Previously Suicidal Adolescents: Predictors of Six-Month Outcome

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Abstract

Objective: To determine the baseline variables, including borderline personality disorder (BPD), associated with the six-month outcome of previously suicidal adolescents (n=263) presenting to an emergency department and treated predominantly as outpatients. **Methods:** Multivariate logistic regression was used to analyze the associations between baseline variables and suicidality at six-month follow-up. **Results:** BPD, previous suicide attempt(s), drug use and female gender were associated with subsequent suicidality. **Conclusions:** These findings corroborate previously reported risk factors for recurring suicidality among adolescents and broaden their generalizability to those presenting to an emergency department, many diagnosed with BPD.
Key words: adolescence, borderline personality disorder, suicide, predictors, prospective

Résumé

Objectif: Définir les variables des données de base, qui incluent le trouble de personnalité *borderline* (TPB), après suivi de six mois de 263 adolescents suicidaires qui se sont présentés à un service d'urgence et ont été traités principalement en clinique externe. **Méthodologie:** La régression logistique multivariable a servi à analyser les associations entre les variables des données de base et la suicidalité après un suivi de six mois.**Résultats:** Le TPB, les tentatives de suicide, la toxicomanie et le sexe féminin sont associés à un comportement suicidaire. **Conclusion:** Les résultats confirment les facteurs de risque évoqués précédemment en ce qui a trait au comportement suicidaire récurrent chez les adolescents; ces constatations peuvent être étendues aux nombreux patients qui souffrent de TPB et qui se présentent à un service d'urgence.
Mots clés: adolescence, trouble de personnalité *borderline*, suicide, prédicteurs, probabilité

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Introduction

Completed suicide rates in the United States and Canada are respectively 8.2 and 9.9 per 100,000 in the 15-to-19-year age group (Centers for Disease Control and Prevention, 2008; Statistics Canada, 2007), and the estimated ratio of serious attempts to completed suicides worldwide is approximately 140:1 in males and 1000:1 in females (Shaffer & Gutstein, 2002). Prior suicide attempts appear to be the strongest risk factor for completed suicide. Approximately 40% of youth committing suicide have made an attempt in the past (Shaffer et al., 1996; Shaffer & Gutstein, 2002). Other risk factors for persistent suicidality among adolescent in- and outpatients and community samples include the presence of depression or mood disorders (Brent et al., 1993; Goldston et al., 1999), number of previous attempts (Goldston et al., 1999), poor social adjustment (Pfeffer et al., 1993), low self-esteem (Lewinsohn et al., 1994), substance abuse (Stewart et al., 2001), impaired parental mental health (Chitsabesan et al., 2003), female gender (Gould et al., 2003), family conflict (King et al., 1995), conduct disorder (Sourander et al., 2001) and negative life events (Joiner & Rudd, 2000).

Stressful life events (Yen et al., 2005) and Borderline Personality Disorder (BPD) (particularly impulsivity) pose established risk factors for repeat suicidality among adult inpatients (Söderberg, 2001; Soloff et al., 2000; Stalenheim, 2001) and outpatients (Yen et al., 2004). In the pediatric population it has been demonstrated that adolescents with BPD (Bondurant et al., 2004) are at increased risk for suicidal behavior when they have comorbid disorders (e.g., major depressive disorder, substance abuse disorder) or when faced with a

major negative life event (Links et al., 2003).

This report seeks to extend our understanding of the variables associated with the outcome of suicidal adolescents treated predominantly as outpatients, using a large sample (n=286) and including BPD as a baseline variable. In this study BPD was hypothesized *a priori* to be an independent risk factor for persistent suicidality.

Methods

Details of the study and method have been previously reported (Greenfield et al., 2002) This report looks at secondary analyses of the protocol evaluating predictors of six month outcome. The study followed the Tri-Council guidelines for good clinical practice and all patients signed informed consent.

Sample

This study was conducted from December 1996 to October 1998 at an emergency department within a pediatric hospital that serves a major metropolitan area with a population of 3.5 million people. Almost half of patients referred for psychiatric consultation by emergency staff are suicidal adolescents, and were eligible for inclusion. There were no specific exclusion criteria.

During the period of this investigation, 344 adolescents who presented consecutively to the emergency department were judged by the pediatrician on call as having experienced a suicidal event requiring immediate psychiatric consultation. Of these patients, 41 (12%) could not be included in the study because of hospitalization for medical or surgical needs. Five percent of patients (n=17) did not agree to participate in the study. Seventy-one percent of the adolescents seen at baseline had suicidal thoughts and 35% had made an attempt in the previous six months. The prevalence of depression and conduct disorder at baseline were 48% and 24% respectively.

Of the 286 patients seen in the original study, 263 (92%) were retained at the six month follow up.

A coroner's report obtained six months after study completion found no participant deaths.

Procedure

After the patient signed consent they were randomized to receive either admission or intensive outpatient evaluation. Outcome of the RCT have been reported previously (Greenfield et al., 2002). There was no statistically significant difference between the experimental and control groups in terms of risk for later suicide attempts. All participants had equal access during follow-up to a broad range of multidisciplinary services, both hospital- and community-based (excepting access to the rapid response team, available only to the original experimental group).

Measures

Assessment of BPD status was established using the Abbreviated Diagnostic Interview for Borderlines (Ab-DIB) (Guilé et al., 2003). The Ab-DIB is an abbreviated analogue of the Diagnotic Interview for Borderlines (DIB-R) (Zanarini et al., 1989) that is commonly used by professionals to assess BPD. Ab-DIB has been shown to have similar reliability to the DIB-R in assessing affect, cognition and impulsivity (Guilé et al., 2003).

A detailed battery was carried out at baseline, evaluating demographics, diagnosis, functioning, suicidal ideation or behavior, stressors and family conflict. Diagnosis was assessed with the Diagnostic Interview Schedule for Children (DISC) (Costello et al., 1984) dealing with DSM-III-R (American Psychiatric Association, 1987) conduct and major affective diagnoses that are commonly seen in the adolescent population. Functioning was assessed using the Children's Global Assessment Scale (CGAS) (Shaffer et al., 1983). Suicidal ideation and/or attempts were measured using the Pfeffer's Spectrum of Suicidal Behavior Scale (PSSBS) (Pfeffer, 1986), which measures suicidal behavior on a five-point scale (1: nonsuicidal, 2: suicidal ideation, 3: suicidal threat, 4: mild attempt, 5: serious attempt). Stressors were measured with the Coddington Life Events Scale (Coddington, 1972), which measures stressful and precipitating life events experienced by the patient and their family. Family conflict was measured with the Index of Family Relations (IFR) (Hudson, 1982), which quantifies the extent, severity and magnitude of problems within a family.

The study used a repeated measures design with the baseline battery repeated at 6 month

follow up, with the addition of a 20 minute semi-structured interview regarding functioning.

Analysis

There were no statistically significant differences between the experimental and control groups at baseline or following intervention, and therefore for the purpose of this study looking at predictors of outcome the sample was evaluated as a whole.

The non-suicidal group (NS) at follow-up (PSSBS=1, n=186, 71%) was compared to the suicidal group (S) (PSSBS>1, n=77, 29%) with respect to baseline measures. Multiple imputation (Rubin, 1987) was conducted to impute missing values. Multivariate normality was assumed and the Markov Chain Monte Carlo (MCMC) method was used for imputation. This technique replaces each missing value with a random sample from the assumed distribution of the missing data and reflects uncertainty due to the missing values. Five sets of imputed data were generated using SAS procedure PROC MI (SAS Institute, 2001), and each was analyzed by logistic regression to identify the best baseline predictors of outcome at six-month follow-up. Confidence intervals took into account missing-data uncertainty, using SAS procedure PROC MIANALYZE (SAS Institute, 2001). Selection of the final model depended on achievement of statistical significance ($p \leq .05$) and included the clinical variable, BPD, through application of the Ab-DIB in the baseline evaluation.

Results

Differences between suicidal patients (S) and non-suicidal patients (NS) on baseline variables are shown in Table 1. The selected model for predictors of six-month follow-up (based on the group ratio of S/NS) included BPD, previous suicide attempt(s), drug use, and female gender (Table 2).

Discussion

Persistent suicidal behavior evaluated six months after initial presentation can be predicted by gender, borderline personality disorder, previous suicide attempts and drug use. Interestingly, depression did not predict future suicidality. What this suggests is that the not uncommon presentation in emergency of females with borderline personality, concurrent drug use and a past history of attempts repre-

Table 1. Clinical characteristics of the suicidal adolescents at baseline and between-group differences

	Suicidal (S) (n=77)	Non-Suicidal (NS) (n=186)	Odds Ratio) (S/NS)		
Characteristic	% or mean±SD	% or mean±SD		p-value	95% C.I.
Age	14.7 ± 1.4	14.5 ± 1.6	1.1	0.34	0.9 – 1.3
Sex (female)	79.2	64.0	2.2	0.02	1.2 – 4.0
IFR score	46.1 ± 23.8	42.4 ± 24.7	1.0	0.27	1.0 – 1.0
Depression	58.4	46.2	1.6	0.07	1.0 – 2.8
Conduct disorder	32.5	19.8	2.0	0.03	1.1 – 3.6
Life events	11.7 ± 7.0	10.2 ± 6.6	1.0	0.10	1.0 – 1.1
Number of previous hospitalization	0.5 ± 0.7	0.3 ± 0.5	1.6	0.03	1.1 – 2.5
Borderline personality disorder	90.9	72.6	3.8	0.002	1.6 – 8.7
Previous suicide attempt(s)	89.6	71.6	3.4	0.02	1.2 – 9.6
Drug use	71.4	45.9	3.0	0.001	1.7 – 5.2
Alcohol use	63.3	48.8	1.8	0.09	0.9 – 3.6
CGAS score	38.6 ± 11.5	40.0 ± 11.0	1.0	0.37	1.0 – 1.0
Parent previous suicide attempt(s)	87.5	78.7	1.9	0.37	0.5 – 7.7
Parental psychopathology	40.3	38.7	1.1	0.82	0.6 – 1.8
Living arrangement (group home)	5.4	4.0	1.4	0.63	0.4 – 4.8
Compliance to treatment	28.6	37.6	0.7	0.16	0.8 – 1.2

Table 2. Final model: predictors of suicidality

	Odds ratio (S/NS)	p-value	95% C.I.
Borderline personality disorder	2.40	0.052	0.99 – 5.79
Previous suicide attempt(s)	2.48	0.019	1.17 – 5.28
Drug use	2.14	0.019	1.13 – 4.03
Sex (female)	2.13	0.023	1.11 – 4.09

sents a high risk for persistent suicidal ideation and behavior in youth. When these findings are combined with our earlier findings showing no incremental benefit to hospitalization as opposed to intensive outpatient management, it clearly reinforces current practice that hospitalization of borderline patients presenting with suicidality is not effective in preventing future suicidal risk.

This study provides some support for the inclusion of Borderline Personality Disorder (BPD) independently of other demographic and psychiatric conditions (gender, drug use and number of previous suicide attempts) in the list of predictors of persistent suicide ideation and repeat attempts among suicidal adolescents assessed in an emergency department. It also lends support to the notion that BPD criteria of the Diagnostic and Statistical Manual of Mental Disorder-IV-TR (DSM-IV-TR) (American Psychiatric Association., 2000) be expanded to include the pediatric population.

Limitations

The study had a 92% retention rate and there may have been selective bias in which either more or less suicidal patients were lost to follow up. The treatment offered patients was experimentally driven and included both outpatient and inpatient treatment and so the findings cannot be generalized to other settings in which either more or less intensive care is provided.

Conclusions

The combination of borderline personality disorder, female gender, previous suicidal attempts and drug use predicts persistent suicidality at 6 month follow up. This finding is significant in that much of the focus of evaluation of suicidal risk has focused on depression and life events. Given the prevalence of BPD among the youths presenting to an urban pediatric emergency room (ER) for the assessment of suicidality, and given the importance of BPD for predicting future suicide risk, familiarity with assessment of this disorder, drug use and past suicide history should be a part of the routine assessment of suicide risk in emergency settings.

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