A Comparison of Alcohol-Induced and Independent Depression in Alcoholics with Histories of Suicide Attempts*

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ABSTRACT. Objective: Alcohol-dependent men and women are at high risk for two types of major depressive episodes and for suicide attempts. The aim of this study is to compare the characteristics of two groups: (1) alcohol-dependent subjects with histories of suicide attempts and independent mood disorders and (2) a similar population of alcoholics with histories of self harm but who have only experienced alcohol-induced depressions. Method: As part of the Collaborative Study on the Genetics of Alcoholism (COGA), semistructured detailed interviews were administered to 371 alcohol-dependent individuals (62% women) with histories of suicide attempts and major mood disorders. Of the total, 145 (39.1%) had ever had an independent depressive episode and 226 (60.9%) had experienced only alcohol-induced depressions. Information was obtained about socioeconomic characteristics, suicidal behavior, independent and induced psychiatric conditions, and aspects of alcohol dependence. Results: Univariate and multivariate comparisons revealed that alcohol-dependent individuals with a history of suicide attempts and independent depression had a higher number of suicide attempts, were less likely to have been drinking during their most severe attempt, and were more likely to have an independent panic disorder. Univariate analyses indicated that these subjects reported a less severe history of alcohol dependence. Conclusions: The results indicate that a distinction between independent and alcohol-induced mood disorders in alcoholics with a history of suicide attempts may be useful. (J. Stud. Alcohol 63: 498-502, 2002)


The Collaborative Study on the Genetics of Alcoholism (COGA) (H. Begleiter, State University of New York, Health Sciences Center at Brooklyn, principal investigator; T. Reich, Washington University, co-principal investigator) comprises nine centers at which data collection, analysis and/or storage take place. The nine sites, with principal investigator and co-investigator listed respectively for each, are: Indiana University (T.-K. Li, J. Nurnberger, Jr., P.M. Conneally, H. Edenberg); University of Iowa (R. Crowe, S. Kuperman); University of California at San Diego (M.A. Schuckit); University of Connecticut (V.M. Hesselbrock); State University of New York, Health Sciences Center at Brooklyn (B. Porjesz, H. Begleiter); Washington University, St. Louis (T. Reich, C.R. Cloninger, J. Rice, A. Goate); Howard University (R. Taylor); Rutgers University (J. Tischfield); and Southwest Foundation (L. Almasy). This national collaborative study is supported by the National Institute on Alcohol Abuse and Alcoholism grants U10AA108403 and 2 RO1 AA05526 and by the Veterans Affairs Research Service. U.W. Preuss is supported by DFG (Deutsche Forschungsgemeinschaft) research grant GEP-PR 607/1.

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Depressive syndromes in alcoholics are likely to be heterogeneous, however. Although as many as 40% of such patients have ever fulfilled criteria for a major depression, for two thirds of these, the syndromes only developed during periods of heavy drinking (Schuckit et al., 1997a). The distinction between independent and induced depression is important because independent depressive syndromes often require pharmacological treatment, but there is no evidence that alcohol-induced, temporary conditions are likely to benefit significantly from antidepressant medications (Brown and Schuckit, 1988; Brown et al., 1995; Davidson, 1995). There are additional differences between alcoholics with alcohol-induced and independent depressive episodes. The latter are more likely to be women (Kasperowicz-Dabrowiecka and Rybakowski, 2001; Schuckit et al., 1997a), to have more independent anxiety disorders (Schuckit et al., 1997a) and are more likely to have relatives with independent depression or mania (Schuckit et al., 1997a). By contrast, those with alcohol-induced depressions have less social stability, report a more severe course of alcoholism and are more likely to have a drug-use disorder (Schuckit et al., 1997a).

In an earlier analysis, independent and alcohol-induced depressions were compared in 2,945 alcoholics (Schuckit et al., 1997a). Whereas both types of mood disorders were associated with suicidal behavior, subjects with independent depressions were found to have a significantly higher rate of suicide attempts (30.3%) than were those with alcohol-induced depressions (24.8%). Few studies, however,
have evaluated possible differences in the characteristics related to these potentially fatal events within a group of subjects characterized by suicide attempts and alcohol-induced versus independent mood disorders. The current analyses take advantage of data from the ongoing Collaborative Study of the Genetics of Alcoholism (COGA) to make an indepth comparison of characteristics of alcoholics whose suicide attempts were carried out in the context of a history of independent major depressive episodes with those of subjects who attempted suicide in a depressive state only occurring in the context of heavy drinking. We hypothesized that, after removing individuals with antisocial personality disorder (ASPD; a subgroup known to exhibit high rates of alcoholism and suicidal behavior) (Anthenelli et al., 1994; Virkkunen et al., 1996), alcohol-dependent subjects with histories of suicide attempts and independent depressions (1) will, as a consequence of a potentially more persistent mood disorder have a higher number and an earlier age of onset of suicide attempts; (2) will be more likely to show associated anxiety disorders; (3) will, as a consequence of a less severe alcoholism and the independence of their mood disorder, be less likely to have been under the influence of alcohol during the most serious suicide attempt; and (4) will have a later onset of alcoholism and be less likely to report additional substance-user disorders.

Method

COGA is a six-center-wide pedigree study that gained informed consent to gather data from alcohol-dependent men and women, controls and their relatives (Schuckit et al., 1995, 1997a,b; Preuss et al., 2002). The original alcoholic probands were recruited from alcohol treatment programs, based on a high family-density of alcoholism, and chosen regardless of additional psychiatric or substance use diagnoses. Men and women were excluded if they could not speak English, had a life-threatening illness or reported recent repetitive intravenous drug use. Probands were required to meet both DSM-III-R criteria for alcohol dependence (American Psychiatric Association, 1987) as well as the Feighner criteria for definite alcoholism (Feighner et al., 1972). Controls were selected through different methods across the six centers (e.g., random mailings to students at universities, advertising, dental clinics and contacting inpatients receiving care for nonschizophrenic disorders).

At the time of original recruitment, the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA; Bucholz et al., 1994; Hesselbrock et al., 1999) interview was employed to obtain information about psychiatric disorders and suicidal behavior. The distinction between independent and alcohol-induced psychiatric disorders was based on establishing the ages of onset of alcohol dependence and all episodes of each major psychiatric syndrome, using the time-line method described elsewhere (Schuckit et al., 1997a). All subjects reporting a major depressive episode before the onset of alcohol dependence or during a 3- or more month period of abstinence were considered to have experienced an independent major depressive episode; psychiatric disorders occurring only during active alcohol dependence were labeled as alcohol-induced.

Following procedures described elsewhere (Preuss et al., 2002), a total of 371 alcohol-dependent men and women with a history of both suicide attempts and major depression were identified (after excluding individuals with ASPD; \( n = 129 \)). Initial probands \( (n = 163; 43.9\%) \) and family members \( (n = 208; 56.1\%) \) who attempted suicide were placed into two categories. Members of Group 1 were those who met criteria for having ever had an independent depressive episode \( (n = 145) \) and Group 2 comprised those who only reported an alcohol-induced depression \( (n = 226) \).

Pairwise comparisons across groups were conducted using the chi-square statistic for categorical data, whereas quantitative measures were compared using Student’s \( t \) test for independent samples. To evaluate how characteristics that differentiated significantly between Groups 1 and 2 in the univariate analysis performed in the context of the other relevant variables, a logistic regression was performed.

Results

The 371 alcohol-dependent individuals had an average (SD) age of 37.0 (10.34) years; 230 (62.0\%) were women and 163 (43.9\%) were initial probands. As presented in Table 1, alcohol-dependent subjects with both a history of suicide attempts and independent depressions (Group 1) were more likely to be women and less likely to be probands. There were no differences regarding age, education, marital status and ethnicity across groups.

As projected, Group-1 individuals reported a higher number of suicide attempts and reported an earlier age of first attempt and first suicidal thoughts. They were also more likely to ever have had an independent panic disorder, but less likely to meet criteria for an alcohol-induced panic condition. Although members of Group 1 were more likely to have had an independent manic episode, no group differences were found regarding induced mania and independent or alcohol-induced social phobia.

Regarding the third hypothesis, the table reveals that the pattern of characteristics at the most serious suicide attempt was significantly different overall \( (\chi^2 = 14.94, 4 \text{ df}, p < .05) \). When this variable is looked at item by item, members of Group 1, not surprisingly, were less likely to report having consumed alcohol at the time of that attempt. As projected in Hypothesis 4, subjects with independent depressions (Group 1) reported a lower maximum number of drinks in 24 hours (a drink was defined as the amount of alcohol in 12 oz of beer, 4 oz of wine or 1 to 1.5 oz of 80-proof distilled spirits). They endorsed a lower number of
DSM-III-R alcohol-dependence criteria and reported a lower number of substance dependencies. They were less likely to receive treatment for alcohol dependence or attend Alcoholics Anonymous meetings and less often demonstrated alcohol-related physical problems.

The multiple group comparisons in Table 1 make it difficult to understand how each item relates to the other characteristics, including proband status and gender. Therefore, a logistic regression analysis was conducted in which all relevant variables that differentiated between groups in Table 1 were used to predict Group-1 membership (i.e., a history of independent depression). The resulting equation, which explained 19.5% of the variance ($\chi^2 = 54.15$, 14 df, $p < .001$), included not drinking at the time of the most serious suicide attempt (OR: 1.5, $p < .05$), a history of an independent manic episode (OR: 3.0, $p < .05$) and a history of an independent panic disorder (OR: 2.2, $p < .05$).

Only a minority of alcoholics has ASPD. Because the latter diagnosis is associated with multiple drug dependencies and a chaotic lifestyle (Hesselbrock et al., 1988), men...
and women with this personality disorder were excluded from the original analysis. The hypotheses stated above were, however, retested for 129 relevant ASPD alcohol-dependent subjects with independent (n = 39, 30.2%; Group 1) and induced (n = 90, 69.8%; Group 2) mood disorders. The presence or absence of ASPD was not significantly different between the depression groups (21.2% vs 28.5%; $\chi^2 = 3.22, 1$ df, $p = .07$), and the analysis revealed no alteration of the univariate comparison or the logistic regression results presented above.

Two additional analyses were carried out. First, an evaluation was done to see if a primary (i.e., first appearing) depressive episode versus a secondary (or chronologically later appearing) depression generated similar results. Here, Group 1 individuals with independent depression were further divided into a group with a depressive episode before (primary depression; $n = 51, 35.2\%$) and after the onset of alcoholism (secondary depression; $n = 94, 64.8\%$). Comparing these two groups for the major findings reported for Group 1 versus Group 2, no differences were found regarding average (SD) age at first attempt (23.7 [10.06] vs 26.8 [10.59]); $t = 1.73, 141$ df, $p = .09$), drinking during their most severe attempt (34.8% vs 49.0%; $\chi^2 = 2.77, 1$ df, $p = .09$), rate of those with manic episodes (10.9% vs 19.6%; $\chi^2 = 2.08, 1$ df, $p = .15$) and the rate of panic disorders (17.4% vs 11.8%; $\chi^2 = 0.80, 1$ df, $p = .38$). There was a difference for average (SD) number of suicide attempts (6.0 [18.4] vs 2.1 [1.99]; $t = -1.51, 93.71$ df, $p = .05$), although this difference was completely carried by a couple of very extreme values. Second, we evaluated the impact of the proband status, as these subjects were a more severely impaired group, seeking treatment. Repeating the analyses separately for the 208 relevant nonproband, of whom 100 (48.1%), Group 1) had an independent and 108 (51.9%, Group 2) an alcohol-induced depression, revealed generally similar results to those relevant to the entire group.

**Discussion**

Alcoholics have been estimated to have a 5- to 10-fold enhanced risk for suicide completion (Inskip et al, 1998; Murphy and Wetzal, 1990; Murphy et al., 1992). Alcohol-dependent men and woman also carry a higher risk for repetitive suicide attempts, which often occur in the context of depressive syndromes (Oquendo et al., 2000; Preuss et al., 2002; Schuckit et al., 1997a). Thus, it is important to improve our understanding of the relationship between depressive disorders and suicidal behavior in this group.

The distinction between two types of mood disorders in alcoholics is not perfect, but does predict whether a depression is likely to clear with abstinence, and relates both to clinical characteristics and family histories (Brown et al., 1995; Schuckit et al., 1997a). The recognition that these syndromes carry different prognoses and possible treatment needs raises the question of whether the two conditions might also relate differentially to suicidal behavior. The current study addressed this question by evaluating whether alcoholics with histories of suicide attempts and independent major depressive episodes differed from similar alcoholics with alcohol-induced depressions. The data revealed some potentially important differences between these two groups. As hypothesized, a history of major depressive episodes that occurred outside the context of active alcohol misuse relates to an earlier onset of suicidal behavior and a significantly higher number of suicide attempts. These men and women were also more likely to have at least two additional independent psychiatric syndromes: manic episodes and panic disorder. This pattern of differences was not confounded by other, potentially important, subgroups of depressed individuals within Group 1 (e.g., primary versus secondary depression distinction, a separate evaluation of nonprobands or the inclusion of alcohol-dependent subjects with ASPD).

The more intense course of suicidal behavior among subjects with independent depressions adds support to the probability that pharmacological interventions might be most appropriate for this group (Brown and Schuckit, 1988; Brown et al., 1995; Cornelius et al., 1993; Schuckit et al., 1997a). Consistent with the possibility that alcohol was central to the mood disturbance in Group 2, alcoholic subjects with histories of only alcohol-induced mood disorders may have demonstrated a more severe course of alcoholism, reporting on a univariate level a higher number of drinks per day and endorsing significantly more DSM-III-R dependence criterion items. They also reported a higher number of drug dependencies and more substance-related treatment.

It is important to note that the apparent severity of the suicide attempts was similar, regardless of the type of mood disorder involved. Almost two thirds of each group reported an intention to die and about 40% were hospitalized following the attempt. Therefore, suicide attempts and suicidal thoughts must be taken seriously in both groups. The number of suicide attempts was almost twice as high in subjects with independent depressions, however, a finding that indicates a need for even higher levels of vigilance regarding suicidal thoughts in this population. The finding that alcoholics with alcohol-induced mood disorders are more likely to attempt suicide while drinking indicates that, for this group, clinicians need to be especially concerned about thoughts of suicide during active drinking periods.

The results must be considered in the context of the methodologies used. First, the data were generated primarily from alcohol-dependent men and women entering treatment and their relatives, selection criteria that might have placed an emphasis on more severely impaired individuals. Second, the amount of information available regarding the characteristics of the actual suicide attempts was limited, and all data were gathered retrospectively from a single
source. Third, it is important to recognize that, in these alcoholics with suicide attempts, the variables used to predict membership in the two groups (those with independent versus those with induced depressive episodes) yielded a model that explained less than 20% of the variance of group membership. Thus, it is likely that there are additional important factors that were not evaluated, including biological attributes (e.g., low serotonin activity levels) (Branchey et al., 1984; Linnoila and Virkkunen, 1992). Furthermore, some of our results might be more carefully interpreted in the context of the group definitions we made. It is not surprising, for example, that alcoholics attempt suicide while drinking, when they have a lifetime history of depressions that are alcohol induced.

References