

結果

2つの分析が行われた。第1に、変数間の相関分析が行われ、第2に、PTGI得点を従属変数、性別、年齢、潜在力、ソーシャルサポート、PTSDの変数を予測変数とした重回帰分析が行われた。

表13-1に変数間のピアソンの相関係数をまとめた。また、各変数の平均値と標準偏差を示した。本研究におけるPTGIの合計得点の平均値は43.21 (SD=17.31)であった。2つの因子(友人からのソーシャルサポートとPTSDのなかの過覚醒因子)がPTGIの各因子と正の相関関係を有意に示した。

PTSDの平均値と友人からのソーシャルサポートはPTGI得点の高さに有意に寄与する[それぞれ $\beta = .43, 21, F(3, 93) = 9.04, p < .001, R^2 = .20$]ことが示された。過覚醒は、PTGIの全因子と正の相関関係があるので、PTGIの変数を過覚醒に置き換えて重回帰分析が行われた。その結果、過覚醒と友人からのソーシャルサポートがPTGIの高さに有意に寄与する[それぞれ $\beta = .31, 20, F(3, 93) = 3.17, p < .01, R^2 = .37$]ことが示された。

考察

本研究の目的は、ホロコーストの小児生存者の個人的資源(潜在力、知覚されたソーシャルサポート)、PTSD、PTGIの関連について検討することであった。また、本研究から得られた知見をより考察するために、本来挿入する予定ではなかった自画像(後出の図13-1、13-2を参照)を掲載した。

先行研究(Amir & Lev-Wiesel, 2001; Lev-Wiesel & Amir, 2000)と同様に、本研究でも、生存者の個人的資源のレベルが高ければ高いほど、PTSD症状が軽くなる傾向が明らかとなった。しかしながら、PTGIの各因子と過覚醒因子には1つの相関関係があることも同時に示された。この興味深い関係を説明する1つの方法としては、人が空腹で食べ物を求める際のエネルギーバランスとエネルギー不足を調整する迷走神経の生物学的機能に、過覚醒をたとえることである(Lewinsohn, 2000)。われわれは、恐怖や不安(たとえば、集中困難と睡眠障害)などを引き起こす

表13-1 尺度間の相関、平均値、および標準偏差

| | PTSD | 友人からの サポート | 潜在力 | 過覚醒 | PTGI 合計 | PTGI 過覚醒 | PTGI 抑圧 | PTGI 過覚醒 | PTGI 抑圧 | PTGI 過覚醒 | PTGI 抑圧 | PTGI 過覚醒 | PTGI 抑圧 |
|-----------|-------|---------------|-------|-------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|
| PTSD | 1.00 | | | | | | | | | | | | |
| 友人からのサポート | .29** | 1.00 | | | | | | | | | | | |
| 潜在力 | .70** | .22* | 1.00 | | | | | | | | | | |
| 過覚醒 | .38** | .48** | .47** | 1.00 | | | | | | | | | |
| PTGI合計 | .37** | .37** | .37** | .37** | 1.00 | | | | | | | | |
| PTGI過覚醒 | .37** | .37** | .37** | .37** | .37** | 1.00 | | | | | | | |
| PTGI抑圧 | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | | | | | | |
| PTGI過覚醒 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | | | | | |
| PTGI抑圧 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | | | | |
| PTGI過覚醒 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | | | |
| PTGI抑圧 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | | |
| PTGI過覚醒 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 | |
| PTGI抑圧 | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | .37** | 1.00 |

* $p < .05$, ** $p < .01$.

る、PTSD症状の1つである覚醒が、小児生存者によって外在化されたと考えられている(Haney & Kozłowska, 2002)。Bandura(1982)の自己効力感の概念と同様に、おそらくこの不安は「何か」に変化するのかもしれない。その「何か」とは、マスターリーや有感感、あるいは成長感を高めるようなものである。しかしながら、長期的な過覚醒には負の影響があるかもしれない。Yehuda, McFarlane, Shalev(1998)は、外傷的な出来事直後の心拍数の上昇と cortisol レベルの低下は、のちの PTSD 症状の出現と関連する可能性があることを示している。これらの徴候は過覚醒状態と何らかの類似点を有し、不適応的な心理状態を引き起こすかもしれない。今後の研究ではこの点を明らかにする必要があるだろう。

ストレスに対して回避的対処を用いることはしばしば抑うつを予測するが、その逆を示唆するエビデンスもまた存在すること(Feldman, 2002; Feisten, 2003)そして侵入性想起も抑うつと関連すること(Courbasson, Ender, & Kocovick, 2002)が示されている。しかしながら、過覚醒には抑うつと直接関連のない項目(たとえば、怒りの発覚や過剰な警戒)が含まれる。それゆえ、主な症状として再覚醒を訴える PTSD を有する人は、抑うつを含まない PTG の状態を経験するかもしれない、という推測ができる。

また、ソーシャルサポートが新たな可能性の高さに寄与することが示唆されている。この結果は、ソーシャルサポートが心的外傷のネガティブな影響を和らげることを示す過去のエビデンス(Ren et al., 1999)と一致している。ソーシャルサポートを十分に受けられる小児生存者ほど、より高いレベルのPTGを遂げることが出来るだろう。しかしながら、ソーシャルサポートとPTGの関係は、相互に影響を及ぼす二方向性の関係なのかもしれない。PTGのレベルが高い生存者は、サポートを提供することはより容易なことであるし、さらに、ソーシャルサポートを得る能力が、PTGに寄与する可能性がある。実際、先行研究において、心的外傷を経験し、レジリエントな大人になる子どもは、しばしば人間としての尊厳、共感、知的技能、希望、自信を示すことが示唆されている(Giamberini, 1993)。Grotberg(1996)は、情緒的サポート、影響力のある模範となる人、信頼が存在すれば、多くの子どもはレジリエントな大人になると述べている。

Miriam は、家族とともに故郷のスロバキアからアウシュビッツに強制移住されたとき、11歳だった。3人兄弟姉妹の末っ子で、家族のなかでも一番可愛がられていた彼女は、どこへ連れていかれるのかわかっていなかった。彼女の生活は、詰まるほど込み合った状態の電車の中で、父親に抱かれて守られながら始ま

いたことを思い出した。彼女は、父親がどれほど愛情を注いでくれていたのかわかり、父親に何が起きようとも生き延び続けなければならないと伝えられたことを思い出した。両親と兄弟姉妹は、彼女がビルケナウ強制収容所(アウシュビッツ第2強制収容所)に移送されている間に、ガス室に送られた。Miriam は、収容所で何人かの年上の少女たちが自分を妹として受け入れてくれたことに対し、「彼女たちは私の命を救ってくれました。彼女たちの助けと愛がなければ私は生き残れなかったでしょう」と述べている。戦後、彼女は青年組織の一員となり、のちにイスラエルに不法に入国した。そこで、彼女は兵役を卒業し、ホロコースト生存者と結婚した。彼女はホロコーストのときに世話をしてくれた友人たちと今でも頻りに連絡をとり合っており、彼女たちを自分の家族だと思っている。たとえば、ホロコーストにより亡くなった方々の追悼記念日府などは、常に手紙を送り、眠れなかったり、あるいは不安になったりしますが、そんなときは彼女たちに電話するのです。私にとって彼女たちは、姉妹以上、もっといえば母親以上の存在なのです」と、語っている。

本研究には、いくつかの側面で限界があった。第1に、ほかの心的外傷体験の小児生存者からなる統制群がなかった。第2に、先行研究(Lev-Wiesel & Amir, 2000)から得られた、心的外傷体験によって生存者の心理的苦痛のレベルはそれぞれ異なるという知見に基づいて考えると、われわれはそれぞれの生存者の体験がホロコーストに関連するものとして一括ひとからげに扱ってしまったため、ホロコーストの影響について詳細に分析・検討することができなかった。また、このグループが臨床の対象となるホロコースト生存者、あるいは他のホロコースト生存者とは異なるかは不明である。ホロコースト生存者と学生との間接的PTG得点を比較した研究(Calhoun et al., 2000)によると、ホロコースト生存者の場合は、学生の成長よりかなり低いものであり、それは年齢の違いによって説明されるよりもっと大きな差であることが示唆されている。それでもなお、本研究ではホロコーストの小児生存者には、PTSD、特に過覚醒とPTGが共存していることが示されている。PTGの概念について考察するうえでこの結果は非常に興味深い。

本研究で受け入れられている考え方として、外傷的な出来事の影響により何事もネガティブな方向に変化し、以前と同じものは1つもなくなるというものがある。ホロコーストの小児生存者のこのような変化のネガティブな面には、悲嘆、外傷的喪失、感情の分裂、精神的殞滅が含まれる(Kestenberg & Brenner, 1986;

Kreil, 1993; Moskowitz & Kreil, 1990; Tauber & Van-Der-Hal, 1997)。しかしながら、個人の内面や臨床試験を含む、成長に関する基礎的な研究から、外傷的な出来事が、ポジティブな変化やネガティブではない変化をもたらすということが示唆されている。その変化には、意味の再構築や、自信・信頼の回復、希望の再生、他者との関係の改善、「個としての自己」と「関係のなかにある自己」の再定義、運命感の強まりなどが含まれる (Grossman & Moore, 1995; Harvey, 1996; Tedeschi & Calhoun, 1996; Saakvitne, Tennen, Affleck, 1998; Tedeschi et al., 1998)。われわれは、ホロコーストの小児生存者では、活力、幸福、人生に対する満足感と心理的苦痛の症状が共存することを実証してきたが、このことを Tauber と Van-Der-Hal (1997) の複合的な性格の概念を用いて説明したいと思う。

虐待の小児被害者は、通常、情動世界のある領域のなかに自己を閉じ込め、妄想や幻想の世界に逃れることによって困難な状況を回避するという対処方略を用いると考えられている (Zemer & Zemer, 1997)。しかし、Tauber と Van-Der-Hal は、ホロコーストの小児生存者には臨床でみられるこのような解離のメカニズムがみられなかったと述べている (Cloitre, Scarvalone, & Difede, 1997)。Tauber と Van-Der-Hal は、ホロコーストの小児生存者は、2つの道のどちらかをたどり大人へと成長すると主張している。1つ目の道をたどると、ホロコーストの小児生存者は、心に傷を負ったまま大人へと成長する。このような形でも大人になった生存者は、憎悪や恐怖といった心理的苦痛に継続的に直面し、戦時中用いた生き残るための行動(たとえば、食べ物を隠したり、とっておいなりしやといった行動)をとり続けたり、誰かと深い関係になることを避けたり、世帯があれば逃げる準備を常にしていたりする。彼らはすでに亡くなった妻や子供を強く思い、しばしばその人のもとに早くいきたいと願う。

一方、2つ目をたどると、ホロコーストの小児生存者は、健康的で成熟した大人へと成長し、普通の人生を送り、自分自身と家族のためにお金やエネルギーを消費し、他者と情感豊かな関係を築き、人生に感謝するようになる。われわれは、10年をとったホロコーストの小児生存者との臨床のなかで、この複合的な性格の概念に関するエビデンスを見出した。われわれは、生存者に2枚の絵(自由体で書くように頼んだ。その教示は、「ホロコーストのときのあなたを描いてください」と「あなた自身を描いてください」であった。前者の教示に関して、何人かの生存者は、ホロコーストのときに自らが子どもあるいは青年であったという事実に



図 13-1 Miriam のホロコーストのときの自画像

別して、大人のホロコースト生存者として自分自身を描いた(図 13-1)。後者の絵に関しては、生存者は、ホロコーストの心的外傷を象徴するような絵は一切描かず、老人となった自分自身を描いた(図 13-2)。

われわれはさらに考えを発展させ、PTGとは、生まれ変わり、おそらく心的外傷体験が起これなければ送っていたであろう普通の人生を再開させるために人間に備わった能力であると考えている。われわれは、レジリエンス、すなわちストレスフルな人生の出来事による試練を乗り越える能力を促進する動的な性質 (Altaba & Coastworth, 1998) とは異なり、PTGとは、外傷的な出来事の前、出来事の中で、そして出来事のあとの深い知識や経験に基づき、人生をより豊かに作り変えたものにする能力であると考えている。

PTGは、残酷なまでに切断された樹幹に生育する枝とそこから芽吹いた新たな葉とをえられるかもしれない。この木は、同じ形状に戻ることはなく、同じ葉を自らは決してないだろう。しかし、形状が変わったからといって、その樹幹のしきりが減じたとか生命力が失われたとか強さが衰えたということにはならないだろう。この木の形状は変わってしまったかもしれない(すなわち、太陽

ように末期がんの人々に応え、対応するかに関する研究の基盤となったことも高く評価されている。Marianne はがんに対処する自らの姿を記録に残し、それが同僚の教員によって教材として使用されることを望んでいた。

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Regular Article

One-year follow up after admission to an emergency department for drug overdose in Japan

Shuntaro Ando, MD, MScPH,^{1,2*} Toshihiko Matsumoto, MD, PhD,³ Sho Kanata, MD,² Aya Hojo, MD,⁴ Daisuke Yasugi, MD,⁴ Nobuaki Eto, MD, PhD,⁵ Chiaki Kawanishi, MD, PhD,⁶ Nozomu Asukai, MD, PhD¹ and Kiyoto Kasai, MD, PhD²

¹Department of Psychiatry and Behavioral Sciences, Tokyo Metropolitan Institute of Medical Science, ²Department of Neuropsychiatry, Graduate School of Medicine, The University of Tokyo, ³Center for Suicide Prevention, National Center of Neurology and Psychiatry, ⁴Department of Psychiatry, Tokyo Metropolitan Tama Medical Center, Tokyo, ⁵Department of Psychiatry, Faculty of Medicine, Fukuoka University, Fukuoka and ⁶Health Management and Promotion Center, Yokohama City University Graduate School of Medicine, Yokohama, Japan

Aim: The aim of the study was to investigate the incidence of and risk factors for repetition of suicidal behavior within a year after admission for drug overdose in Japan.

Methods: Patients admitted to the emergency department of a general public hospital in Tokyo for drug overdose of prescribed medicine and/or over-the-counter drugs between March 2008 and February 2009 were followed up after 1 year. Demographic characteristics, previous suicide attempts, and mental health state were examined by self-report questionnaire and interview at recovery from the initial attempt. Information about suicidal behavior during the follow-up period was obtained from the outpatient psychiatrists by postal questionnaire 1 year after discharge.

Results: Of 190 patients admitted to the emergency department, 132 patients answered the questionnaire and had the interview. Information about the

follow-up period for 66 patients was obtained. Of the 66 patients, 28 patients attempted suicide again and two patients committed suicide during the 1-year follow-up period. Psychiatric diagnosis of personality disorder and denial of suicidal intent at the time of recovery were associated with increased risk for another suicide attempt. Lethality levels of suicidal behaviors before and after admission were associated with each other.

Conclusion: The rate of fatal and non-fatal suicide attempt within a year after admission for self-poisoning was substantial. Psychiatric diagnosis of personality disorder was a risk factor for repetition of suicide attempt. Clinicians should pay attention to the means of previous suicide attempts even though the patient denies suicidal intent at recovery.

Key words: drug overdose, Japan, prospective cohort study, suicide attempt.

JAPAN HAS ONE of the highest suicide rates among developed countries.¹ For more than 10 years, suicide rates in Japan have been higher than 24.9 per

100 000 people.¹ Since the 'Basic Act on Suicide Prevention' was put into force in Japan in 2006, both community and medical models of suicide prevention projects have been conducted, such as publication of suicide prevention manuals and educational program for psychiatric professionals. However, there has been no clear effect of these projects on suicide rate.¹

Suicide attempt is the strongest risk factor for suicide, and a global strategy of suicide prevention by

*Correspondence: Shuntaro Ando, MD, MScPH, Department of Psychiatry and Behavioral Sciences, Tokyo Metropolitan Institute of Medical Science, 2-1-6 Kamikitazawa, Setagaya-ku, Tokyo 156-8506, Japan. Email: ando-st@igakuken.or.jp
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the World Health Organization included research on suicide attempts as an important focus.² Many previous studies, conducted mainly in Western countries, showed a high rate of suicide after suicide attempt,^{3–7} and several risk factors for suicide after suicide attempt have been reported. On the other hand, in Japan, studies on suicide attempters have been scarce,^{8–10} and there was no available study that followed up suicide attempters and examined the risk for repeat of suicide attempt. Therefore, the risk factors for recurrence of fatal and non-fatal suicide attempt following a suicide attempt are unknown among the Japanese. As culture affects suicidal behaviour,¹¹ studies are required to investigate the risk for repetition of suicide attempt in Japan, specifically examining risk factors for repetition of suicidal behavior within a short period after suicide attempt, as suicide risk after suicide attempt was found to be highest during the first 3 years and especially in the first 6 months.⁵

This study focused on patients who were admitted to hospital for drug overdose, because a previous study found self-poisoning to be the most prevalent type of suicide attempt that required admission.¹² The objectives of this study were to: (i) investigate the incidence of suicidal behavior after admission for drug overdose in Japan; and (ii) investigate risk factors for repetition of suicidal behavior within a year after admission for drug overdose.

METHODS

Study design

This study was a fixed-length cohort study that followed up the patients for 1 year.

Study sample

This study followed up the samples in a cross-sectional survey that investigated depression and dissociation in patients who were admitted to the emergency department of a public hospital in Tokyo owing to drug overdose. The hospital was one of the three hospitals that had emergency rooms in the catchment area of approximately 970 000 inhabitants within 96 km². Admission to the emergency department was decided by the doctors in the emergency department based on the need for physical care. The inclusion criteria for the cross-sectional

survey were all the patients who were admitted to the emergency department for drug overdose between March 2008 and February 2009, and who could communicate enough in Japanese. Drug overdose was defined as the intentional self-administration of more than the prescribed dose of prescribed medicine and/or over-the-counter drugs. It was made explicit that involvement with the survey was on a voluntary basis, and written informed consent for participation in the study was obtained from participants. All the participants in the cross-sectional survey were included in the cohort study. If there were patients who were admitted repeatedly owing to drug overdose in the study period, only the first episode of self-poisoning was included in the cohort. Data were kept anonymously and securely in electronic forms. This study was conducted with permission from the ethics committee of Tokyo Fuchu Metropolitan Hospital (since 2010, Tokyo Metropolitan Tama Medical Center).

Data collection

Eligible patients were given a self-report questionnaire and interviewed by trained psychiatrists in the hospital after they recovered from coma and became clearly conscious, as judged by the psychiatrists who conducted the interviews. The interviewers examined sociodemographic background, psychiatric history, and current use of psychiatric services. They also evaluated severity of suicidal intent at the time of recovery using the response list for Question 9 in the Beck Depression Inventory ('I don't have any thoughts of killing myself', 'I have thoughts of killing myself, but I would not carry them out', 'I would like to kill myself', and 'I would kill myself if I had the chance'). Psychiatric diagnosis based on International Statistical Classification of Diseases and Related Health Problems was given by the interviewer.

The self-questionnaire included the Kessler Psychological Distress Scale (K10) and the Adolescent Dissociation Experience Scale (ADES).^{13,14} The K10 is a 10-item, five-point Likert scale questionnaire developed by Kessler for population surveys and is also suggested for use in screening for mental illness.¹⁵ The score ranges from 10 to 50, and individuals with a score over 25 are considered to have a moderate or severe mental disorder.¹⁶ The Japanese version of K10 showed performance equivalent to the original version.¹⁷ The ADES is a 30-item self-report measure

for screening pathological dissociation.¹⁴ Armstrong *et al.* developed this scale targeting adolescents by revising the Dissociation Experience Scale (DES), which is a similar self-reporting questionnaire targeting adults. However, the ADES has been employed in several studies using an adult sample as it is easier to use than the DES,^{18,19} which consists of 28 analogue scales, and it has already been confirmed that the score of the ADES is 10 times the score of the DES.¹⁴ The validity and reliability of the Japanese version of the ADES is already established.²⁰ Each item of the ADES has an 11-point Likert scale with a score from 0 to 10, and a mean score of the 30 items over 4.0 points suggests pathologic dissociation.¹⁹

At discharge, those without current psychiatric service use were referred to psychiatrists near the patient's home address. One year after the admission for self-poisoning, a questionnaire was sent to each outpatient psychiatrist to obtain information about the incidence of completed suicide, suicide attempt, and self-cutting during the follow-up period of 1 year. Self-cutting was defined as 'deliberate cutting of the surface of the body with or without suicidal intent'. Definition of suicide attempt was not given in the questionnaire, and identification of these incidents was based on the psychiatrist's written reply to the dichotomous questionnaires, including the method of suicide attempt (e.g. 'Has the patient attempted suicide by drug overdose during the follow-up period?'). In addition, for cases of completed suicide since hospital discharge, we spoke with the outpatient psychiatrists to confirm the information.

Data analysis

Data were analyzed using Microsoft EXCEL, STATA version 11.0, and SPSS version 17.0. Sociodemographic background, psychiatric history of the patients, and severity of depression, dissociation, and suicidal intent were regarded as the independent variables. The dependent variable was suicidal behaviors within the 1-year period of follow up.

The difference in the exposures of interest between those who were followed up and those who were lost to follow up was examined. The χ^2 -test was performed to compare proportions for binary or categorical variables, and the Student's *t*-test was performed to compare means of continuous variables. Residual analysis was conducted to compare distribution of psychiatric diagnosis between the two

groups. The Mann–Whitney *U*-test was performed for each question of the Intent Scale as the answers were not normally distributed. Statistical significance was evaluated using 0.05 level, 2-sided tests.

For the analysis of risk factors for suicide attempt during the follow-up period, cases without information for the entire follow-up period were excluded. Univariable logistic regression was performed to investigate the odds of suicide attempt for each exposure variable. The association between the variables that were found to increase the odds of suicide attempt was examined using the χ^2 -test, and multivariable logistic regression was performed to adjust for possible confounders.

The association between the variables that were found to be associated with increased risk for suicide attempt in the univariable logistic regression and lethality of suicidal behavior after admission for drug overdose was examined using the χ^2 -test. We divided the means of suicide attempt into two categories based on the violence of the means. Self-poisoning, gas, and drowning were defined as non-violent suicide attempts, and all other suicide attempts were defined as violent suicide attempts according to a previous study.²¹ Based on external knowledge, violent suicide attempt was considered as the most lethal suicidal behavior, followed by non-violent suicide attempt and self-cutting. If a patient used multiple means of suicide attempt, the most lethal means was taken into consideration.

RESULTS

A total of 199 admissions of 190 patients to the emergency department for drug overdose were observed between March 2008 and February 2009. Of the 190 patients, 39 patients missed recruitment due to absence of the psychiatrists in charge of this research, 16 patients refused to participate in the study, two patients died due to acute intoxication after drug overdose during hospitalization, and one patient could not communicate well in Japanese. The mean age and sex ratio were not significantly different between the participants and non-participants in the cross-sectional survey. A total of 132 patients participated in the cross-sectional survey and completed the interview and the self-report questionnaire. Of the 132 patients, 66 patients were followed up for 1 year, for a follow-up rate of 50.0%. The reasons for loss to follow up were: 41 cases of no reply, 24 cases

Table 1. Comparison of the characteristics between followed up patients and patients lost to follow up

| | Followed up patients (n = 66) | Patients lost to follow up (n = 66) | P-value |
|--|----------------------------------|--|---------|
| Sociodemographic characteristics | | | |
| Mean age (years) (SD) | 33.3 (11.5) | 30.2 (12.0) | 0.122 |
| Sex (female) | 48 (73.7%) | 54 (81.8%) | 0.213 |
| Having cohabitant | 49 (74.2%) | 42 (64.6%) | 0.232 |
| Education (≥ 12 years) | 59 (89.4%) | 52 (78.8%) | 0.096 |
| Having occupation | 42 (64.6%) | 44 (67.7%) | 0.711 |
| Psychiatric diagnosis in ICD-10 | | | |
| F2 | 7 (10.9%) | 4 (7.4%) | 0.509 |
| F3 | 29 (45.3%) | 12 (22.2%) | 0.001 |
| F4 | 11 (17.2%) | 23 (42.6%) | <0.001 |
| F5 | 1 (1.6%) | 2 (3.7%) | 0.459 |
| F6 | 13 (20.3%) | 11 (20.4%) | 0.992 |
| F7 | 2 (3.1%) | 0 (0.0%) | 0.190 |
| F8 | 1 (1.6%) | 2 (3.7%) | 0.459 |
| Psychiatric history | | | |
| History of self-cutting | 36 (61.0%) | 28 (44.4%) | 0.067 |
| Past admission in psychiatric department | 37 (58.7%) | 19 (30.2%) | 0.001 |
| Ongoing psychiatric medication | 62 (95.4%) | 40 (61.5%) | <0.001 |
| History of suicide attempt | | | |
| Self-poisoning | 47 (73.4%) | 41 (63.1%) | 0.206 |
| Suicide attempt using charcoal | 2 (3.1%) | 0 (0.0%) | 0.151 |
| Jumping | 7 (10.9%) | 6 (9.2%) | 0.747 |
| Hanging | 7 (10.9%) | 7 (10.8%) | 0.975 |
| Other suicide attempt | 6 (9.4%) | 5 (7.7%) | 0.732 |
| Mental health status at recovery | | | |
| Mean K10 score | 33.9 (8.3) | 32.7 (10.2) | 0.497 |
| K10 ≥ 25 | 53 (91.4) | 46 (78.0) | 0.044 |
| Mean ADES score | 3.7 (2.3) | 3.1 (2.4) | 0.211 |
| ADES ≥ 4 | 20 (39.2) | 18 (38.3) | 0.926 |
| Suicide intent at recovery | | | |
| 'I do not want to commit suicide at all' | 25 (37.9%) | 26 (39.4%) | 0.887 |
| 'I think of death but do not want to commit suicide' | 32 (48.5%) | 31 (47.0%) | |
| 'I want to commit suicide' | 6 (9.1%) | 6 (9.1%) | |
| 'I am seeking a chance to commit suicide' | 3 (4.6%) | 3 (4.6%) | |

ADES, Adolescent Dissociation Experience Scale; K10, Kessler Psychological Distress Scale.

of disengagement from the psychiatrist's service, and one refusal by the patient to give information.

The baseline characteristics of patients who were followed up and of those who were lost to follow up are shown in Table 1. In general, there were only a few differences between the two groups. Those who were followed up were more likely to have had the experience of admission to the psychiatric department, to take ongoing psychiatric medication ($P = 0.001$ and $P \leq 0.001$, respectively), to have had

depression above the threshold level ($P = 0.044$), and to have the psychiatric diagnosis of F3 (mood disorders) ($P = 0.001$), while those lost to follow up were more likely to have the diagnosis of F4 (neurotic, stress-related and somatoform disorders) ($P \leq 0.001$). There was no difference in suicide intent at recovery between those followed and those lost to follow up.

Of the 66 patients who were followed up for 1 year, 25 patients (37.9%) performed self-cutting, 28

Table 2. Suicidal behaviors within 1-year follow up of 66 patients who were admitted for drug overdose

| | <i>n</i> | Crude rate per 1000 person-years |
|-----------------------|----------|----------------------------------|
| Completed suicide | 2 | 30.3 |
| Suicide attempt | | |
| Any | 28 | 424.2 |
| Self-poisoning | 25 | 378.8 |
| Jumping | 5 | 75.8 |
| Hanging | 3 | 45.5 |
| Gas | 0 | 0.0 |
| Other suicide attempt | 0 | 0.0 |
| Self-cutting | 25 | 378.8 |

patients (42.4%) attempted suicide, and two patients (3.0%) committed suicide within the 1-year follow-up period, one by drug overdose and the other by hanging (Table 2).

From the univariable logistic regression analysis, a history of admission to the psychiatric department (odds ratio [OR] 3.34; 95% confidence interval [CI] 1.09–10.26), a psychiatric diagnosis of personality disorder (OR 8.89; 95%CI 1.40–56.57), denial of suicide intent at recovery (OR 4.36; 95%CI 1.38–13.84), and a previous history of suicide attempt (OR 5.76; 95%CI 1.16–28.48) were associated with attempted suicide within a year after admission due to drug overdose (Table 3). After adjusting for possible confounders, the psychiatric diagnosis of personality disorder (OR 8.20; 95%CI 0.99–68.01) ($P = 0.051$) and denial of suicide intent on recovery (OR 4.82; 95%CI 1.27–18.34) ($P = 0.021$) were associated with a suicide attempt within a year after admission due to drug overdose.

Among the variables that were found to be associated with a suicide attempt during the follow-up period in the univariable logistic regression, only a previous history of suicide attempt tended to be associated with the lethality of suicidal behavior within a year after admission ($P = 0.085$). Therefore, we investigated the association between the lethality of suicidal behavior before and after admission due to self-poisoning. From ordinal logistic regression, both of them were associated with each other ($P < 0.001$). A history of more lethal suicidal behavior was associated with more lethal suicidal behavior within a year after admission for self-poisoning (Table 4). While only one of the patients without a

history of suicide attempt (1/12 patients, 8.3%) made a suicide attempt after admission, approximately half of the patients with a history of non-violent suicide attempt (16/35 patients, 45.7%) made a violent suicide attempt after the admission for self-poisoning. Approximately two-thirds of the patients with a history of violent suicide attempt (8/12 patients, 66.7%) made any suicide attempt after admission, and half of them (6/12 patients, 50.0%) made a violent suicide attempt.

DISCUSSION

This is the first prospective cohort study in Japan that has followed up patients who were admitted to an emergency department for drug overdose, and we observed a substantial proportion of fatal and non-fatal recurrent suicidal behavior within a year after discharge. Psychiatric diagnosis of personality disorder and denial of suicide intent at recovery were associated with increased risk for suicide attempt after discharge. Lethality of previous suicide attempt before the index admission was associated with lethality of suicidal behavior after discharge.

The suicide rate within a year after admission due to drug overdose was substantial in this first prospective cohort study in Japan which followed up patients admitting to an emergency department due to drug overdose. The observed suicide rate within a year after self-poisoning was relatively high in this study (2/66 in a year) compared with the previous studies.²² There may be several explanations for this. First, the patients included in the cohort were those who made a suicide attempt serious enough to require admission. Second, the patients followed up might have had more severe mental illness than those who were lost to follow up, as the patients who were followed up were more likely to have a history of self-cutting, a history of admission to the psychiatric department, and depression at recovery. The majority of those who repeated suicide attempt during the follow-up period took a non-violent method rather than a violent method, and the trend was similar to the population-based trend of suicide attempt in Japan.⁸

While neither depression nor dissociation at recovery were associated with suicide attempt after discharge, psychiatric diagnosis of personality disorder and denial of suicide intent at recovery were associated with increased risk for suicide attempt after

Table 3. Odds ratios of attempted suicide within 1 year after an emergency department admission for drug overdose

| | Total <i>n</i> | <i>n</i> (%) | Crude OR (95%CI) | <i>P</i> -value | Adjusted OR (95%CI) | <i>P</i> -value |
|--|----------------|--------------|-------------------|-----------------|--------------------------------|-----------------|
| Sociodemographic characteristics | | | | | | |
| Age group | | | | | | |
| <20 | 6 | 1 (16.7) | (Reference) | – | | |
| 20–29 | 20 | 6 (30.0) | 2.14 (0.20–22.48) | 0.525 | | |
| 30–39 | 23 | 15 (65.2) | 9.38 (0.93–94.65) | 0.058 | | |
| 40–49 | 12 | 3 (25.0) | 1.67 (0.13–20.58) | 0.690 | | |
| 50–59 | 2 | 1 (50.0) | 5.00 (0.15–166.6) | 0.368 | | |
| ≥60 | 2 | 0 (0.0) | – | | | |
| Sex | | | | | | |
| Male | 17 | 5 (29.4) | (Reference) | 0.304 | | |
| Female | 48 | 21 (43.8) | 1.87 (0.57–6.13) | | | |
| Having cohabitant | | | | | | |
| Yes | 49 | 19 (38.8) | (Reference) | 0.725 | | |
| No | 16 | 7 (43.8) | 1.22 (0.39–3.85) | | | |
| Education (years) | | | | | | |
| ≥12 | 58 | 24 (41.4) | 1.76 (0.32–9.87) | 0.518 | | |
| <12 | 7 | 2 (28.6) | (Reference) | | | |
| Having occupation | | | | | | |
| Yes | 42 | 14 (33.3) | (Reference) | 0.197 | | |
| No | 22 | 11 (50.0) | 2.00 (0.69–5.74) | | | |
| Psychiatric history | | | | | | |
| Ongoing psychiatric medication | | | | | | |
| Yes | 61 | 26 (42.6) | – | – | | |
| No | 3 | 0 (0.0) | – | | | |
| History of admission in psychiatric department | | | | | | |
| Yes | 37 | 19 (51.4) | 3.34 (1.09–10.26) | 0.035 | 2.18 (0.53–9.03) [†] | 0.280 |
| No | 25 | 6 (24.0) | (Reference) | | (Reference) | |
| Psychiatric diagnosis in ICD-10 | | | | | | |
| F2 | 7 | 2 (28.6) | 1.07 (0.13–8.79) | 0.952 | 1.47 (0.14–15.71) [‡] | 0.749 |
| F3 | 28 | 10 (35.7) | 1.48 (0.31–6.88) | 0.616 | 3.79 (0.52–27.60) [‡] | 0.189 |
| F4 | 11 | 3 (27.3) | (Reference) | – | (Reference) | – |
| F5 | 1 | 0 (0.0) | – | – | – | – |
| F6 | 13 | 10 (76.9) | 8.89 (1.40–56.57) | 0.021 | 8.20 (0.99–68.01) [‡] | 0.051 |
| F7 | 2 | 1 (50.0) | 2.67 (0.12–57.62) | 0.532 | – | – |
| F8 | 1 | 0 (0.0) | – | – | – | – |
| Mental health status at recovery | | | | | | |
| K10 score | | | | | | |
| ≥25 | 53 | 20 (37.7) | (Reference) | 0.179 | | |
| <25 | 4 | 3 (75.0) | 4.95 (0.48–50.9) | | | |
| ADES score | | | | | | |
| ≥4.0 | 20 | 10 (50.0) | 2.00 (0.63–6.38) | 0.241 | | |
| <4.0 | 30 | 10 (33.3) | (Reference) | | | |
| Suicide intent at recovery | | | | | | |
| 'I do not want to commit suicide at all' | 25 | 14 (56.0) | 4.36 (1.38–13.84) | 0.012 | 4.82 (1.27–18.34) [§] | 0.021 |
| 'I think of death but do not want to commit suicide' | 31 | 7 (22.6) | (Reference) | | (Reference) | |
| 'I want to commit suicide' | 6 | 2 (33.3) | 1.71 (0.26–11.40) | 0.577 | 2.51 (0.26–24.01) [§] | 0.425 |
| 'I am seeking a chance to commit suicide' | 3 | 3 (100.0) | – | – | – | – |