかもしれない」と将来を否定的に捉えることから抑うつ症状を引き起こしやす
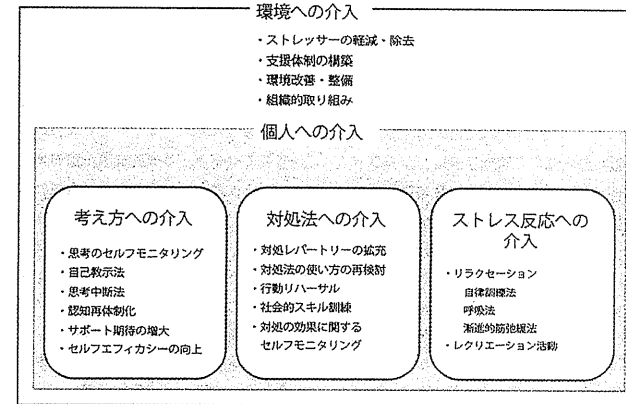
図2　ストレスマネジメントの構成要素

くなると考えることができる。

また，図の縦軸には「問題のレベル」を示している。循環器疾患患者が抱える心理社会的問題のレベルは，深刻な問題ばかりではなく，患者の誰もが抱くような一般的な不安やストレスにいたるまでさまざまであり，そのような問題に対してもきめ細かい対応を行っていくことが求められている。患者の問題のレベルに合わせた質の高いケアを実現するためには，「専門的ケア」と「セルフケア」をすみ分ける必要がある。

患者の介入方略については，まず，基盤となる介入としては，患者の心理社会的問題を生起させているストレスに対する「ストレスマネジメント」が考えられる。一方，「専門的ケア」としては，不安の強い患者に対するエクスボージャーや不安に関連した認知の変容などの認知行動的アプローチが有効であり，抑うつ症状の強い患者に対しては，行動活性化法や認知再構成などのアプローチが必要であろう。また，ケアの主体をどこにおくかという視点から言えば，上記の「専門的ケア」に対して，患者に主体をおく「セルフケア」が挙げられ，

不安に対するリラクセーションと抑うつ症状が引き起こすスキル低下の影響を改善するための生活習慣改善アプローチが方略としてあげられる。これらの介入方略は，単独で用いるのではなく，患者の状態に適切な介入方略を組み合わせて用いる必要性がある。各方略の具体的手順は次のようにまとめることができる。

(1) ストレスマネジメント

これまでに述べたように循環器疾患患者の日常生活の中にはストレッサーが数多く存在し，ストレスを避けて通ることはできない。ストレスの頻度や持続時間が増大してくると，その影響は確実に病態悪化を招くことになる。患者自身がストレスに上手に対処できるようにセルフコントロール能力を高めるような支援を行うことがストレスマネジメントでは重要である。

図2は，ストレスマネジメント・プログラムの構成要素である[16]。これらの構成要素を単独あるいは組み合わせて用いることで，ストレスへのセルフコントロール能力を高めていくことができる。

　①環境への介入：環境内にあるストレスの原因と成りうる物的，人的要素を軽減・除去するとともに，ストレス発生後のサポート体制を整備することに重点が置かれる。

　②考え方への介入：出来事に対するとらえ方や自己に対する否定的な考え方など，不快な気分や感情を増大させている思考の変容をねらいとする。具体的には，否定的な思考のエスカレートを防ぐ方法（思考中断法）や，柔軟な考え方を自分に言い聞かせる方法（自己教示法）などを学んでいく。

　③対処法への介入：問題を解決していく方法，不快な気持を和らげる方法，人間関係をうまく調整する方法を学ぶことをねらいとする。

　④ストレス反応への介入：心身のストレス反応を自分で緩和するための方法を身につける。補助的に機材（リラクセーションマシン，バイオフィードバック装置など）や媒体（アロマテラピー，音楽など）を用いて心身の緊張の緩和を促すことも有用である。

（2）専門的ケア

　不安と抑うつ症状が重篤であり，継続的なケアが必要な患者には，まずは，患者の不安や抑うつ症状の特徴とその形成・維持・増悪の心理メカニズムについての心理教育を行うとともに，症状の改善のためにどのような対応が必要であるかという認知行動療法の概要についての説明が行われる（心理教育セッション）。次に，患者の症状およびその経過を詳細に把握するためのヒアリング，生活場面における症状の記録（セルフモニタリング）を通して，不安症状や抑うつ症状の変化の特徴についての自己理解を促す。さらには，各種心理検査を実施し，詳細な状態把握へとつなげていく（アセスメントセッション）。そして，このようなアセスメントによって得られた患者の情報について病棟スタッフや心理士が意見交換をしながら患者の状態像を整理し，介入を立案，実施していく。

（3）セルフケア

　ストレスや不安，抑うつ症状などの心理社会的問題は頻繁に生じる問題であり，すべての患者が

【不安への介入】

　患者の不安がどのような場面で生じているかを明確にするために，不安を感じた状況，その時の不安の強さ，頭に浮かんだ考え，そのときとった行動の内容についてセルフモニタリングを行う（不安場面の整理）。その後，不安場面における対処法を身につけるとともに，不安場面への段階的接近を行う。この際，スモールステップの目標を立てることで，成功体験を蓄積させ，日常生活への自信を取り戻すように関わる。このようなプロセスを繰り返しながら，不安に関連した過剰な考え方を修正し，活動性を向上させていくことが必要である。

【抑うつ症状への介入】

　循環器疾患患者の場合，治療の一貫として日常生活上に制限を受ける患者が多く存在する。そのため，抑うつ症状に加えて生活制限があることで患者の活動性が著しく低下し，日常生活に支障をきたすようになる。そこで，治療による生活制限の中でも可能な活動に関する理解を促し，一日の活動計画を立てて，少しずつ生活のリズムを整えることが必要となる。これは，再発を繰り返し，「どうせ，何をしてもまた具合が悪くなる」などの学習性無力感を持つ患者が多い循環器疾患患者において，患者の主体的な健康行動が治療において重要であることを再認識させることにもつながる。同時に，行動面だけでなく，患者の抑うつ気分の変化と気分に関連した考え方のパターンを整理し，さらに，気分の落ち込みに関連したうしろ向きな考え方の特徴を把握し，どのように考えることで気分が楽になるか探索する。そのような考えを生活の中でできるだけ意識して思い浮かべることができるよう練習していく，という手順で患者の認知の変容も行っていく。

精神科適応や心理療法などの専門的ケアを必要とする状態であるわけではない。多くの場合は，病棟や外来の日常診療の中で対応が可能なレベルである。そのため，患者自身が「セルフケア」できるよう支援することが心理士や病棟スタッフに求められる役割となる。

【不安に対するセルフケア】

　リラクセーションは，不安や緊張を和らげる効果を持つ。リラクセーション法には，いくつかの方法が存在するため，患者の状態に合わせた方法を選択し指導することが必要となる。患者はリラクセーション法を実践することで，自律神経系や筋緊張などの身体の状態をある程度コントロールすることができるようになる。

　効果的にリラクセーション反応を引き起こす基本的原則は，「調身，調息，調心」である。まず，身体を調えるためには，患者に姿勢を整えてもらう。次に，呼吸を整えるということに関しては，ゆっくり，規則的に，長く息を吐くことが原則となる。人間の体の力は吐く息に合わせて抜けていき，息を吐ききったところで一番脱力するため，リラクセーションの技法でもその性質を利用するようにする。最後に，心の調え方に関しては，①言葉，文，祈り，筋肉運動のくり返しなどに心を向ける，②雑念が浮かんできたときは身のままやり過ごし，再びくり返しの作業に戻る，ことが原則となる。つまり，何らかの対象に心を向け，注意がそれたら戻り，またそれたら戻りをくり返すよう指導する。

【抑うつ症状に対するセルフケア】

　抑うつ症状が増大すると，通院や服薬などの受療行動，食事制限や症状緩和などのセルフケア行動，医師と良好なコミュニケーションを行うためのスキルの低下などが引き起こされる。そのため，予防的な取り組みとして行動変容の原理に基づく指導を活用して，患者に病態管理や健康の維持増進に関わる新たな生活習慣行動を形成させる支援が役に立つ。

病態管理や健康の維持増進に関わる行動形成の指導は，それぞれの患者に応じて，「行動を動機づける指導」→「行動を形成する指導」→「行動を安定・維持させる指導」へと展開させる。具体的には，

　行動を動機づける指導：病気についての知識，生活改善や行動形成の工夫についての知識を教育するとともに，自分の生活を振り返り，医療者とともに生活上の問題を整理し，具体的にどのような行動変容を行うべきか話し合う。

　行動を形成する指導：患者の意識が高まっても具体的な方略がないと新たな行動は形成されない。そこで，具体的な行動を明確に定め，環境を整え，正の強化子を与える。

　行動を安定・維持させる指導：目標行動の実行が可能になったら，遂行率を高めるために行動遂行の促進要因と妨害要因を特定し，それらを拡充・除去していく。

循環器疾患患者の心理社会的問題に対する介入基盤

　先行研究では，循環器疾患患者の75％はうつ病と気付かれず，うつ病に対する適切な介入が行われていないこと[17]，70％以上の循環器医がうつ病に対して患者に問診しない，さらに，うつ病の診断基準を知らないこと[18]が示されている。このように，循環器疾患患者の心理社会的問題の重要性が明らかになる一方で，循環器領域における心理社会的問題への対応の遅れも明らかにされてきた。上述した認知行動療法を基盤とした介入方略を循環器疾患患者に実施するためには，各専門職がそれぞれの専門性を発揮し，互いに連携して最良の取り組みを行う必要性がある。

　具体的には，チーム医療として心理士は，介入全般の統括や具体的な手順の指示，さらには患者の心理状態の変化を把握しながらそれに応じた介入方針の調整などを行う。一方，看護師は，患者が取り組む生活課題（不安場面への段階的接近や活

動計画の実行）のうながしやサポート，実施後の振り返りやポジティブなフィードバックなどを担う。さらに担当医は，認知行動療法の経過において循環器疾患の悪化がないかを確認しながら，どの程度の負荷（身体活動の強度や時間など）が適切であるかを判断し，患者にかかわる各スタッフからの情報を統括してスタッフおよび他科（たとえば心療内科や精神科）との連絡，調整を担うことが求められる。各専門職が以上のような役割を担いながら，不安症状や抑うつ症状，さらにはそのような症状に関連する心理社会的問題を継続的に観察評価していき，改善が認められてきたら，心療内科医や精神科医と相談しながら薬物の減量や介入の終了を判断していく。ただし，認知行動療法において患者が獲得したスキルを，その後の生活において患者自身が継続的に実施できるように日常的ケアの中で支援していくことが必要であろう。

おわりに
―循環器心身症に対する認知行動療法の課題―

本章では，循環器疾患患者が抱える心理社会的問題を概観した上で，これらの問題に対する認知行動療法による介入を紹介した。循環器医療においては，さまざまなテクノロジーや医療技術を駆使した先端医療の発展が急速に進み，患者の生命予後を改善してきた。しかし，一方でこれらの治療が患者に新たなストレスや不安，抑うつ症状を生み出している。今後は，循環器疾患患者に対する疾患治療の中にメンタルケアを組織的に導入することが，循環器疾患患者の全人的医療において必要であると考える。そのためには，チーム医療を基盤としたメンタルケアプロトコルを確立し，広めていくことが急務である。

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Prevalence of depression among outpatients visiting a general internal medicine polyclinic in rural Japan ☆,☆☆

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ABSTRACT

Objective: In Europe and the US, primary care has been anticipated in identifying untreated depression. Findings show a high prevalence of depression in such settings. However, the prevalence of depression in an internal medicine clinic in a rural area of Japan, which has a role in primary care, is unclear.
Method: The prevalence of depression and comorbid psychiatric disorders among outpatients of an internal medicine clinic in a rural general hospital was measured by a structured interview using the Mini International Neuropsychiatric Interview. Outpatients were recruited consecutively and stratified by Patient Health Questionnaire-9 (PHQ-9) scores. Among 598 outpatients, we interviewed 75 randomly selected patients and 29 whose results of the PHQ-9 were positive. We estimated prevalence of depressive episode using age, sex, physical findings by internal medical doctors and PHQ-9 scores as covariates.
Results: The estimated prevalence of major and minor depressive episodes were 7.4% [95% confidence interval (CI): 3.4%–11.4%] and 6.8% (95% CI: 2.6%–10.9%), respectively. Among major depressed patients, 71.4% had current suicidal ideation.
Conclusion: Given the high rate of depression and suicidality, identification of depression and collaboration between internal medical doctors in a rural area of Japan and mental health professionals are needed.
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1. Background

Depression is a prevalent, disabling disorder that has a profound influence on quality of life. It is estimated to become the leading cause of disability worldwide in 2030 and was already the leading cause of morbidity in middle- and high-income countries, including Japan, in 2004 [1].

Previous studies have invariably reported a high prevalence of depression in the general population [2–5] and in health care settings [6–8]. For example, the World Health Organization (WHO) performed a primary care mental health survey of 14 countries and found that 14% of primary care patients suffered from major depression [6]. Given the high prevalence of depression, primary care settings play an important role in identifying and treating depressed patients [9–11]. In Japan, there are few doctors specialized in primary care because its medical system has no clear definition of primary care and the specific providers responsible. Most patients, especially those in rural areas, consult an internal medical doctor for their primary care.

A previous study of patients in a general medicine clinic showed a 4.7% lifetime prevalence of major depressive episodes [12]. Another survey, also performed about 20 years ago, showed a 3.0% prevalence

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of major depressive episodes [13]. However, there are few recent studies showing depression prevalence in primary care settings.

Recently, we reported the prevalence of depression in a rural general hospital, where many of the patients were elderly [mean age (S.D.)= 72.9 (12.5) years]. Approximately 53%, 12% and 10% of the patients suffered from hypertension, hyperlipidemia and diabetes, respectively, which suggested that this rural general hospital played a role in the primary care of chronic physical illnesses of elderly patients [14]. Using the Patient Health Questionnaire-9 (PHQ-9), 8.7% [95% confidence interval (CI), 5.5%–11.8%] presented with probable major depression and, 16.7% (12.5%–20.8%), with a probable mood disorder. However, these prevalence estimates were based only on self-reports, and we did not perform any structured interviews to diagnose depression. There were also no data regarding comorbid psychiatric disorders that are commonly observed in primary care settings [15,16]. Therefore, the present study used structured psychiatric interviews to elucidate the prevalence of depression and other psychiatric disorders among patients of a general internal medicine outpatient clinic in a rural area of Japan.

2. Methods

2.1. Participants

This study was approved by the Ethics Committee of the National Center of Neurology and Psychiatry in Japan. The researchers provided all participants with detailed information using a written document and administered a battery of self-report questionnaires after the patients provided oral informed consent. After this first-stage screening, we conducted structured psychiatric interviews with patients who provided further written informed consent.

This study was conducted on nine consecutive consultation days between July 12 and 23, 2010, at a general internal medicine outpatient clinic in a general hospital having no mental health specialties. This hospital is located in a small city (population of 124,756 in 2010) in the Tohoku region of Japan. The hospital serves as a regional public hospital and is funded by the National Health Insurance Society of Oshu City. Oshu City is a typical rural area about 500 km north of Tokyo with low population influx. There are high proportions of elderly people and people engaged in primary industry [17].

We used the following inclusion criteria to define a target population that can be assessed for depression in routine clinical practice: (a) patients aged 20 years or older who visited the outpatient clinic to consult a physician for their own primary care and (b) patients who have no communication difficulties, such as hearing loss or language problems, and who have no severe cognitive impairment, such as dementia or disturbance of consciousness. Thus, we did not include visitors who came in for admission preparation or those who consulted for their family members. We also did not include patients who lived outside the catchment area of the hospital. Severe cognitive impairment was judged based on a semistructured interview, using the first two questions of the Mini-Mental State Examination concerning time and place orientation [18,19] by research staff consisted of psychiatrists (MI and MY), a research assistant (TO) having experience in survey using the Mini-Mental State Examination and PHQ-9 in internal medical clinics and nurses. All were trained for the procedure of the present study. The staff sometimes conducted an additional interview regarding patient lifestyle factors and dementia history if accompanying persons were present. Due to ethical considerations and feasibility of the survey, we also excluded patients who were too physically ill to be interviewed.

2.2. Measurements

2.2.1. PHQ-9

We used the PHQ-9 [20,21] to stratify participants. We asked patients to choose from the following options how often they had been bothered by each of nine symptoms over the last 2 weeks: "not at all," "several days," "more than half the days" and "nearly every day." Two scoring methods, a categorical algorithm and a dimensional assessment, have been proposed in the literature. In the categorical algorithm, depression screening is positive if five or more of the nine depressive symptom criteria were present at least more than half the days and one of the symptoms is depressed mood or anhedonia. One of the nine items, "thoughts that you would be better off dead or of hurting yourself in some way," was counted if present at all. In addition to the categorical algorithm, we judged depression severity using a dimensional scale, with a cutoff score of 10 reported as optimal for screening probable depression. Each item is scored from 0 to 3, with a total possible score of 27 for the nine items.

We used a categorical algorithm to screen probable depression positive. In the categorical algorithm, depression is positive if one of two items (depressed mood or anhedonia) was present. Based on the results of the PHQ-9, patients were screened as probable depression positive using either the categorical algorithm (one of the two items) or the dimensional assessment (score of more than 10).

2.2.2. Mini International Neuropsychiatric Interview (MINI)

We used the MINI [22,23] to diagnose depression and other psychiatric disorders. The interview was originally developed as a structured diagnostic interview compatible with *DSM-III-R* and *ICD-10* criteria [25,26]. The MINI focuses on current diagnoses and only explores lifetime diagnoses clinically if relevant to the present status. For most diagnostic sections, one or two screening questions are used to rule out the diagnosis when answered in the negative. The MINI includes 19 disorders chosen as most common from epidemiological data [27,28]. In the present study, we used the modules related to depression, anxiety, eating disorders and alcohol/substance dependence/abuse, which are often observed in primary care settings [16]. We evaluated current suicidality using the suicidality module (C) of the MINI, although the validity has not been completely established [22–24]. The module consists of six items that identify any suicide-related episodes or phenomena, including suicidal ideation within the last month (five items) and history of suicide attempts (one item) in the life. If any items in the suicidal ideation within the last month (five items) were relevant, we judged that current suicidality was present. In addition, we calculated the score (e.g., lifetime histories of attempting suicide=4, presence of having suicidal ideation within a month=6, planning or attempting suicide within a month=10) and showed the number of patients with a high risk (MINI suicide risk>= 10) as sever suicidality [22–24]. In addition to the current suicidality evaluated by the MINI, we investigated score of the Item 9 in the PHQ-9 (thoughts that you would be better off dead or of hurting yourself in some way: *not at all*: 0; *several days*: 1; *more than half the days*: 2; and *nearly every day*: 3, over the past 2 weeks). We confirmed that scores of the Item 9 among patients with current suicidality by the MINI (median: 1; range: 0–3) were significantly higher than those among patients without (median: 0; range: 0–1) (U=273.5, P<.01 by the Mann–Whitney U test). We also used the MINI to assess minor depressive episodes, defined as having two to four items, with one of the items being depressed mood or anhedonia in the major depressive episode module (A) of the MINI.

2.3. Procedure

We defined the target population by the inclusion criteria described in the participant section and adopted a random sampling stratified by the PHQ-9 results. Trained psychiatrists (MI or MY), who were blind to the results of the PHQ-9, conducted structured MINI interviews of patients who were screened as probable depression positive as well as randomly selected patients.

2.3.1. Statistical analyses

We calculated the prevalence estimates of any depressive episode (major depressive episode and minor depressive episode), other psychiatric disorders and their 95% CIs using sampling weights. The weight was based on the inverse of the sampling probability for age, sex, clinical diagnosis of primary illness and PHQ-9 score. We performed multiple imputations for the missing data. We performed all statistical analyses using the statistical software packages SPSS 17.0 (IBM, Tokyo) and Statistical Analysis System (SAS) 9.2 (SAS Institute Japan, Tokyo).

3. Results

During the study period, 598 patients visited the clinic. We randomly selected 107 of the outpatients. From the selected 107 patients, we excluded 21 based on our inclusion criteria: 1 was less than 20 years old, 7 consulted for family members, 1 resided outside the area and 12 were severely cognitively impaired. Among the 86 patients, 5 patients were physically too ill, and 1 refused to participate in the survey. Then we administered the PHQ-9 to 80 patients who agreed to participate in the survey.

Among the remaining 491 patients who were not selected randomly, we excluded 66 based on our inclusion criteria: 16 were less than 20 years old, 15 consulted for family members, 1 visited to prepare for admission, 2 resided outside the area and 32 were severely cognitively impaired. Among the 425 patients, 12 were physically too ill, 4 were missed and 5 refused to participate in the study. Then, we administered the PHQ-9 to 404 patients and acquired PHQ-9 data for 396 of the 404 patients, and 8 of PHQ-9 data were incomplete. As a result, 36 patients out of the 396 were screened as probable depression positive.

Among the total 116 participants (80 and 36 participants), 104 received a structured interview using the MINI. Twelve patients were not interviewed (seven were missed, one was physically ill and four refused the interview).

The target population to estimate prevalence was 511 patients (86 and 425 patients).

Table 1 shows characteristics of the target population (*n*=511). The median age of the population was 75 years, with more than 81.8% of participants being 65 years old or older. As shown in Table 1, chronic physical illnesses, such as hypertension, diabetes and hyperlipidemia, were frequent. The median number of visits in the past 6 months was four, which means many patients consulted the clinic approximately once every 6 weeks.

Of the 104 patients who we interviewed using the MINI, we diagnosed 21 as having experienced a major depressive episode and 15 with a minor depressive episode. One had a hypomanic episode, two had posttraumatic stress disorder (PTSD) and five had alcohol dependence. Twenty-seven patients had suicidal thoughts. No one had a high risk of suicide among 99 patients who completed the suicidality module of the MINI (five had incomplete data). Table 2 shows weighted prevalences of depression and other psychiatric disorders. The estimated prevalence of having a major depressive

Table 1
Characteristics of the study participants

Median age (range) in years	75 (21–102)
Sex: female (%)	59.3
Clinical diagnosis of primary illness (%)	
Hypertension	58.7
Diabetes	16.0
Hyperlipidemia	15.9
Brain infarction	8.4
Arrhythmia	6.8
Number of visits in the past 6 months	
Median (range)	4 (0–74)

Table 2
Prevalence of depression and other psychiatric disorders

	Estimated prevalence (%)	(95% CI)
Any depressive episode	14.1	8.2–20.0
Major depressive episode (current, 2 weeks)	7.4	3.4–11.4
Minor depressive episode (current, 2 weeks)	6.8	2.6–10.9
Hypomanic episode (current)	0.8	0.0–2.4
PTSD (current, past month)	1.4	0.0–3.4
Alcohol dependence (past 12 months)	5.4	0.3–10.5
Current suicidality	12.7	6.6–18.9

episode was 7.4% (95% CI: 3.4% to 11.4%). That of any depressive episode, including both major and minor depressive episode, was 14.1% (95% CI: 8.2% to 20.0%), which means that one in every seven patients was estimated to have depression. Prevalence of current suicidality was 12.7% or one in every eight patients. Alcohol dependence was also frequent (5.4%).

Table 3 shows the prevalence of comorbid psychiatric disorders and current suicidality among patients that experienced a depressive episode. Prevalence of suicidality was high in patients with a major depressive episode as well as those with any depressive episode. Among the patients with major depressive episode (*n*=21), median (range) of the scores of Item 9 of the PHQ-9 was 1 (0–3). Among those diagnosed as having any depressive episode (*n*=36), median (range) of the scores was 0 (0–3). And among those who had no depressive episode, median (range) of the scores was 0 (0–1). Proportions of patients who scored the Item 9 of the PHQ-9 as 3 (nearly every day over the past 2 weeks) were 38.1%, 22.2% and 0% among patients with major depressive episode (*n*=21), those with any depressive episode (*n*=36) and those without any depressive episode (*n*=68), respectively.

4. Discussion

The present study investigated the prevalence of depression and other psychiatric disorders in a general internal medicine outpatient clinic of a Japanese rural general hospital using structured interview conducted by trained psychiatrists followed by screening of PHQ-9. Patients were elderly and had chronic physical illnesses. The prevalence of major depressive disorder was 7.4% and, that of depression including both major and minor depressive disorders, was 14.1%. The prevalence of alcohol dependence was high, and suicidality was prevalent among patients with major or minor depressive disorders.

A previous survey conducted by the WHO nearly 20 years ago reported the prevalence of depression as 3.0% in internal medicine outpatient clinics in Japan [13]. The prevalence of PTSD in the previous survey (0.2%) was also lower than that of the present study (1.4%). The prevalence of alcohol dependence in the previous survey was 6.2%, which was comparable to that of the present study (5.4%). In contrast, the prevalence of generalized anxiety disorder was 5.0% in

Table 3
Rate of comorbid psychiatric disorders in patients with depression

	Number	%
Major depressive episode (*n*=21)		
Current suicidality	15	71.4
PTSD	1	4.8
Alcohol dependence	0	0
Any depressive episode (*n*=36)		
Current suicidality	18	50.0
PTSD	2	5.6
Alcohol dependence	1	2.8

the previous survey, while no patients had generalized anxiety disorders in the present study.

These discrepancies may be explained by differences in participants and methods between the previous survey and the present study. The previous survey was conducted in a hospital located in a medium-sized city, whereas we examined prevalence of psychiatric disorders in a rural hospital. The previous survey excluded patients older than 65 years old, while the majority of participants in the present study were older than 65 years old. In addition, we need to consider that the previous survey was performed nearly 20 years ago.

A previous study performed in the US showed that the prevalence of major depression in rural primary care (8.3%) was lower than that in urban primary care settings (14.8%) [29]. The internal medicine clinic in the present study was located in a rural area, and the prevalence of major depression (7.4%) was similar to that previously reported [29]. However, the prevalence of depression in an urban clinic in Japan may be different.

Our previous study using the PHQ-9 to identify probable depression in the same clinic showed that prevalence of probable major depressive disorders (8.7%, 95% CI: 5.5%–11.8%) [14] was similar to that of the present study, suggesting that the results are reproducible.

The present study showed a high prevalence of current suicidality. In addition to the high prevalence, there was a higher rate of current suicidality among patients with major depressive episodes. Thus, current suicidality should be considered in addition to depression in patients evaluated at internal medicine clinics of rural general hospitals. In particular, referral of depressed patients with suicidal thought more than several days in the past 2 weeks to mental health professionals is required.

Previous studies in other countries showed that the prevalence of major depression in primary care settings for people aged 65 or older is 19.5% [30], which is higher than the prevalence found in the present study. The prevalence of depression in the general Japanese population is 2.9% [31], which is lower than that in other countries [32]. The lower prevalence in the general population may reflect the lower prevalence of depression in general internal medicine outpatient clinics.

The prevalence of depression in the internal medical outpatient clinic shown in the present study was higher than that previously reported for the general population in Japan [31]. This is similar to findings from other countries where the prevalence of depression in primary care settings is higher than in the community [30,33]. These results suggest that depressed patients more frequently consult internists. Thus, it is important that physicians appropriately identify, treat and/or refer untreated depressed patients that consult the clinic to mental health specialists.

The study has two major limitations. First, we selected only a single hospital for convenience. A survey of multiple, randomly selected sites from across Japan should be performed to generalize the findings. Second, the number of participants in the study was too small to effectively investigate comorbidities.

The present study showed a high prevalence of depression in an internal medicine outpatient clinic of a rural general hospital that plays a role in primary care for residents of its catchment area. We also showed a high prevalence of suicidality and its higher comorbidity rate with depression. Given the high rate of depression and suicidality, identification of depression and collaboration between internal medical doctors and mental health professionals, such as psychiatrists, are needed.

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RESEARCH ARTICLE

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Attitudes toward depression among Japanese non-psychiatric medical doctors: a cross-sectional study

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Abstract

Background: Under-recognition of depression is common in many countries. Education of medical staff, focusing on their attitudes towards depression, may be necessary to change their behavior and enhance recognition of depression. Several studies have previously reported on attitudes toward depression among general physicians. However, little is known about attitudes of non-psychiatric doctors in Japan. In the present study, we surveyed non-psychiatric doctors' attitude toward depression.

Methods: The inclusion criteria of participants in the present study were as follows: 1) Japanese non-psychiatric doctors and 2) attendees in educational opportunities regarding depression care. We conveniently approached two populations: 1) a workshop to depression care for non-psychiatric doctors and 2) a general physician-psychiatrist (G-P) network group. We contacted 367 subjects. Attitudes toward depression were measured using the Depression Attitude Questionnaire (DAQ), a 20-item self-report questionnaire developed for general physicians. We report scores of each DAQ item and factors derived from exploratory factor analysis.

Results: We received responses from 230 subjects, and we used DAQ data from 187 non-psychiatric doctors who met the inclusion criteria. All non-psychiatric doctors (n = 187) disagreed with "*I feel comfortable in dealing with depressed patients' needs,*" while 60 % (n = 112) agreed with "*Working with depressed patients is heavy going.*" Factor analysis indicated these items comprised a factor termed "*Depression should be treated by psychiatrists*" - to which 54 % of doctors (n = 101) agreed. Meanwhile, 67 % of doctors (n = 126) thought that nurses could be useful in depressed patient support. The three factors derived from the Japanese DAQ differed from models previously derived from British GP samples. The attitude of Japanese non-psychiatric doctors concerning whether depression should be treated by psychiatrists was markedly different to that of British GPs.

Conclusions: Japanese non-psychiatric doctors believe that depression care is beyond the scope of their duties. It is suggested that educational programs or guidelines for depression care developed in other countries such as the UK are not directly adaptable for Japanese non-psychiatric doctors. Developing a focused educational program that motivates non-psychiatric doctors to play a role in depression care is necessary to enhance recognition and treatment of depression in Japan.

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Background

Depression is a common mental disorder associated with impaired quality of life. Depression was the leading cause of disability in middle- and high-income countries in 2004, and will become the leading cause of disability worldwide in 2030 [1]. However, it is reported that many depressed patients may not be given appropriate care in many countries, including Japan [2,3].

In the Japanese medical system, most doctors have specialties, such as internal medicine and surgery, and treat specific illnesses. Patients select and consult such specialists freely and directly based on their own judgment and preference. However, in the case of psychiatric disorders, such as depression, patients do not always consult psychiatrists directly. Reasons for this may include a lack of perception of their symptoms as those of depression or stigma associated with psychiatric disorders and psychiatric care [2]. Furthermore, symptoms such as insomnia and fatigue are frequent in depression, and may lead patients to consult non-psychiatric doctors with specialties in physical illness [4]. For these reasons, non-psychiatric doctors play an important role in identifying depressed patients and introducing them to appropriate treatment.

Under-recognition of depression is common in non-psychiatric settings, such as primary care, in many countries [5]. In our previous study, we found that physicians in a general internal medicine outpatient clinic in Japan recognized few depressed patients, even though the prevalence of depression was high [6]. One reason for the low recognition rate by non-psychiatric doctors may be their attitudes toward depression. Doctors' attitudes toward depression in countries with a primary care system and general practitioners (GPs) have been surveyed and reported in the UK [7-9] and elsewhere [10-12]. However, there has been no such study in Japan. Information on the attitudes of non-psychiatric doctors toward depression in Japan is necessary to develop an educational intervention to facilitate the role of doctors in depression care and to build and optimize depression care settings in the Japanese medical system.

A previous study has shown that physicians who attended educational lecture were significantly more likely to change their clinical behavior if they indicated an intent to change prior to the lecture [13]. We hypothesized doctors who voluntarily accessed an educational opportunity would already have relatively high motivation to treat patients with depression. This population would be a primary target of future educational interventions.

Therefore, in this study, we surveyed the attitudes of non-psychiatric doctors who voluntarily accessed an educational opportunity in Japan. We also discuss their attitudes and compare the results with those from studies carried out previously in the UK.

Methods

Participants

The inclusion criteria of participants in the present study were as follows: 1) Japanese non-psychiatric doctors and 2) attendees in educational opportunities regarding depression care. We recruited the participants who satisfied both criteria. We conveniently approached two populations: 1) a workshop to depression care for non-psychiatric doctors and 2) a general physician-psychiatrist (G-P) network group.

We surveyed attitudes of 217 subjects who voluntarily attended a workshop regarding depression care. The workshop was sponsored jointly by the local government and a medical association in the Kansai area in January 2009. Our survey was performed before the lecture. In addition, we contacted 150 of the 210 members of a G-P network group in the Kansai area, who had agreed to participating in this survey. The G-P network is a voluntary group established for increasing general physicians' understanding of mental health, enhancing collaborations between general physicians and psychiatrists, and facilitating patient referrals among doctors in the network. The members had been attending educational meetings regarding depression care two to three times a year. In June 2008, the survey was performed to the group members by mail with a stamped and self-addressed envelope for return. As a result, we contacted 367 subjects in total. For convenience, we refer to doctors with non-mental health specialties as "non-psychiatric doctors."

This study was approved by the Ethics Committee of the National Center of Neurology and Psychiatry in Japan [xxxx-030 (19-7-J11)]. The need for written informed consent was waived by the Ethics Committee. We informed the aims and methods of the present survey, including risks and benefits to the participants using written documents. Participants were asked to complete the questionnaire anonymously assuming that they agreed with the study aims and methods.

Measures

Background characteristics

All participants were asked to indicate their age, sex, and specialty in the questionnaire.

Attitude toward depression

We measured attitudes toward depression using the Depression Attitude Questionnaire (DAQ) [7]. We decided to use the DAQ because we also aimed to compare the attitudes of Japanese non-psychiatric doctors to those previously reported in the UK. The DAQ was developed to measure GPs' attitudes toward depression in the UK [7]. This self-report questionnaire consists of 20 items and was constructed based on three themes: the