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ORIGINAL RESEARCH

Psychiatric Consultation With Medical Evacuees of Hurricane Katrina

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Objective.—To study the scope of clinical activities and the postoperational attitudes of mental health professionals responding emergently to a mass urban evacuation.

Methods.—Eleven mental health care providers participating in a reception team for medical evacuees after Hurricane Katrina were asked to complete a survey seeking data regarding cases encountered, psychopharmacologic interventions, and mental health support for evacuated medical personnel. Participants rated their levels of agreement with statements characterizing various aspects of the clinical experience.

Results.—Nine of 11 providers returned surveys, for a response rate of 82%. Among 35 evacuees requiring immediate psychiatric consultation, acute stress disorder and dementia, equally represented among these cases, accounted for half the diagnoses. Medication interventions were relatively uncommon. Consultants provided mental health support to 14 evacuated medical professionals. Although somewhat uncertain about their role, psychiatric consultants strongly agreed that they would be willing to serve in future disaster operations of this type.

Conclusions.—In major disasters, psychiatric consultants are likely to play a critical role in providing emergency mental health services for both medical evacuees and evacuated medical professionals.

Key words: acute stress disorder; disaster, natural; hurricane; psychiatric emergency services

Introduction

Recent catastrophes, including September 11 and Hurricane Katrina, have focused attention on disaster medicine. Growing recognition of the mental health effects of mass trauma highlights the critical role of psychiatric services as an integral component of disaster medical response.[1,2]

Although disaster exercises are necessary tests of preparedness, only real, large-scale disasters provide the opportunity for studies of medical response systems and their components under actual conditions.[3] Few studies have attempted to profile, in quantitative terms, the clinical efforts of psychiatrists and mental health professionals as consultants to a medical reception team in a large-scale evacuation.[4] The results presented here represent an effort to characterize the clinical activity of mental health providers (primarily psychiatrists) as early responders to a mass urban evacuation of sick or injured disaster victims.

On August 31, 2005, after Hurricane Katrina forced breaches in the levees of New Orleans, LA, and flooded the city, the National Disaster Medical System was activated. This system is the primary contingency plan for mobilizing federal physicians and health care workers in a national disaster.[5] The Veterans Health Administration responded with the establishment of several Federal Coordinating Centers to receive and triage medical evacuees from the disaster zones of the Gulf Coast. This study provides data obtained from psychiatrists and mental health professionals that participated in one of the principal medical evacuation reception centers, located at Ellington Field, a former Air Force base near Houston, TX. The Patient Reception Team (PRT) at Ellington began

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receiving evacuees, primarily via military airlift from New Orleans International Airport, on the evening of August 31, 2005, and continued in active operation through September 4, 2005. In all, approximately 800 medical evacuees were received and triaged by the PRT. The majority of those evacuees had been inpatients and residents of hospitals and nursing care facilities in the New Orleans area before the storm hit, but a significant number were previously healthy victims of injury or exposure. Many flights into Ellington included physicians and other medical caregivers who had spent the prior few days treating stranded patients in facilities with little or no power, water, and supplies. These health care providers were evacuated to provide care for medical evacuees en route, as well as for their own health and safety.

As members of the PRT medical staff, psychiatrists and other mental health caregivers provided mental health consultations as needed, as well as evaluated and triaged nonpsychiatric conditions when the primary care providers became overwhelmed with cases. All respondents were from the staff of the Michael E. DeBakey VA Medical Center in Houston. Typically, a single psychiatrist worked each shift with a team of 4 or 5 primary care physicians. A psychiatric social worker and physician assistant also provided mental health care. In addition, psychiatrists were frequently called upon to provide supportive interventions for the exhausted and stressed medical caregivers who had cared for evacuees during the disaster and subsequent travel to Ellington. Psychiatrists and the physician assistant could prescribe from the emergency field pharmacy, which stocked the following psychiatric medications: lorazepam (oral and injectable), injectable haloperidol, rapidly dissolving oral olanzapine, and oral diphenhydramine.

Methods

A validated survey instrument suitable for this unusual situation being unavailable, a new survey questionnaire was designed specifically for the occasion. Given the importance of obtaining freshly recalled information from the providers, time constraints did not allow for prior validation of the questionnaire. The questionnaire was distributed to each of the 11 mental health providers who participated in the PRT. The questionnaire included 2 sections. The first section sought data, based on clinician recollection, of the numbers of patient contacts and types of mental health problems encountered, psychotropic medications prescribed on site, and numbers of supportive interventions with evacuated medical personnel. Because psychiatric diagnoses in this setting necessarily are provisional and based on rapid evaluations and because respondents might not be expected to recall diagnoses with the full precision of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV), they were asked to report numbers of conditions encountered in each of 8 categories: substance-related disorders, dementia, schizophrenia and other psychotic disorders, mood disorders, acute stress disorder, anxiety disorders other than acute stress disorder, adjustment disorder, and other psychiatric disorders.

The second part of the questionnaire was an opinion poll. It asked the mental health providers to rate their levels of agreement with a series of statements characterizing their confidence in their ability to function in this particular care setting, adequacy and accessibility of primary care back up, adequacy of psychiatric drug formulary, understanding of professional role in the PRT, and willingness to participate in a future PRT.

Because the study did not involve either direct patient contact by investigators and because data were recorded in such a manner that patients could not be identified, the study was classified as exempt from review by the Baylor College of Medicine Institutional Review Board. Questionnaires were returned anonymously. Anonymity was preserved for all respondents except for the social worker and the physician assistant, who, in completing their questionnaires, included unintentionally identifying information. Investigators sent e-mail reminders at weekly intervals for 5 weeks to all subjects. All but 2 submitted completed questionnaires.

Results

Nine of 11 providers returned the questionnaire (response rate 82%). Six of 9 responses were returned within 5 days of cessation of active PRT clinical operations. All responses were received within 36 days. Seven providers reported patient encounters; of those who had patient encounters, none saw fewer than 4 patients. Two providers did not see any patients during their shifts. Among those providers who had patient encounters, the maximum time on duty was 20 hours and the minimum was 8 hours. The total number of hours on duty for all providers was 105. Total numbers of patient contacts by all mental health providers, including some simply screened for any medical condition, were estimated to be 170 to 180. (This number reflects the fact that one provider elected to screen all 80 evacuees who arrived during a single 8-hour shift.) Among the total of approximately 800 evacuees triaged through the PRT, 35 required psychiatric consultation on site, prior to further disposition. A total of 37 psychiatric diagnoses resulted from these consultations. The numbers of diagnoses in each category are as follows, with details of each clinician's diagnostic findings in Table 1: substance-related

Table 1. Numbers of psychiatric diagnoses made by each member of the psychiatric team*

Diagnosis	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*	*B*	*C*
Substance related	1	0	0	0	2	0	0	0	0
Dementia	4	1	1	0	0	0	0	1	2
Schizophrenia and other psychotic disorders	1	1	1	0	1	0	0	0	0
Mood disorders	2	0	2	1	0	0	0	0	0
Acute stress disorders	4	0	2	1	0	0	0	2	0
Anxiety disorders	2	0	0	1	0	0	0	0	0
Adjustment disorders	2	1	0	0	0	0	0	0	0
Other	0	1	0	0	0	0	0	0	0
Total no. of psychiatric consults per clinician	8	3	6	10	3	0	0	3	2
Total no. of patient contacts estimated by each clinician	80	4	7	10	20–25	0	0	24	25–30

*A1–A7 indicates psychiatrists; B, physician assistant; and C, psychiatric social worker.

disorders: 3 (8%), dementia: 9 (24%), schizophrenia and other psychotic disorders: 4 (11%), mood disorders: 5 (14%), acute stress disorder: 9 (24%), anxiety disorders (other than acute stress disorder): 3 (8%), adjustment disorders: 3 (8%), other: 1 (3%).

In addition to the aforementioned patient contacts, psychiatrists provided some form of support or treatment, ranging from brief supportive listening to pharmacotherapy, to 14 evacuated medical professionals. Of these, 1 required a referral for mental health follow up.

Psychiatric clinicians ordered oral lorazepam a total of 5 times and rapid-dissolving olanzapine once. They did not order any of the other available psychiatric medications.

The opinion survey asked the clinician subjects to rate their strength of agreement or disagreement with a series of statements on a scale of 1 (''strong disagreement'') to 6 (''strong agreement''). Not all subjects responded to all questions, either because a few did not see any patients or because the question was not relevant to their discipline. Subjects' responses and medians of those responses are detailed in Table 2.

Discussion

Psychiatrists and other mental health caregivers were active participants in providing assessment and care to Hurricane Katrina evacuees at the Ellington Field reception site. A significant portion of their activity involved supportive interventions for evacuated medical caregivers. The 82% survey response rate strengthened the validity of this study as a description of the clinical activity of mental health providers receiving patients and caregivers freshly evacuated from a major urban disaster.

Half of the patients evaluated for mental health problems fell into 2 diagnostic groups, those of acute stress disorder and dementia. Acute stress disorder is hardly a surprising finding in disaster evacuees. Nor, perhaps, is the high proportion of dementia cases, given that medical evacuation flights are likely to include nursing home residents as well as hospital patients. Psychiatric responders and evacuation relief operations should be well prepared to receive both categories of patients. It is important to keep in mind that these cases represent only those severe enough, or obvious enough in this setting,

Table 2. Ratings of agreement or disagreement with respect to opinion statements (6 = strongly agree; 5 = agree; 4 = somewhat agree; 3 = somewhat disagree; 2 = disagree; 1= strongly disagree. No answer indicated by a hyphen)

Opinion statements	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*	*B*	*C*	*Median*
Adequately prepared to function as a professional	6	5	4	5	4	-	-	6	5	5
Adequately prepared to handle nonpsychiatric medical problems	6	5	4	-	3	-	-	6	4	4.5
Medical back up from the primary care staff was adequate	6	6	5	6	6	-	-	6	6	6
Medical back up from the primary care staff was easily accessible	6	6	6	6	6	6	-	5	6	6
Choice of psychiatric medications available was adequate	6	6	5	5	5	-	-	6	-	5.5
Clearly understood role as a member of the Patient Reception Team	6	6	4	4	4	6	-	5	4	4.5
Willing to participate as a clinician in a future Patient Reception Team	6	6	6	6	6	6	-	6	5	6

*A1–A7 indicates psychiatrists; B, physician assistant; and C, psychiatric social worker.

to trigger a psychiatric consultation. The profile of actual psychiatric morbidity in this population of medical evacuees may have been quite different.

Disaster workers are at increased risk for various psychiatric problems in the wake of their exposure to the effects of the disaster, and health care professionals appear to be no less vulnerable.[6,7] In this instance, psychiatric support (primarily in the form of active, supportive listening and orientation to basic needs resources) was provided to more evacuating medical professionals than to evacuees in any single psychiatric diagnostic category. Anecdotal reports gathered from this disaster response effort suggested that primary care providers may feel particularly ill prepared to address the levels of stress and the complex emotional burdens often found in evacuated caregivers and that the assistance of mental health providers is especially valued for this purpose. Yet providing supportive intervention for one's fellow professionals brings its own unique challenges, especially for younger and less experienced clinicians. Training of psychiatric consultants for disaster response should give special attention to crisis intervention and supportive care of professionals.

Of the clinicians surveyed, only 1 had participated in mock disaster drills of the PRT prior to Hurricane Katrina. Thus, it comes as no surprise that psychiatric consultants were somewhat unsure of their role in the PRT. Likewise, the attenuated confidence level of psychiatrists—lacking regular practice—for providing urgent primary care in this setting is not unexpected. Both underscore the need for adequate training in these areas, including disaster drills. Psychiatrists who expect to participate in disaster response should consider enrolling in Advanced Cardiac Life Support and Advanced Trauma Life Support courses.[8] In addition, psychiatrists should be included in planning and developing medical disaster response systems.[9]

Despite their uncertainties, the clinicians who participated in this study were quite satisfied with the quality and accessibility of medical back up. Likewise, psychiatrists' somewhat tentative confidence levels in delivering primary care did not seem to dampen their willingness to help in the future. They came away from the experience strongly motivated to participate again in PRTs should the need arise.

They were also fairly satisfied with the psychiatric formulary that was available during the PRT, although lorazepam was used almost exclusively in those few cases in which medication was dispensed. The relatively low frequency of pharmacotherapeutic intervention was consistent with other reports and with recommendations for conservative use of psychotropic medications in the acute disaster relief setting.[10–12]

The primary weakness of this study is its retrospective design, based as it is on the recall of those clinicians surveyed. Unfortunately, such a design is one of the few that can be readily applied in the disaster relief setting without the lengthy institutional review processes that typically precede prospective studies.[13] In some cases, a review of patient contact records generated by medical responders may not be much better than clinician recall. Depending on the particular situation, the mental health records generated by disaster response triage teams (sometimes no more than a tag attached to the patient's clothing) may be quite terse and of limited value for research purposes. It is challenging, although hardly impossible, to prospectively design a study that will provide for data acquisition in a way that is more objective than mere recall and that avoids the intrusions and distractions of research instruments that may impede the work of disaster medical responders. For instance, researchers can advocate for inclusion of designated team members trained to record clinical information unobtrusively at the bedside. Alternatively, the use of personal digital assistants by clinicians may provide a rapid and convenient way to record patient data that could later be accessible to researchers.

Second, the questionnaire used in the survey has not been used or validated in prior studies. It was designed specifically for this particular event. No other survey instrument of its type was readily available at the time.

In addition, although anonymity of most participants was preserved, the survey cannot be regarded as completely anonymous; some survey questions did not pertain to all disciplines, and the lack of responses to these questions identified the discipline of at least one participant (the social worker). In addition, it was well known that the physician assistant had worked considerably more hours than any other clinician, and this was reflected in his self-report of time spent on duty.

Finally, in any future effort of this kind, it would be helpful to obtain data regarding the psychological support provided to the members of the medical reception team itself, an activity that was not fully captured by this study but that may represent a critical part of psychiatrists' work in such settings.

In conclusion, the data confirm that a significant number of patients in a population of medical evacuees fleeing an urban disaster zone are likely to have psychiatric disorders that warrant immediate attention. It also demonstrates that psychiatric support of evacuated medical caregivers may compose a large part of the work of psychiatrists and other mental health clinicians in this setting and that, to a lesser degree, psychiatrists may find themselves providing general medical assessment and treatment of evacuees. It thus supports the importance

of including psychiatric consultation services in a disaster triage operation, the need for participating psychiatrists to maintain currency in basic primary care skills, and the need to provide mental health caregivers with didactic and practical education about disaster response. Further studies of psychiatric services in conditions of early medical response to actual disasters are needed.

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