

First line in psychiatric emergency: Pre-hospital emergency protocol for mental disorders in Iran

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Abstract

Introduction This article is a report of designing a rapid and effective guide for paramedics who take care of patients in a pre-hospital setting to answer developing demands.

Methods The relevant literature was reviewed, and the topics were extracted. Then, the extracted items were discussed in an expert panel. Finally, items were discussed in a meeting including emergency technicians and emergency technical assistants to identify implementation problems.

Result Important topics for managing psychiatric patients were categorized at three levels: 1) Patient safety and security issues, 2) Patient status assessment and diagnosis, and 3) Patient management (medical, behavioral management, and referral to a treatment center).

Discussion This protocol can be a solution to improve emergency technician training. Such summarized protocols can be used for rapid review immediately before exposure to a patient with an acute psychiatric condition. Due to specific cultural and different access to medicines in Iran, some issues (For instant, access to medications) are different.

Introduction

Mental health problems are quite prevalent and pose a heavy burden on society. According to the Burden of Disease study performed in 2003 in Iran, mental and behavioral disorders ranked only second to intentional and unintentional injuries (1). Moreover, the latest national survey on mental disorders has shown that the one-year prevalence of psychiatric disorders in Iran is 23.6% (1). A small but significant proportion of these patients would need intensive care sometime during the course of their disease. In such a psychiatric emergency, paramedics are the first line of emergency medical service (EMS) for assessment, management and transferring patients to the emergency ward of hospitals. Therefore, the role of paramedics is critical in a rapid and accurate decision making.

Despite the important role of paramedics in pre-hospital management of psychiatric problems, little evidence exists on the issue (2). Paramedics have three major needs for a good performance: knowledge, skill for an appropriate clinical decision making, and organizational factors (2). Educational courses have been shown to improve their knowledge, attitude, skill, and self-efficacy in performing the job and also will help them for better decision making in the scene (3-5).

Emergency personnel encounter have many challenges in managing patients with mental illness (6). They should consider their safety as the first priority and at the same time, assess patients for possible biological, psychiatric, socio-cultural, and legal dimensions to reach an accurate diagnosis and management plan (7, 8). Additionally, they are frequently exposed to aggressive behavior of violent patients (9) and inappropriate management of aggressive behavior can have grave consequences. In the case of highly aggressive patients, chemical and physical restraint should be performed very cautiously (10) and in accordance with clinical guidelines (9).

Emergency staffs are at risk of cumulative stress because of the high amount of stress that they experience; and if it is not adequately addressed, emotional trauma and its related dysfunction would appear (11). Paramedic's workloads for mental illness are growing and their ability for decision making in the complex situation of psychiatric emergency should be worked out (3). Furthermore, their ability to triage patients with psychiatric problems are limited and in some cases, paramedics admitted the necessity of assessment tools and training courses for maintaining the capability of emergency services (3, 5, 11, 12). Therefore, they will benefit from educational courses and rapid clinical protocols that would help them with their clinical decision making (5). This article is a report of the process of designing a rapid and effective guide for paramedics who take care of patients in a pre-hospital setting in order to answer developing demands.

Methods

This project was conducted at the request of the Technical Assistance and Operations Department of the Iranian Emergency Organization. Firstly, the relevant literature was reviewed. In order to prevent bias and to enrich resources, in addition to the chapters on managing patients with acute psychiatric symptoms in psychiatric textbooks, more specialized resources in the field of emergency psychiatric patient's management (such as the Current Diagnosis and Treatment Emergency Medicine textbook and the Comprehensive Emergency Mental Health Care textbook) were also reviewed. We also searched for recent related articles in PubMed, Scopus, and Web of Knowledge databases.

We combined keywords related to emergency situation including "psychiatric emergency", "behavioral emergency", "agitated behavior", "agitation", "violence", and "aggression" with terms of "management" and "protocol". Then, we screened the retrieved articles and removed the unrelated articles. Finally, we extracted the topics in the remaining related articles. Extracted topics were then classified based on seven criteria as follows: 1) Order of execution (at what stage they should execute), 2) first encounter with the patient and maintaining safety, 3) Evaluation and taking a medical history, 4) The primary differential diagnoses, 5) Behavioral and drug therapy and management, 6) Decreasing life-threatening risks in patients, and 7) Repeatable rate in different sources. Based on these categories, an early draft of the protocol was written. The draft was sent to 10 psychiatrists who expert in emergency psychiatry and their initial feedbacks were collected. Some changes were made in the protocol, according to the experts' comments. In the next step, an expert panel was held.

The panel included experts from psychiatry, forensic medicine (to address the legal rights of patients as well as the legitimacy of actions for emergency technicians), clinical psychology (to address the psychological dimensions and behavioral management of patients), emergency medicine (to address available drugs in emergency trollies), Emergency Technical Assistant (deputy) (because of their experience as a technician and close familiarity with the problems of technicians) and a general physician. In the panel, each expert commented on each of the items and stages according to the following questions:

1. To what extent is it necessary?
2. To what extent is it clear to the emergency technician?
3. To what extent is it generalizable to similar symptoms in other emergencies (e.g., acute restlessness in non-psychiatric patients)?
4. To what extent can it be done according to the equipment and situation of our society?
5. To what extent has patient safety been considered at this stage?
6. To what extent has the safety of emergency technicians been considered?
7. To what extent is the safety of the patient's relatives and those present at the scene taken into account?
8. Considering the current law, how legal is any of the actions of emergency technicians?

Each item was scored using a Likert scale from very low (1) to very high (9). We decided to include the items with a mean score of higher than 6 into the protocol unchanged. About the items with a mean score between 3 and 6 we discussed in the panel and entered them to the protocol with changes. Items with mean score lower than three were deleted.

The items of the resulted protocol were assessed for applicability, clearness, and comprehensibility. In a meeting with 60 participants, including emergency technicians and emergency technical assistants (deputy) who had at least 15 years' experience of work in the field items were discussed. The questions and ambiguities of the participants were addressed, and the implementation problems of the protocol were identified. Most of the ambiguities were related to the drug use section. The protocol was finalized by resolving existing ambiguities. Finally, the protocol was prepared in two pages, which is portable in ambulances, and it is usable in the management of psychiatric patients.

Results

Based on the findings from the literature review and discussed issues in the expert panel important topics for managing psychiatric patients were categorized at three levels: 1) Patient safety and security issues, 2) Patient status assessment and diagnosis and 3) Patient management (medical, behavioral management, and referral to a treatment center).

Primary Actions

The first step is to ensure the safety of the patient, technicians, and people at the scene (13). This stage includes a) pre-scene assessments of site security, escape routes, and safe locations in the event of violence from the patient, b) assessment of patient's access to weapons and equipment that could threaten his/her own life, technicians or attendees (14), C) Assessment for risk and need for back up and

the presence of police, which includes anticipating their entrance method and avoidance of entering the place alone, D) using family capacities to provide security (14) and E) Assessment of risk factors for violence and predicting it (Table 1).

Patient assessment

1. A) Urgent physical needs by evaluating vital signs (Airway, presence of respiratory distress, and pulse), B) Obtaining a targeted mental health history of the patient from his or her family including: Demographic characteristics (sex, age, occupation), history of psychiatric illness, history of physical and primarily neurological diseases, history of drug abuse, history of violence or suicide (13), C) Differential diagnoses (psychological causes versus physical causes of symptoms) and physical risk factors (sudden onset of symptoms without previous history, age younger than 12 years and older than 60 years, known neurological diseases such as seizures or dementia, existence of neurological symptoms such as ataxia, nystagmus and complex drug regimen (Table 2) (15) D) Considering cultural and spiritual aspects of patients which can effect on symptoms and how to help them.

Patient management:

1. a) Patients' behavioral management includes controlling external and internal stimuli for managing crisis, trying to have therapeutic communication, having empathy with the patient, and having non-judgmental attitudes and behaviors (16). Attempt to meet the patient's spiritual needs (include general spiritual principles in the patient-therapist relationship, showing compassion and unconditional acceptance to the patient, and encouraging the patient to provide information to those who can assist him/her (17) (Table 3). b) Pharmacological methods: There are several important principles to consider in drug administration. The aim of emergency medical treatment should be to calm the agitated patient as quickly as possible without reducing the patient's level of consciousness. Like all emergencies, oral drugs are preferred to injectable ones. The drug should be selected based on the onset of action and availability. Short-acting drugs are preferred over long-acting drugs. Medicines with fewer side effects are also preferred.

Thus, in the first step, oral medications such as benzodiazepines, for example, lorazepam with or without risperidone may be used. In the second line, other antipsychotics such as haloperidol with 2 mg biperiden may be administered. If patient's condition does not improve or he/she does not cooperate in the treatment, intramuscular antibiotics such as haloperidol 5mg along with biperiden can be used. If necessary, these medications can be repeated with cardiac and blood pressure monitoring. Other medicines such as promethazine or injectable benzodiazepines may also be used to increase the effectiveness of the administered drugs (17-19) (table 4). Restraints may use with the pharmacological methods. This treatment option is used as the last choice in patients who are uncooperative and physically dangerous and may harm themselves or others, and when non-pharmacological and primary pharmacological methods are ineffective. In these cases, special care should be taken to protect the patient from life-threatening situations (Table 5) (20, 21).

1. C) Crisis management and patient family management issues; including having empathy and understanding of the critical situations and psycho-education about the conditions and places that they can attend (22).

The management of suicide emergencies requires special consideration. The expert panel suggests that suicide emergencies need a separate protocol. Moreover, while drug and alcohol poisoning and deprivation have similar symptoms with psychological emergencies, they have a completely different treatment, and they need another protocol.

Discussion

A psychiatric emergency refers to any disturbance in a patient's thinking, emotions, or behavior that requires immediate intervention. This disruption usually puts patients in critical condition, which can put themselves, their family, and people around them in danger. These emergencies include hurting others or themselves, aggression, restlessness, acute behavioral symptoms caused by drug poisoning, depression, and severe anxiety (13).

It is essential to distinguish between the physical and psychological causes of these symptoms because it completely changes the course of treatment. In some reference books and articles, there are general protocols for managing psychotic patients (23). But in most of the previously written protocols, the management of a symptom such as aggression or agitation has been considered (24-26). Dr. Allen and his colleagues used the Delphi method and scoring pre-designed items by experts and collecting their comments in 2001 and 2005 (24, 27).

Gargia et al. drafted a protocol for patients with severe agitation using systematic review and then finalized it by Delphi method (28). Also, most of the existing protocols are related to patient management in the hospital emergency department, and less attention has been paid to earlier stages, such as the pre-hospital stage.

In developing this protocol, the goals of managing a patient with a psychiatric emergency before reaching the hospital were:

- Identifying and eliminating acute life-threatening risks as much as possible
- Psychiatric evaluation of patients in the crisis
- Identification of patients who have psychiatric symptoms with the physical origin and referring them to the appropriate center
- To stabilize patients with acute symptoms as soon as possible and prevent injury to themselves and others
- Less use of aggressive treatment, drugs, and mandatory treatments
- Establishing a therapeutic alliance with the patient, transferring the patient to a suitable place and starting the treatment process

In the current protocol, the first thing is the safety of technicians, their patients, and people who are in the scene. Almost all references related to acute psychotic symptoms consider the existence of a safe environment as the necessary precondition for patient management. These include the safety of the environment and the management of patients' behaviors that may be harmful to themselves and others. Therefore, this protocol, also predicting such behaviors and how to manage them according to international protocols, is considered.

Because of the legal aspects, police presence was also expected in the case of using mandatory treatments. This is also important for the safety of the technician, and it has been addressed in previous protocols (29). Also, considering the priority of saving patient's life, early assessment of his/her vital signs is a priority (30) which we put in the primary steps of treatment. Because of the importance of diagnosing physical disorders that have symptoms similar to mental disorders, we placed making a differential diagnosis after examining vital signs.

Due to the confusion in the patient's condition and the potential lack of co-operation, attention should be paid to possible physical origins of symptoms. Because of the cultural norms in Iran, many patients live with their families, and the family is involved in the treatment process. The use of the capacity of families in the evaluation and taking the mental history of patients is emphasized (especially in cases that patients are unable or unwilling to participate). It is specifically addressed in our protocol. The protocol addresses cultural, spiritual, and religious issues. These issues can be not the same in different regions and affect the patient-technician relationship. These issues are along with the general spiritual principles of relationship with the patient (including empathy, complete acceptance, and being non-judgmental) (31).

In the current protocol, like previous ones, non-pharmacological management is preferred over pharmaceutical methods. Calming the patient without medication is the first priority, and drug therapy is the next priority. At the time of drug administration, in compliance with the general principles of pharmacological therapy, the priority is with the minimum dose and the oral administration route. Injectable drugs are the next priority. The goal of drug therapy is to calm agitated patients without decreasing their level of consciousness (32). However, based on available drugs and their side effects, and the possibility of drug abuse, we chose different types of drugs for the protocol. Lorazepam can be a useful drug, given the short time in the pre-hospital emergency and the need to calm the patient down with the least side effect. Lorazepam can be used in mild to moderate emergencies and in patients who are more cooperative (33).

Injectable benzodiazepines and antipsychotics such as olanzapine (considering its interaction with lorazepam and the possibility of cardiovascular collapse), ziprasidone and haloperidol are the last lines of treatment (17, 34, 35). The use of injectable midazolam as recommended in other protocols (36) was not approved by experts despite its rapid and practical effect on sedation, because of the risk of abuse. Other antipsychotics such as aripiprazole were not approved in previous protocols like our protocol and

are not recommended (28). The use of physical restraint is proposed for patients who have not responded to primary treatments and may harm themselves and others.

In some protocols, special beds with certain height are recommended for physical restraint. Given that these beds do not exist in Iran, restraint with ordinary beds and wide and leather straps was recommended. Indications, safety recommendations, and limitations for using physical restraint in our protocol are consistent with other protocols. The use of physical restraint should be accompanied by chemical restraint (use of medication to calm the patient) (20, 21). Special attention for patients with delirium is similar to previous protocols (21).

Conclusions

It seems that, given the lack of similar protocols in our country in the past, this protocol can be a solution to improve emergency technician training. Such summarized protocols can be used for rapid review immediately before exposure to a patient with an acute psychiatric condition.

Declarations

Acknowledgment

This study was performed under the supervision of Spiritual Health Research Center of Iran University of Medical Sciences.

Authors' contributions

FS and SSM designed the study, conducted the review and performed the data analysis. FH, MB, and HNS assisted in the study design and data analysis. ZM, MKV, and SVS interpreted the data and drafted the manuscript. All authors read and approved the final manuscript prior to submission.

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Ethics approval and consent to participate

The study was approved by the Ethics Committee of the Iran University Medical Sciences under number IR.IUMS.REC.1397.1255. All participants were informed about the study and only those providing written informed consent were enrolled in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Tables

Table 1. Points of the safety of the patient technicians and people at the scene

<ul style="list-style-type: none">· Ensure the safety of the patient, technicians, and people at the scene:· pre-scene assessments of site security· escape routes· safe locations in the event of violence from the patient· Assessment of risk factors for violence and predicting it <p style="text-align: center;">Symptoms of imminent aggression</p> <ul style="list-style-type: none">ü Motor restlessness and agitationü The loud and threatening tone of voiceü Threatening behavior and gesturesü Verbal Threatsü Staring and angry face modeü Sudden behaviors (He throws the object in his hand suddenly)ü Bizarre behavior due to delusion and hallucination <ul style="list-style-type: none">· assessment of patient's access to weapons· Assessment for the need for back up and the presence of police· avoidance of entering the place alone· using family capacities to provide security
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Table 2. Variety of physical origin of psychiatric emergency

Intoxication/withdrawal	Medical status
<ul style="list-style-type: none"> · Alcohol intoxication/ withdrawal/delirium tremens · Substance intoxication/ withdrawal: <ul style="list-style-type: none"> - Opioids - Amphetamines - cannabis - others · Medical intoxication/ withdrawal: <ul style="list-style-type: none"> - Benzodiazepines - Anticulsals - others 	<ul style="list-style-type: none"> · Head trauma · Post-ictal condition · Delirium · Hypoglycemia · Electrolyte disturbance (Hyponatremia, hypernatremia, hypokalemia, hyperkalemia,...) · Hypoxia · Encephalitis, Meningitis · Encephalopathy (due to medical condition) · Environmental toxicity · Thyroid dysfunction

Table 3. Patients' behavioral management

Patients' behavioral management:

- Speak to the patient in a calm, measured and confident tone
- Reduce external stimuli, such as the noise and the provocative behavior of others
- Reduce internal triggers like hunger and thirst, and offer water and food to the patient whenever possible.
- have empathic and non-judgmental attitudes and behaviors
- Appropriate acceptance of patient hallucinations and delusions
- Don't make a false promise to the patient
- Use short, simple sentences and repeat the sentences if necessary
- Listen to the patient
- Use patients' words as much as possible
- Reassure the patient that you understand the problem
- Encourage the patient to provide information on who can help
- In case of aggression:
 - Keep the patient at least 2 meters away
 - Tell the patient that aggression is unacceptable
 - Offer medication
 - Tell her you have to use physical restraint if s/he continues, to prevent harm to self and others

Table 4. Medical management

First line	Second line
1. Tab Risperidone 2 mg+Tab Biperiden 2 mg	Tab Haloperidol 5 mg+Tab Biperiden 2 mg
2. Tab Risperidone 2 mg +Tab lorazepam 2 mg	Tab Haloperidol 5 mg+Tab Lorazepam
3. Amp Haloperidol 5 mg+Amp Biperiden IM	Amp Promethazine 50 mg IM

Table 5. Important points in physical restraint

- Physical Restraint Indications:
 - patients who are physically dangerous and resistant to other treatment
 - patients who are uncooperative and may harm themselves or others
 - Use physical restraint if needed (By considering legal aspects and after explaining to the patient)

** restraint belts and straps should be made of leather and be wide

Explain to the patient that physical restraint is only for his or her own safety and that you will remove it as soon as he /she calms down.

Physical restraints should not use as punishment

the patient can see at least one technician (It helps the patient to be calmer)

Speak with the patient in a calm and slow tone during the restraint

Take care of the patient's head during restraint

Only restraint the patient's hand and legs. Check the patient's vital signs, especially the pulse of extremities under the restraints.

extremities should not be under pressure, and the patient should be able to move them a bit

Do not use damaged equipment for restraining patients

The bed used for restraint should have the necessary equipment and its height should be at the lowest level

the restrained patient should be under direct surveillance (control for the level of consciousness and dehydration)

All actions should be documented

Do not put the patient in a prone position under any circumstances (risk of apnea)

Call the police (It is better that police be present at the time of patient restraining)

After physical restraining, pharmacological restraint should be applied

Contraindications of restraining

Cases in which patient or family used PCP based on the history

Patients with recent surgery in the eye or central nervous system (Because of increase in intra-cerebral or intraocular pressure)

Patients with a low level of consciousness or with delirium

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