Suicide Attempts in Schizophrenia: The Role of Command Auditory Hallucinations for Suicide

Jill M. Harkavy-Friedman, Ph.D.; David Kimhy, M.A.; Elizabeth A. Nelson, Ph.D.; David F. Venarde, Psy.D.; Dolores Malaspina, M.D.; and J. John Mann, M.D.

Background: We examined the presence of command auditory hallucinations for suicide (CAHS) in a sample of individuals with schizophrenia or schizoaffective disorder. We examined the relationship between CAHS and demographic and clinical variables. We also investigated the relationship between CAHS and suicide attempts.

Method: 100 individuals with DSM-IV schizophrenia or schizoaffective disorder hospitalized on an inpatient research unit participated. Information was gathered using the Diagnostic Interview for Genetic Studies and the Harkavy Asnis Suicide Scale. Data were gathered from 1995 to 2001.

Results: CAHS were frequent in this sample (22%), as were suicide attempts (33%). Eight percent of the entire sample (36% of those who experienced CAHS) made at least 1 suicide attempt in response to the hallucinations. The presence of CAHS was not related to demographic or clinical measures assessed. The frequency of CAHS was not statistically different for suicide attempters (30%) and nonattempters (18%). However, 80% (8/10) of attempters with CAHS reported at least 1 attempt in response to CAHS. Three of 6 repeat attempters who made at least 1 suicide attempt in response to CAHS also made other attempts that were not in response to CAHS. The presence of CAHS was not associated with a history of depression or substance abuse/dependence.

Conclusion: The presence of CAHS does not directly predict suicide attempts. However, individuals who are already at risk for suicidal behavior (e.g., past attempters) may be at increased risk for a suicide attempt when experiencing CAHS.

(J Clin Psychiatry 2003;64:871–874)

Received March 4, 2002; accepted Dec. 30, 2002. From the New York State Psychiatric Institute (all authors) and the Department of Psychiatry, Columbia University (Drs. Harkavy-Friedman, Malaspina, and Mann), New York, N.Y.

Funded by grants 1R01MH56422-01A2, 1 P50 MH62185-01, and P30 MH59342-01 from the National Institute of Mental Health, Bethesda, Md.

In the spirit of full disclosure and in compliance with all ACCME Essential Areas and Policies, the faculty for this CME activity were asked to complete a full disclosure statement. The information received is as follows: Drs. Harkavy-Friedman, Kimhy, Nelson, Venarde, Malaspina, and Mann have no significant commercial relationships to disclose relative to the presentation.

The authors appreciate the support and efforts of the staff of the Schizophrenia Research Unit and the Department of Neuroscience at New York State Psychiatric Institute/Columbia University. Special thanks also go to Jack M. Gorman, M.D., and Scott Yale, M.S.W.

Corresponding author and reprints: Jill M. Harkavy-Friedman, Ph.D., New York State Psychiatric Institute/Columbia University, 1051 Riverside Dr., Unit 6, New York, NY 10032 (e-mail: jmf6@columbia.edu).

Command auditory hallucinations for suicide (CAHS) are frequently reported to clinicians and are considered a risk factor for suicidal behavior among individuals with schizophrenia. No published study to date has actually documented this association. Previous researchers found that CAHS are frequent among individuals with schizophrenia,[1,2] with reported rates ranging from 18% to 50%. It is not known how many people with schizophrenia who experience CAHS engage in suicidal behavior in response to the command auditory hallucinations. Given the potential lethality of suicide attempts and the fact that clinicians are often placed in the position of assessing suicide risk because of the presence of CAHS, it is important to determine the specific relationship between CAHS and suicide attempts.

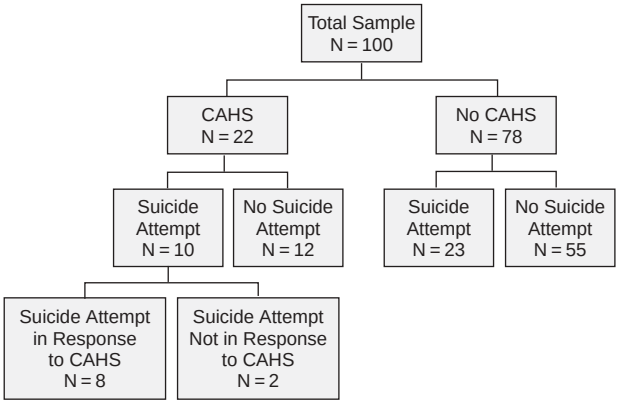
Retrospective data suggest that 4% to 10% of suicidal behavior in schizophrenia (both attempted and completed suicide) is in response to command hallucinations.[3–7] However, most of these studies relied on retrospective chart reviews or psychological autopsies with family members. Such reports may be unreliable because the suicidal individual may not have reported the command auditory hallucinations to their families or psychiatric staff, the data may not have been recorded in the chart, or the suicidal individual may not have been assessed in a standardized manner by the investigator. In addition, the co-occurrence of command auditory hallucinations and suicidal behavior does not mean that the suicidal

© Copyright 2003 Physicians Postgraduate Press, Inc.

behavior was directly in response to command auditory hallucinations.

The goals of this study were to (1) assess the rate of CAHS in a sample of individuals with schizophrenia and schizoaffective disorder and (2) examine the relationship between CAHS and suicide attempts in a group of individuals with schizophrenia or schizoaffective disorder. We examined clinical and demographic variables in relationship to CAHS. Next, we compared those patients whose CAHS precipitated a suicide attempt with those who experienced CAHS and did not act on them. We hypothesized that for some individuals the risk of suicidal behavior would be increased in the presence of CAHS. The findings have implications for the assessment of suicide risk among individuals with schizophrenia and schizoaffective disorder.

Figure 1. Command Auditory Hallucinations for Suicide (CAHS) and Suicide Attempts



METHOD

Sample

One hundred individuals with schizophrenia (80%) or schizoaffective disorder (20%) participated in the study. Participants were inpatients in the Schizophrenia Research Unit (SRU) at New York State Psychiatric Institute. SRU patients are recruited from other psychiatric hospitals, mental health clinics, and clinicians, as well as advocacy groups and local (New York tri-state area: New York, New Jersey, Connecticut) National Alliance for the Mentally Ill chapters. All consecutively admitted patients were invited to participate. The exclusion criteria were age below 18 years, lack of fluency in English, and lack of capacity to provide written informed consent. Less than 1% of individuals admitted refused to participate in this study. Sixty-one percent of the sample was male and 39% was female. The mean (SD) age of the sample was 31.6 (10.5) years, the mean age at onset of psychosis was 21.5 (6.3) years, and the mean duration of illness was 9.9 (9.3) years. Forty-six percent of the sample was white, 21% was African American, 21% was Latino, and 12% was from other racial backgrounds. Participants completed a mean of 13.2 (2.8) years of education and were previously hospitalized a mean of 5.0 (5.4) times (range, 0–25). Thirty-three participants reported a history of at least 1 suicide attempt, and 15 attempters (45% of attempters) reported more than 1 attempt. In terms of the most severe suicide attempts, 61% made attempts with at least some physical consequence (e.g., drowsiness, a scratch) and 36% made attempts of moderate-to-severe lethality.

Measures

Diagnosis. The Diagnostic Interview for Genetic Studies (DIGS)[8] was administered to determine diagnosis. The DIGS is a structured diagnostic interview and review of medical records that is used to gather demographic, diagnostic, and course of illness information for the major affective, psychotic, and substance use DSM-IV Axis I disorders. The presence of command auditory hallucinations is also determined during this diagnostic process. The DIGS has been shown to have good reliability in our group.[8] A team of clinical research psychologists and psychiatrists made consensus diagnoses based on information collected via the DIGS. The interrater reliability cannot be assessed using this approach.

Suicidal behavior. The Harkavy Asnis Suicide Scale[9] was used to assess past and current suicidal behavior and the presence of command auditory hallucinations at the time of each suicide attempt. Suicide attempts were corroborated with medical records.

Procedure

All patients hospitalized on the SRU of New York State Psychiatric Institute who were interested in participating in research were approached for participation in this study. Written informed consent was obtained. The participants were interviewed and medical records were reviewed by master's-level or above clinical research interviewers. These data were collected as part of an ongoing large-scale prospective study of suicidal behavior in individuals with schizophrenia or schizoaffective disorder. This study was approved by the institutional review board of the New York State Psychiatric Institute. Data were gathered from 1995 to 2001.

RESULTS

Thirty-one participants reported that at some time in their life they had experienced command auditory hallucinations, with 22 (71% of those with command auditory hallucinations) reporting a lifetime history of CAHS (Figure 1). Three individuals with command auditory hallucinations reported command auditory hallucinations for

homicide, and 8 reported other forms of command auditory hallucinations. Two individuals reported more than 1 type of command auditory hallucination. Those with a lifetime history of CAHS did not differ significantly from those without CAHS with respect to the demographic characteristics of age (mean age 32.86 [10.93] vs. 31.18 [10.36] years; $t = 0.67$, $df = 98$, $p = .507$), gender (55% male vs. 63% male; Fisher exact $\chi^2 = 0.49$, $df = 1$, $p = .621$), ethnicity (41% vs. 47% white; Fisher exact test = 0.29, $df = 1$, $p = 1.00$), or education (mean 12.50 [2.60] vs. 13.43 [2.89] years; $t = 1.36$, $df = 97$, $p = .178$). Those with CAHS did not differ from those without CAHS with respect to diagnosis (77% of those with CAHS vs. 82% of those without CAHS had schizophrenia vs. schizoaffective disorder; $\chi^2 = 0.52$, $df = 2$, $p = .773$), age at onset of psychosis (mean age 20.91 [6.10] vs. 21.44 [2.40] years; $t = 0.31$, $df = 98$, $p = .757$), or duration of illness (mean 11.95 [9.34] vs. 9.30 [9.29] years; $t = 1.81$, $df = 97$, $p = .240$). The groups did not differ with respect to history of a major depressive episode (CAHS 64% vs. no CAHS 53%; Fisher exact $\chi^2 = 0.85$, $df = 1$, $p = .468$), alcohol abuse or dependence (CAHS 9% vs. no CAHS 13%; Fisher exact $\chi^2 = 0.23$, $df = 1$, $p = 1.00$), or other substance abuse or dependence (CAHS 26% vs. no CAHS 27%; Fisher exact $\chi^2 = 0.02$, $df = 1$, $p = 1.00$).

Eight percent of the entire sample (36% of those with a lifetime history of CAHS) reported that they had made suicide attempts in response to CAHS. Twenty-four percent (8/33) of all suicide attempters made at least 1 suicide attempt in response to CAHS, and 80% (8/10) of attempters with CAHS made at least 1 attempt in response to CAHS. Interestingly, the rate of suicide attempts did not differ between those with CAHS and those without CAHS (CAHS: 10/22 [46%], no CAHS: 23/78 [30%], Fisher exact $\chi^2 = 1.98$, $df = 1$, $p = .201$). Six (75%) of the 8 individuals who made attempts in response to CAHS made more than 1 attempt. Of the 6 repeat attempters with CAHS, half (3/6) made other attempts that were not in response to CAHS. In addition, half ($N = 3$) of the individuals with repeat attempts made 2 or more attempts in response to CAHS. There were no demographic or clinical differences between individuals who made an attempt in response to CAHS and those who did not make an attempt in response to CAHS. The rate of multiple attempts (more than 1 attempt) was not significantly different between attempters with CAHS and attempters with no history of CAHS (Fisher exact $\chi^2 = 1.98$, $df = 1$, $p = .126$).

DISCUSSION

We assessed the presence of command auditory hallucinations and CAHS and the frequency with which CAHS lead to a suicide attempt. Other researchers have studied compliance with command auditory hallucinations, but not in specific relation to suicide attempts. We found that over one fifth of individuals with schizophrenia or schizoaffective disorder had experienced CAHS at some time during their illness. This finding is consistent with those of Hellerstein et al.[2] and Zisook et al.[1] Like these investigators, we found no differences between patients with CAHS and those without CAHS with respect to demographic or clinical characteristics such as the presence of affective disorder or substance abuse/dependence. Thus, CAHS are not a rare phenomenon, and it is not likely that the presence of CAHS can be used to discriminate subgroups of individuals with schizophrenia and schizoaffective disorder.

Individuals with CAHS were no more likely than those without CAHS to make suicide attempts. However, one quarter of all suicide attempters and over one third of all individuals with CAHS made suicide attempts in response to these hallucinations. Being able to account for so many suicide attempts suggests that the presence of CAHS increases the risk of suicide attempts for some individuals with schizophrenia and schizoaffective disorder. The finding that the rate of suicide attempts was the same for those with and without CAHS suggests that factors other than just the presence of CAHS determine who will make a suicide attempt in response to CAHS. Since we were unable to find a clinical difference, the nature of this additional risk factor remains to be identified.

Junginger[10] found that individuals with schizophrenia were at increased risk for complying with command auditory hallucinations relative to other psychotic patients. Junginger studied compliance with command auditory hallucinations in general and did not investigate CAHS or suicide attempts specifically. Nonetheless, our findings are consistent with those of Junginger. In our study, once an individual made an attempt in response to CAHS, he or she was likely to make repeat attempts in response to CAHS. We also found that repeat attempters who made suicide attempts in response to CAHS also made attempts when not experiencing CAHS and precipitated by other factors. We do not know the frequency and intensity of CAHS prior to the suicide attempts. It would be important to know if the suicide attempts occur immediately after the first CAHS or after a prolonged period of CAHS. Future research examining the details of the relationship between CAHS and suicide attempts more closely would be important for assessment and intervention with individuals with schizophrenia and schizoaffective disorder.

While this study is a first step in closely examining the relationship between CAHS and suicide attempts, it does have several methodological limitations. First, participants in our study were inpatients in a schizophrenia research unit, and therefore our findings will need to be replicated in other samples, preferably with larger sample sizes, to determine the generalizability of our findings. Second, the assessments were retrospective and carried out weeks to years after the actual suicidal behavior,

although past medical records were used to corroborate information gathered. Future studies should endeavor to focus on individuals close to the time of the suicide attempt to gather more details and increase the reliability and validity above and beyond self-report. Finally, we were able to examine the lifetime presence of command auditory hallucinations and CAHS as well as the co-occurrence of CAHS and suicide attempts, but we do not know the duration, frequency, or intensity of the CAHS. Obtaining greater detail surrounding CAHS would be important for understanding the contribution of CAHS to suicidal behavior.

CONCLUSION

We found that CAHS were frequent among individuals with schizophrenia and schizoaffective disorder. We also found that 36% of those with CAHS have made at least 1 suicide attempt in response to CAHS. Clinical and demographic features did not differentiate those with and without CAHS. While CAHS in and of themselves were not predictive of suicide attempts in our sample, individuals who, for other reasons, are vulnerable to suicidal behavior are at increased risk for suicidal behavior when they are experiencing CAHS. Thus, previous attempters, for example, are likely to be at increased risk for suicidal behavior when they are experiencing CAHS. We do not yet know how to determine who will act on CAHS and who will not, and future studies are needed to identify the additional risk factors involved.

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents has been presented in this article that is outside U.S. Food and Drug Administration–approved labeling.

REFERENCES

1. Zisook S, Byrd D, Kuck J, et al. Command hallucinations in outpatients with schizophrenia. J Clin Psychiatry 1995;56:462–465
2. Hellerstein D, Frosch W, Koenigsberg HW. The clinical significance of command hallucinations. Am J Psychiatry 1987;144:219–221
3. Shaffer JW, Perlin S, Schmidt CW, et al. The prediction of suicide in schizophrenia. J Nerv Ment Dis 1974;159:349–355
4. Harkavy-Friedman JM, Restifo K, Malaspina D, et al. Suicidal behavior in schizophrenia: characteristics of individuals who had and had not attempted suicide. Am J Psychiatry 1999;156:1276–1278
5. Breier A, Astrachan BM. Characterization of schizophrenic patients who commit suicide. Am J Psychiatry 1984;141:206–209
6. Drake RE, Gates C, Cotton PG, et al. Suicide among schizophrenics: who is at risk? J Nerv Ment Dis 1984;172:613–617
7. Warnes H. Suicide in schizophrenics. Dis Nerv Syst 1968;29:35–40
8. Nurnberger JI Jr, Blehar MC, Kaufmann CA, et al. Diagnostic interview for genetic studies: rationale, unique features, and training. NIMH Genetics Initiative. Arch Gen Psychiatry 1994;51:849–859
9. Harkavy-Friedman JM, Asnis GM. Assessment of suicidal behavior: a new instrument. Psychiatr Ann 1989;19:382–387
10. Junginger J. Predicting compliance with command hallucinations. Am J Psychiatry 1990;147:245–247

For the CME Posttest for this article, see pages 975–976.