PERSPECTIVE

Background

Combative patients are among the most difficult patients emergency physicians encounter. Often brought in against their will, they are agitated, confrontational, and nearly impossible to examine, and they may physically harm themselves or others. The emergency physician should seek to control the patient and the situation, diagnose and treat reversible causes of violence, and protect the patient and staff from harm.

Epidemiology

Violence is referred to as our nation’s shameful epidemic. Injury is the leading cause of death in persons younger than 44 years, and homicide is the second leading cause of death in persons aged 15 to 24 years.1,2 Rates of firearm violence and death from firearms are higher in the United States than in any other industrialized country.3-5 For each death there are an estimated 19 additional injuries requiring hospitalization.6 The high lifetime cost of treating gunshot injuries and associated disabilities is a public health issue as a large proportion of the expense is covered by U.S. taxpayers.7,9

The emergency department (ED) is a volatile environment because of high stress, illness, prolonged waiting times, and frequent lack of communication. The 24-hour open door policy, availability of potential hostages, and widespread accessibility of drugs and weapons compound the potential for violent behavior. Among hospital workers, the majority of assaults occur in the ED, psychiatric ward, waiting rooms, and geriatric units.10 In a survey of 242 emergency care workers in five Midwestern hospitals, the majority reported being verbally threatened, and 51% of physicians and 67% of nurses reported being physically assaulted at least once in the past 6 months.11 Another survey of attending physicians (n = 171) in Michigan EDs reported that 75% experienced a verbal assault and 28% a physical assault in the past 12 months; 82% were occasionally fearful of workplace violence.12 An additional survey of 263 emergency medicine residents and attending physicians found that 78% of participants experienced a violent workplace act in the prior year and that workplace violence is experienced equally by men and women.13 An ED census of at least 50,000 patients annually or an average waiting time of at least 2 hours is significantly associated with an increased incidence of violence.14,15 The risk of workplace assault in the ED, however, exists across hospitals of all sizes and reflects the rate of violence in the community.16 Despite these obvious risks, healthcare providers are typically not trained in the identification and management of combative patients.17

Patients armed with lethal weapons pose a serious threat to ED staff. The carriage of weapons in the ED population is estimated at approximately 4 to 8%.17,18 One large urban hospital ED with a metal detector reported confiscation of an average of 5.4 weapons a day.19 At this center, 27% of major trauma patients seen in the ED during a 14-year period were initially armed with lethal weapons (84% knives and 16% guns). The potential risk posed by concealed weapons also exists in pediatric EDs.20 Unfortunately, prediction of weapons carriage in any particular patient is impossible.21 Therefore, it is prudent to assume that all violent patients are armed until it is proved otherwise, especially those presenting with major trauma.

Identification of potentially violent patients is difficult; male gender, prior history of violence, and drug or ethanol abuse are the only positive predictors.22-24 Ethnicity, diagnosis, age, marital status, and education are not reliable identifiers. A study conducted in an outpatient psychiatric setting found that the incidence of violent behavior occurring after psychiatric evaluation does not vary with the experience of the psychiatrist.25 Actuarial prediction of patient violence in a 6-month period by use of criteria such as age, drug use, and prior history of violence is substantially more accurate than prediction of future violence by evaluating attending psychiatrists.26 The prediction, prevention, and control of violent outbursts in the ED are difficult. Appreciation of the potential for violence, preparedness, and proper use of verbal techniques and physical or chemical restraints assist the patient while preventing injury.

PRINCIPLES OF DISEASE

Pathophysiology

The pathogenesis of violent behavior is conjectural. Potential causes include environmental, historical, interpersonal, biochemical, genetic, hormonal, neurotransmitter, and substance abuse disorders.28-30 Psychiatric illness is also a risk factor, with schizophrenia (paranoid and nonparanoid), personality disorders, mania, and psychotic depression most frequently associated with violence.29,31-33 Delusional schizophrenic patients become violent, believing that others are attempting to harm them. They may also have auditory hallucinations commanding harm to others. Antisocial and borderline personality disorder patients typically do not feel remorse for their violent actions. The patient with acute mania is unpredictably dangerous because of emotional lability, a situation in which pleasantness can quickly turn
to aggression. Substance abuse disorders are consistently associated with violent behavior in both psychiatric and nonpsychiatric populations. 25,26,34-36 Biologically, the serotonin system controls aggression and inhibition, with diminished serotonergic function possibly disinhibiting aggression against self and others. 37-42 Generalized brain dysfunction may predispose patients to violence by disruption of the regulation of aggression, particularly in the prefrontal and temporal cortex. 28,42-44 Cerebral imaging documents both functional and structural impairments in violent criminals and antisocial patients. 42-46 Genetic and hormonal influences are also implicated in the neurobiology of aggression. 28,38,47

**MANAGEMENT**

**Risk Assessment**

Evaluation of the combative patient begins with risk assessment and attention to safety measures. Violence often erupts after a period of mounting tension. The astute practitioner may identify verbal and nonverbal cues and subsequently have the opportunity to defuse the situation. 33,48-50 In a typical scenario, the patient first becomes angry, then resists authority, and finally becomes confrontational and violent. When physicians have a “gut feeling” that a dangerous situation may be developing, they should take appropriate precautions. 49,50 Violent behavior may also erupt without warning, especially in patients with an organic brain syndrome, so clinicians should not feel overly confident in their ability to sense impending danger.

An obviously angry ED patient should be considered potentially violent. Provocative behavior, angry demeanor, pacing, loud or pressured speech, tense posture, gripping arm rails intensely, frequently changing body position, pounding walls or throwing things, and clenched fists are all symptoms and signs of impending violence. To prevent escalation, the patient should be removed from contact with other belligerent accompanists as well as from other provocative patients. A quiet area with a window or direct observation is optimal. Because increased waiting times correlate positively with violent behavior, consider evaluating the potentially violent patient expeditiously to prevent escalation of aggression. 18,14,15 Often, the perception of preferential treatment will defuse the patient’s anger.

All patients should be screened for weapons before the interview. The use of metal detection is ideal before ED entry. Patients brought to the ED by ambulance may bypass routine security booths and metal detectors. 71 The practice of undressing patients and placing them in a gown is useful both as a nonconfrontational search for weapons and for easy identification in the event of the patient’s escape from the ED. Although screening and searching of patients for weapons may appear to be a violation of privacy, routine disarming of all ED patients results in an increased feeling of safety for both patients and staff. 18,52

The ideal setting for the patient interview should emphasize privacy but not isolation. 51,50 Some EDs have seclusion rooms specifically designed for interview of potentially dangerous patients. 52 Security should be nearby and the door left open to facilitate both intervention and escape for the provider. The patient and interviewer may be seated roughly equidistant from the door, or the interviewer may sit between the patient and the door. Blocking of the door, however, poses a risk of harm to the clinician if the patient feels the urge to escape. Two exits should ideally be available, and doors should swing outward. The clinician should have unrestricted access to the door and never sit behind a desk. The room should not contain heavy or potentially dangerous objects that may be thrown. There ideally should be a mechanism to alert others of danger, such as a panic button or a code word or phrase that summons security (e.g., “I need Dr. Armstrong in here.”). For personal protection, earrings, necklaces, and neckties should be removed. Personal accessories that may be used against the caregiver, such as a stethoscope or scissors, should be removed. The physician should be aware of any objects within the room or on the patient’s body, such as pens, watches, or belts, that may be used as weapons. 48-50

**Verbal Management Techniques**

The patient should be made as comfortable as possible, and the interviewer should adopt an honest and straightforward manner. In some cases, an agitated patient may be aware of the impulse control problem and welcome limit setting by the clinician (e.g., “I can help you with your problem, but I cannot allow you to continue threatening me or the ED staff.”). The interviewer should act as an advocate for the patient. Offering a soft chair or something to eat or drink (not a hot liquid, which may be used as a weapon) may help establish trust. A significant percentage of patients relax at this point because offering food or drink appeals to their most basic human needs and builds trust. The interviewer should adopt a nonconfrontational demeanor and be an attentive and receptive listener without conveying weakness or vulnerability. The interviewer should respond verbally in a calm and soothing tone of voice. It is also important to stand at least an arm’s length away and to avoid prolonged direct eye contact, approaching the patient from behind, or sudden movements. 48-50

A key mistake in interviewing a potentially violent patient is failing to address the issue of violence directly. 23,48,49 The patient should be asked relevant questions about suicidal or homicidal ideations or plans, possession of weapons, history of violent behavior, and current use of intoxicants. Acknowledgment of the obvious (e.g., “You look angry.”) may help the patient to begin sharing emotions. If the patient becomes more agitated, it is important to speak in a conciliatory manner and to offer supportive statements, such as “You obviously have a lot of will power and are good at controlling yourself,” to help defuse the situation. If this is not successful, a respectful offer of medication or restraints to the patient if another health care provider is close by may prevent further escalation.

Counterproductive approaches to the combative patient include argumentation, machismo, and condescension. 48,49 These inappropriate strategies challenge patients to “prove themselves.” An open threat to call security personnel also invites aggression. The clinician should be aware of her or his own reactions to the patient and avoid transference of anger. The deception of a patient (e.g., “I am sure you will be out of here in no time.”) only invites violent consequences once the lie is uncovered. The unsuspecting nurse or colleague who follows the interviewer may be victimized. It is especially important not to deny or downplay threatening behavior. If verbal techniques are unsuccessful and escalation of violence occurs, the physician should leave the room and summon help.

**Physical Restraints**

Physical restraint should be considered when verbal techniques prove unsuccessful. The use of restraints can be humane and effective in facilitating diagnosis and treatment of the patient while preventing injury to the patient or medical staff. 53,54,55 The liability one incurs for restraining a patient against his or her will is negligible compared with the potential liability for allowing a patient to lose control and cause physical harm. 50

Indications for emergency seclusion and restraint include the prevention of imminent harm to the patient, others, or the immediate environment and as part of an ongoing behavior treatment program. 48-50,56,57 Seclusion or restraint may be contraindicated because of the patient’s clinical or medical condition. Seclusion should not be used in an unstable patient who requires close
monitoring and should be avoided when the patient is suicidal, self-abusive, or self-mutilating or has had an intentional ingestion of drugs or poisons. Restraints should not be applied for convenience or as a punitive response for disruptive behavior. If one is available, a colleague should document agreement with the application of restraints, mentioning the specific indications (e.g., “I restrained Mr. Smith because he told me he was going to beat me up and then took a swing at me.”) is preferable to “I restrained Mr. Smith because he was violent.”)

The implementation of restraints should be systematic, and an ED protocol should be in place. This protocol begins when the examiner leaves the room after verbal techniques are unsuccessful. It may be helpful to consider the application of restraints as a procedure analogous to running an advanced cardiac life support. If the examiner leaves the room after verbal techniques are unsuccessful. The restraint team ideally consists of at least five people, including a team leader. The leader, whether a physician, nurse, or security officer, will be the only person giving orders and should be the person with the most experience in implementing restraints. Before entering the room, the leader outlines the restraint protocol and warns of anticipated danger (e.g., the presence of objects that may be used as weapons). All team members should remove personal objects that the patient could use against them. If the patient is female, at least one member of the restraint team should be female to potentially mitigate allegations of sexual assault.

The team enters the room in force and displays a professional rather than threatening attitude. Many violent individuals calm down at this point as a large show of force protects their ego (e.g., “I would have fought back but there were too many against me.”). The leader speaks to the patient in a calm and organized manner, explaining why restraints are needed and what the course of events will be (e.g., “You require a medical and psychiatric examination as well as treatment.”). The patient is instructed to cooperate and to lie down to have restraints applied. Some patients are relieved at the protection to self and others afforded by restraints when they feel themselves losing control. Even if the patient suddenly appears less dangerous, however, once the decision to restrain is made, do not negotiate.

If physical force becomes necessary, one team member restrains a preassigned extremity by controlling the major joint (knee or elbow). The team leader controls the head. If the patient is armed, two mattresses can be used to charge and immobilize or sandwich the patient. Restraints are applied securely to each extremity and used in conjunction with side rails also repositions the patient’s extremity). Leather is the optimal type of restraint because it is a physically stronger material and less constricting than typical soft restraints. For this reason, gauze should not be used. Soft restraints may help restrict extremity use in the semicooperative patient but are likely to be less effective in the truly violent patient who is continuing to struggle and attempt escape. If chest restraints are used, it is vital that adequate chest expansion for ventilation is ensured. The application of a soft Philadelphia collar to the patient’s neck minimizes head banging and biting. Whenever possible, the treating physician should not actively participate in restraint application to preserve the physician-patient relationship. The restraining of patients on their sides helps prevent aspiration, although restraint supine with the head elevated is more comfortable and allows a more thorough medical examination while providing some protection against aspiration. Once the patient is immobilized, announcing “the crisis is over” will have a calming effect on the restraint team and the patient.

After restraints are successfully applied, the patient should be monitored frequently and positions changed to prevent neurovascular sequelae such as circulatory obstruction, paresthesias, and rhabdomyolysis associated with continued combativeness. A standardized form should be completed for physically restrained patients. Documentation includes the specific indication for restraint and, ideally, colleagues’ agreement that restraints are necessary.

Although healthy volunteers, when restrained and undergoing physical exertion, do not appear to experience clinically significant positional asphyxia, the combative ED patient often suffers from other conditions that may predispose to increased morbidity. Patients who are cocaine or stimulant intoxicated or restrained in the prone position appear to be uniquely at risk. Increased sympathetic tone and altered pain sensation allow exertion beyond normal physiologic limits in these patients. Sympathetic-induced vasoconstriction may impede clearance of metabolic waste products. Alteration of respiratory mechanics in an acidemic patient resulting from the position of restraint can be a contributing factor by impairment of respiratory compensation. As a general guideline, the prone restraint position should be avoided when possible and chemical sedation used when a patient continues to struggle against physical restraints.

The Joint Commission on Accreditation of Health Care Organizations has guidelines governing the use of restraint and seclusion for behavioral health patients. Educational materials and specific details about seclusion and restraint are available at www.jointcommission.org/. Several general essential elements to be provided in a restraint situation include the following:

- Hospital policies and procedures guide appropriate and safe use of restraint.
- The implementation of restraint or seclusion is limited to emergencies where imminent risk of harm exists to the patient or others.
- Staff is trained and competent to apply restraint safely.
- Staff is trained to minimize the use of restraint.
- Patients in restraint are timely and regularly monitored.
- Time-limited orders for restraint use are provided by licensed practitioners.
- Medical records document that the use of restraint or seclusion is consistent with organizational policy.

### Chemical Restraints

Chemical restraints should be considered alone or in conjunction with physical restraint in the management of an agitated or violent patient in the ED. A struggling patient who is physically restrained may have an increased risk of morbidity and mortality and may benefit from the calming effect of these medications. Chemical restraints subdue patients who may otherwise harm themselves or others and facilitates their medical evaluation and treatment. Clinical and administrative guidelines for their use are similar to those for the use of physical restraints. The use of medication to calm a patient may obscure the mental status examination and clinical diagnosis. This should be weighed, however, against the increased risk that both the patient and staff may face if such medication is withheld.

Several pharmaceutical agents can quickly achieve safe behavioral control, or “rapid tranquilization,” of such a patient without oversedation. The ideal agent should be effective, safe and well tolerated, rapid in onset, titratable, and available through multiple routes of administration. In the ED, benzodiazepines and antipsychotics (also known as neuroleptics) are commonly used either alone or in combination for rapid tranquilization. The intramuscular route is often advantageous in the uncooperative and dangerous patient refusing an oral medication or an intravenous catheter. A chemical restraint should ideally be taken voluntarily by a patient as the offer of voluntary administration may restore some feeling of control and ease escalating agitation. As with physical restraints, it is imperative that these patients be evaluated regularly for changes in their clinical status.
Benzodiazepines, particularly lorazepam (Ativan) and midazolam (Versed), are often used in the ED for rapid tranquilization of an agitated or violent patient. Benzodiazepines enhance the activity of the major inhibitory neurotransmitter γ-aminobutyric acid to cause anxiolytic, anticonvulsant, and sedative effects. These agents are particularly preferred for the management of agitation caused by ethanol or sedative-hypnotic drug withdrawal as well as cocaine and sympathomimetic drug ingestions.⁴⁸,⁵⁴ Although they are generally well tolerated, side effects of benzodiazepines include excessive sedation, ataxia, confusion, nausea, and respiratory depression, which may be amplified in the presence of concurrent alcohol and other depressant use.

Lorazepam is frequently preferred to other benzodiazepines because of its rapid onset of action, short half-life, route of elimination with no active metabolites, and effectiveness by oral, intramuscular (IM), or intravenous (IV) route of administration.⁴⁸,⁵⁴,⁷¹ Recommended initial oral, IM, or IV doses of lorazepam range from 0.5 to 4 mg. Typical doses for chemical restraint in the ED begin at 1- to 2-mg increments intramuscularly or intravenously with upward titration as needed.⁶⁸,⁷¹ The onset of action after administration of lorazepam is generally 5 to 20 minutes if it is given intravenously or 15 to 30 minutes if it is given intramuscularly, with a duration of action of 6 to 8 hours.⁴⁸,⁶⁸,⁷²

Midazolam is also an effective benzodiazepine for achievement of mild sedation and has a more rapid onset of action and a shorter duration of clinical effects than lorazepam. The intramuscular route is used widely to calm the agitated patient with a typical initial dose of 5 mg IM.⁴⁸,⁵⁴ When it is administered intramuscularly, the medication usually takes effect in about 15 minutes with a mean duration of 2 hours.⁴⁸,⁵⁴,⁷¹ In a comparison of midazolam 5 mg IM to lorazepam 2 mg IM and to the antipsychotic haloperidol 5 mg IM to sedate violent and agitated patients, all three showed similar efficacy, but midazolam demonstrated a more rapid onset of action and shorter duration of activity than the other two medications.⁷⁴ The choice of midazolam versus lorazepam should be determined by the duration of sedation desired.

Antipsychotic medications also play a prominent role in the chemical restraint of the violent ED patient. These medications include the older “typical” (or “classic”) antipsychotics and the newer “atypical” antipsychotics. The precise mechanisms of action are unclear, but typical antipsychotics strongly block brain dopamine receptors, whereas the atypical antipsychotics less strongly and more specifically antagonize dopamine as well as serotonin receptors.⁴⁸,⁵⁴ Both classes of antipsychotics have variable effects on other receptors, such as the adrenergic, cholinergic, and histaminergic receptors.⁷⁵ The typical antipsychotics can be categorized in terms of their “potency,” a description referring to the relative dosing of the medication and generally predictive of its side effect profile. The incidence of sedation, hypotension, and anticholinergic side effects is higher with the low-potency antipsychotics, whereas the incidence of extrapyramidal symptoms is greatest with the high-potency antipsychotics. Low-potency antipsychotics include chlorpromazine (Thorazine) and thioridazine (Mellaril), medium-potency antipsychotics include loxapine (Loxitane) and molindone (Mobar), and high-potency antipsychotics include haloperidol (Haldol) and droperidol (Inapsine).

Of the older typical antipsychotics, the butyrophenones haloperidol and droperidol have been widely used in the emergency setting. Haloperidol is the most frequently administered antipsychotic to control the agitated patient in the ED.⁴⁸,⁶⁹,⁷⁰,⁷⁶ It is available in oral, intramuscular, and intravenous preparations, although the commonly used intravenous route of administration is not approved by the Food and Drug Administration (FDA). Haloperidol is generally given in 2.5- to 10-mg IM doses (often 5 mg IM for the average adult), with half doses administered to the elderly and with repeated dosing every 20 to 60 minutes as needed.⁴⁸,⁵⁴,⁷¹,⁷⁷-⁷⁹ Effects are usually seen by 30 minutes by the intramuscular route; the average patient requires fewer than three doses for the desired clinical effect.⁴⁸,⁷¹,⁷⁹

Droperidol has been commonly used at doses of 5 to 10 mg IM and 2.5 to 5 mg IV in a manner similar to haloperidol to control the agitated or combative patient.⁴⁸,⁸⁰,⁸³ Compared with haloperidol, droperidol appears to more rapidly reduce agitation at equal intramuscular dosing; it has a shorter duration of effect, more sedation, a larger incidence of orthostatic hypotension, and a lesser incidence of extrapyramidal symptoms.⁷⁸,⁸¹,⁸⁴ Compared with midazolam 10 mg IM, droperidol 10 mg IM has an equally rapid onset of action and requires fewer additional doses for sedation.⁸⁵ The clinical use of droperidol decreased markedly after it was given a controversial black box warning in 2001 by the FDA for concern of QTc prolongation and torsades de pointes.⁸⁶,⁹⁹

Haloperidol is also associated with QTc prolongation and torsades de pointes.⁹⁰-⁹³ It is prudent to use caution when these medications are administered to patients with other identified risk factors for or the known presence of existing QTc prolongation. In 2007 an FDA alert recommended electrocardiographic monitoring of patients receiving haloperidol intravenously to further minimize this risk.⁹⁴ If it is possible to obtain an electrocardiogram or to place the patient on a cardiac monitor before the administration of haloperidol, that should be done. If this is precluded by poor cooperation of the patient, it should be accomplished as soon as possible once the patient becomes more cooperative.

Common side effects of haloperidol and droperidol are sedation, orthostatic hypotension, and extrapyramidal symptoms. Extrapyramidal symptoms are thought to be due to mesolimbic dopamine receptor blockade, not dose related, and may occur immediately or days after medication administration.⁷⁸ Patients can have akathisia (extreme restlessness) and uncoordinated involuntary movements known as dystonia, including of the muscles of the mouth (buccolingual), neck (torticollis), back (opisthotonos), eyes (oculogyric crisis), and trunk (abdominopelvic). Treatment includes diphenhydramine 25 to 50 mg IV or IM or benztpine 1 to 2 mg IV or IM acutely and extended for 3 days to minimize symptom recurrence. Both haloperidol and droperidol have minimal anticholinergic properties and are often coadministered with diphenhydramine or benztropine, so they should not be used to control agitation in a patient with known anticholinergic intoxication. The use of these medications in the sympathomimetic-intoxicated patient is concerning because some antipsychotics may lower the seizure threshold. Seizure activity after administration of haloperidol or droperidol, however, appears to be a rare event, and in the animal model haloperidol is protective against seizures in cocaine intoxication and reduces mortality in amphetamine intoxication.⁹⁵,⁹⁶

Neuroleptic malignant syndrome is a rare and potentially lethal idiosyncratic reaction estimated to occur in 0.01 to 0.02% of patients receiving antipsychotic medications.⁷⁷ Characteristic symptoms include autonomic instability, hyperthermia, lead-pipe muscle rigidity, and altered mental status. If neuroleptic malignant syndrome occurs, further antipsychotics should be withheld and supportive treatment initiated. The role for any specific pharmacotherapy is uncertain.⁷⁷,⁹⁸

Chemical restraint with newer atypical antipsychotics is safe and effective in the treatment of agitated and violent patients, although their role in the treatment of the ED patient is still evolving.⁷¹,⁷⁸,⁹⁸ Compared with the typical antipsychotics such as haloperidol, these medications appear to provide more tranquillization than sedation, have increased efficacy on both positive and negative symptoms in the outpatient, and have fewer extrapyramidal side effects.⁷¹,⁷⁸,⁹⁹,¹⁰⁰ Their use in the ED is facilitated by intramuscular and oral dissolving tablet formulations that may assist in a smoother transition to oral dosing in those patients requiring ongoing antipsychotic therapy.⁷⁸,¹⁰¹-¹⁰³ Atypical antipsychotics...
such as olanzapine, ziprasidone, and aripiprazole are proving useful in the ED. Although the clinical significance is uncertain, all of these atypical antipsychotics carry a black box warning associating their use with an increased risk of death in elderly patients with dementia-related psychosis.

Olanzapine (Zyprexa) is readily available in intramuscular, oral, and oral dissolving tablet formulations and has a distinct calming effect in clinical practice.\textsuperscript{104} It has FDA-approved indications for the treatment of agitation associated with bipolar I mania and schizophrenia. Intramuscular olanzapine has an onset of action of 15 to 45 minutes after the initial administration.\textsuperscript{14} The intramuscular form is typically administered as an initial dose of 2.5 to 10 mg with one or two subsequent doses every 2 to 4 hours for a total maximum dose of 30 mg.\textsuperscript{105,106} Although it is generally well tolerated, side effects include sedation, mild hypotension, and anticholinergic properties that can exacerbate existing anticholinergic intoxication. Olanzapine has minimal QTc-prolonging effects and a lesser occurrence of acute dystonia and akathisia compared with haloperidol.\textsuperscript{107,109} Compared with lorazepam 2 mg IM, olanzapine 10 mg IM demonstrates more rapid effectiveness in reducing acute agitation in patients with bipolar mania.\textsuperscript{10} In the acutely agitated schizophrenic patient, olanzapine IM at doses of 5 mg, 7.5 mg, and 10 mg is more rapidly effective than haloperidol 7.5 mg IM.\textsuperscript{108,109} In acute dementia-related agitation, olanzapine IM at doses of 2.5 mg and 5 mg is well tolerated and as effective as lorazepam 1 mg IM.\textsuperscript{111}

Ziprasidone (Geodon) is FDA approved for treatment of the agitated schizophrenic and bipolar manic patient, and IM doses of 10 to 20 mg are effective in reducing acute agitation in patients with underlying psychotic disorders.\textsuperscript{112,115} By the intramuscular route, typical dosing is 10 mg every 2 hours or 20 mg every 4 hours (not to exceed 40 mg/day) with an onset of action of 15 to 30 minutes.\textsuperscript{69,76} Ziprasidone is generally well tolerated, although side effects such as somnolence, dizziness, and headache are not uncommon.\textsuperscript{112,114} Ziprasidone has more QTc-prolonging effects than olanzapine, haloperidol, or risperidone and is associated with torsades in polydrug exposures.\textsuperscript{71,115-117} This QTc-prolonging effect may be clinically insignificant in most patients, but the use of ziprasidone is not recommended in those patients with significant risk for or known QTc prolongation.\textsuperscript{102,118-120} An observational study of ziprasidone IM in a psychiatric ED reported rapid clinical efficacy and decreased total time in restraints compared with historical controls who had received various doses of medications including haloperidol and lorazepam.\textsuperscript{121} A randomized double-blind trial comparing IM ziprasidone 20 mg, droperidol 5 mg, and midazolam 5 mg to treat undifferentiated agitation in the ED reported a relative delay of sedation onset with ziprasidone and a more frequent need for rescue medication to achieve sedation with midazolam-treated patients.\textsuperscript{122}

Aripiprazole (Abilify) has FDA-approved indications for the treatment of agitation associated with the schizophrenia or bipolar disorders. Recommended doses for the acutely agitated emergency patient are 5.25 to 15 mg IM (often 9.75 mg) every 2 hours as needed (to a maximum daily dose of 30 mg).\textsuperscript{123} Compared with haloperidol IM (6.5 or 7.5 mg) in the agitated schizophrenic patient, aripiprazole 9.75 mg IM is equivalent and well tolerated without oversedation and with a lower risk of extrapyramidal symptoms.\textsuperscript{124-126} In the treatment of the agitated bipolar patient, aripiprazole IM (9.75 and 15 mg) has comparable efficacy to lorazepam 2 mg IM and a low risk of oversedation with the 9.75-mg dose.\textsuperscript{127}

Benzodiazepines and typical antipsychotics are commonly used in combination to chemically restrain the agitated or violent patient. Lorazepam 2 mg and haloperidol 5 mg given together are more rapidly sedating than either medication alone, have fewer adverse effects such as extrapyramidal symptoms when combined, and are compatible within the same syringe for up to 16 hours.\textsuperscript{70,128,129} This combination, given intramuscularly or intravenously and repeated every 30 minutes as needed, is often recommended to treat the combative patient with undifferentiated agitation and no contraindications to either of these medications.\textsuperscript{70,71,76,78,102,130} Half doses should be administered to otherwise appropriate elderly patients.

### Assault and Hostage Situations

Unfortunately, physical assault may occur despite appropriate precautions and interventions. When it happens, maintain a sideward posture, keeping the arms ready for self-protection. If you are faced with a punch or a kick, deflect with an arm or a leg. If choking is attempted, tuck the chin in to protect the airway and carotids. If bitten, do not pull away but rather push toward the mouth and hold the nape shut to entice opening of the mouth. If threatened with a weapon, try to appear calm and comply with demands.\textsuperscript{50} Adopt a nonthreatening posture and avoid sudden movements. Do not attempt to reach for the weapon. Avoid argument, despair, or whining. Attempt to establish a human connection with the hostage taker.\textsuperscript{31,131} Offering to administer aid to other ill or injured hostages allows a hostage to appear less expendable. Do not bargain or make promises, and do not lie, as the consequences could be disastrous. Reassure the hostage taker that someone authorized to hear the complaint or demand should arrive promptly.\textsuperscript{132} If a weapon is put down, do not reach for it but rather attempt to verbally resolve the crisis while awaiting the arrival of security personnel. Legal authorities can be called on to provide a professional hostage negotiator if one is needed.

Each hospital should have a plan of action for cases of extreme violence. The plan should include prevention and safety measures, a means for rapid notification of security and police personnel, evacuation plans, medical treatment, and crisis intervention.\textsuperscript{50,130,132} A novel approach uses a violence management team trained in the preceding techniques to provide a mechanism for dealing with aggressive patients and protecting the staff.\textsuperscript{133}

### CLINICAL FEATURES

#### History and Physical Examination

Once combative patients are controlled, they need to be evaluated for organic causes of their agitated behavior. Separation of functional from organic disease is a challenging task complicated by the fact that many patients with psychiatric disorders suffer from organic medical disorders that may worsen their symptoms. Patients who exhibit violent behavior that is caused or exacerbated by an organic problem may rapidly deteriorate if the medical issues are not addressed in a timely fashion. A focused history and physical examination assist the physician in differentiating functional from organic illness.

Several historical features distinguish functional (psychiatric) from organic (medical) illness. Patients older than 40 years who have a new onset of psychiatric symptoms are more likely to have an organic cause.\textsuperscript{134,135} Also, elders are at higher risk for organic delirium from medical illness or adverse medication reactions. Patients with a history of drug or ethanol abuse may exhibit violent behavior as a manifestation of an intoxication or withdrawal syndrome. The acute onset of agitated behavior as well as behavior that waxes and wanes over time suggests an organic origin. Most psychiatric patients are alert and oriented and have a past psychiatric history. Table 188-1 lists clues to distinguish functional from organic causes of violent behavior.

The history should include psychiatric, medical, family, and social information, including suicidal ideation, medication use, and any recent changes to prescribed medications. Family and friends can often provide valuable details as the agitated patient
may be unreliable. When they are available, they should be inter-
viewed independently from the patient. Medical records may
detail medical and psychiatric history as well as prior history of
violence. Drug and ethanol use is an important part of the history
as substance abuse is highly correlated with violent behavior.

The patient should be asked for permission to perform a thor-
ough physical examination to search for an organic cause of
violent behavior and to uncover any resulting injury. Restraint
of the patient may be necessary to accomplish even the most
rudimentary physical examination. The importance of obtaining
routine vital signs including temperature and performing a
thorough mental status and neurologic examination cannot be
overemphasized. Patients with persistently abnormal vital signs, a
clouding of consciousness, or focal neurologic findings are more
likely to suffer from organic disease and require further diagnostic
evaluation. A careful examination should focus on the patient’s
general appearance (e.g., hygiene, nourishment, tremors) and vital
signs, evidence of trauma or needle tracks, characteristic odors,
nephrologic and mental status, and signs of a possible toxidrome
(Table 188-2).136

**DIAGNOSTIC STRATEGIES**

Although some authors advocate a standardized panel of labora-
tory and radiographic studies for patients with psychiatric symp-
toms, most recommend tailoring of diagnostic studies on the basis of
clinical findings.130,134,137-141

<table>
<thead>
<tr>
<th>Table 188-1</th>
<th>Distinguishing Organic from Functional Causes of Violent Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLINICAL FEATURE</strong></td>
<td><strong>ORGANIC</strong></td>
</tr>
<tr>
<td>Onset</td>
<td>Acute</td>
</tr>
<tr>
<td>Age at onset</td>
<td>Any</td>
</tr>
<tr>
<td>Alertness</td>
<td>Altered</td>
</tr>
<tr>
<td>Orientation</td>
<td>Impaired</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>Common; can be visual, auditory, or tactile</td>
</tr>
<tr>
<td>Symptom picture</td>
<td>Fluctuating</td>
</tr>
<tr>
<td>Abnormal vital signs</td>
<td>Common</td>
</tr>
<tr>
<td>Psychiatric history</td>
<td>No</td>
</tr>
</tbody>
</table>

A rapid blood glucose determination and pulse oximetry should be
obtained for all combative patients. Patients younger than 40
years with a prior psychiatric history, normal physical examina-
tion findings including vital signs, calm demeanor, normal orienta-
tion, and no physical complaints are likely to require no further
diagnostic testing.139 Additional studies that may be useful in
selected patients include serum electrolyte values, blood and urine
toxicology screening, serum ethanol level, thyroid function panel,
cranial imaging, and electroencephalography.29,32,50,134 A lumbar
puncture may be performed if a central nervous system infection
is suggested. Specific medication levels may be determined when
toxic levels would affect therapy. An electrocardiogram may be
useful in elders and in the setting of a suggested intentional
ingestion. Patients who may have intentionally ingested a toxic
substance should also have aspirin and acetaminophen level mea-
surements as these potentially fatal ingestions may be difficult to
diagnose clinically.

An additional consideration in the diagnostic workup is the
concern of the psychiatrist who will ultimately evaluate the patient.
Although serum ethanol and toxicology screening may not signifi-
cantly influence a patient’s ED treatment, the psychiatrist may
use them to assess the degree to which ethanol or drug use con-
tributes to the patient’s behavioral issues.134,142-144 Ideally, an agree-
ment on a diagnostic strategy should be reached between the
psychiatrist and emergency physician before referral. Unnecessary
diagnostic testing prolongs ED length of stay and delays definitive
psychiatric care.

**DIFFERENTIAL CONSIDERATIONS**

Violent behavior often occurs in association with head trauma,
hypoxia, hypoglycemia, electrolyte imbalance, infections (particu-
larly herpes encephalitis), drug intoxication or withdrawal or
adverse reaction, and metabolic and endocrine derangements.31,50

Uncommon organic causes include seizures (e.g., temporal lobe,
limbic), tumors (particularly those in the limbic system), limbic
encephalitis, multiple sclerosis, porphyria, Wilson’s disease, Hun-
tington’s disease, sleep disorders, hyperparathyroidism, and
vitamin and mineral deficiencies (e.g., folate, vitamin B 12, niacin,
and vitamin B 6).145 In the ED setting, drug or ethanol intoxication
and withdrawal are the most common diagnoses in combative
patients.33,58 The mnemonic FIND ME (functional, infectious,
nephrologic, drugs, metabolic, endocrine) helps organize a diagnos-
tic search for the cause of violence (Box 188-1).

**Medical Clearance**

The emergency physician often provides “medical clearance” for
the psychiatric or combative patient, although medical clearance
is a misnomer and the patient is not “cleared” of all possible

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Table 188-2 | Vital Signs and Toxic Syndromes |
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOXIN</strong></td>
<td><strong>BP</strong></td>
<td><strong>P</strong></td>
<td><strong>RR</strong></td>
<td><strong>T</strong></td>
<td><strong>PUPIL SIZE</strong></td>
<td><strong>SKIN</strong></td>
</tr>
<tr>
<td>Sympathomimetic</td>
<td>↑/↓</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Wet</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>↑/↓</td>
<td>↑/↓</td>
<td>—</td>
<td>↑</td>
<td>↑</td>
<td>Dry</td>
</tr>
<tr>
<td>Cholinergic</td>
<td>↑/↓</td>
<td>↑/↓</td>
<td>—</td>
<td>—</td>
<td>↓</td>
<td>Wet</td>
</tr>
<tr>
<td>Opiates</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sedatives</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
<td>↑/↓</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Withdrawal (ethanol, sedative-hypnotics)</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>↑</td>
<td>Wet</td>
</tr>
</tbody>
</table>


BP: blood pressure; P: pulse; RR: respiratory rate; T: temperature; ↑, increased; ↓, decreased; —, no change.
Box 188-1 Problems Associated with Violence

**Psychiatric**
- Schizophrenia
- Paranoia
- Catatonic excitement
- Mania
- Personality disorders
- Borderline
- Antisocial
- Delusional depression
- Post-traumatic stress disorder
- Decompensating obsessive-compulsive disorders
- Homosexual panic

**Situational Frustration**
- Mutual hostility
- Miscommunication
- Fear of dependence or rejection
- Fear of illness
- Guilt about disease process

**Antisocial Behavior**
- Violence with no associated medical or psychiatric explanation
  (these patients may be managed by the police or security)

**Organic Diseases**
- Delirium
- Dementia
- Trauma
- Central nervous system infection
- Seizure
- Neoplasm
- Cerebrovascular accident
- Vascular malformation
- Hypoglycemia
- Hypoxia
- Acquired immunodeficiency syndrome (AIDS)
- Electrolyte abnormality
- Hypothermia or hyperthermia
- Anemia
- Vitamin deficiency
- Endocrine disorder

**Drugs**
- Unanticipated reaction to prescribed medication (especially sedatives in brain-injured or elderly patients)
- Alcohol (intoxication and withdrawal)
- Amphetamines
- Cocaine
- Sedative-hypnotics (intoxication or withdrawal)
- Phencyclidine (PCP)
- Lysergic acid diethylamide (LSD)
- Anticholinergics
- Aromatic hydrocarbons (e.g., glue, paint, gasoline)
- Steroids

The incidence of organic disease in patients presenting with psychiatric complaints ranges from 24 to 80%.\(^{134,147,148}\) The more relevant issue for the emergency physician is to detect medical problems that are contributing to the patient's violent behavior. Misattribution of aberrant organic behavior in a patient with known psychiatric disease is a common cause of litigation.\(^{149}\) Most psychiatrists rely on the emergency physician's medical assessment of the patient. Low-risk patients with functional illness can be rapidly referred for psychiatric evaluation once they are calm and cooperative with a therapeutic psychiatric interview.

Patients at higher risk for an acute organic illness require further diagnostic studies.

Once the medical screening evaluation is completed, the findings should be communicated to the consulting psychiatrist. The medical record should reflect that the evaluation shows no evidence that an acute medical condition is contributing to the patient's behavior. If the cause of the patient's violent behavior is drug or ethanol intoxication, the patient should be observed until a therapeutic interview can be conducted by the psychiatrist. Alternatively, the patient may be transported to a facility where observation can occur until the effects of the intoxicants have abated.

**Preparing the Emergency Department to Prevent Violence**

The risk of violence in the ED should be minimized in a cost-effective manner without creating a hostile or negative environment. The prevention of violence is best accomplished by development of a system that includes ongoing staff education, adequate personnel, and a well-designed physical structure.

**Security Personnel**

A well-trained and responsive security force is a key element of any hospital security system. Such personnel are expensive, and their expertise is often sacrificed quickly during budget cutbacks, so decisions about the type and number of guards are often made on an economic basis. The use of guns by hospital security personnel is controversial, as is allowing other armed law enforcement officers into the ED. Other devices, such as the Taser, stun gun, and mace, are suggested as less lethal alternatives to guns.

**Patient Searches**

Searching of patients for weapons as they enter the ED is permissible when it is performed in a nondiscriminatory manner.\(^{131}\) Warning signs should be prominently displayed, perhaps reading “For the safety of patients and staff, individuals entering the ED may be screened for weapons.” Almost all patients and families will cooperate with searches and may actually feel safer as a result.\(^{52}\) Clear written policies about searches and disposal of contraband should be distributed to the staff and closely followed.

**Alarm Systems**

The goal of any alarm system is to obtain rapid appropriate response with a minimum of false alarms. A tiered alarm system is usually best. Panic buttons in each room activate a central buzzer in the department. Several designated ED personnel respond initially and then judge the level of response needed. Every ED should have at least one telephone with a direct line to police or security in case additional personnel are deemed necessary. A verbal code (e.g., “Dr. Armstrong to room 9”) is also a useful adjunct.\(^{50}\)

**Limited Access to the Emergency Department**

Control of flow into the ED can be an effective method of preventing violent acts. High-risk departments should limit access to one or two entrances, especially during the evening hours. Bulletproof glass barriers and buzzer access systems are useful as well.

**Use of a Designated Room**

The American College of Emergency Physicians recommends that most EDs contain at least one secure examination room with
shatterproof ceiling lights, solid ceiling, heavy indestructible chairs, well-secured restraint bed, two doors that can be locked from the outside, and emergency distress button that can be activated unobtrusively.\textsuperscript{131} If it is desired, this room can be set up for video monitoring by security or ED staff. One large urban county hospital with a high incidence of violent behavior in the ED is equipped with a large security force, metal detectors, bulletproof Plexiglas triage area, keypad security entry, controlled entryway into the ED, and metal bars to prohibit cars from driving into the department.\textsuperscript{19} This hospital reported no occurrence of weapons-related violence or injury in the ED after these measures were implemented.

Prevention

The concepts of primary, secondary, and tertiary prevention of violence can be applied to the ED environment.\textsuperscript{15} Primary prevention refers to trying to control those factors that encourage the development of frustration and aggression. Long waiting times are associated with development of violent behavior. Attempts to shorten waiting times and to make the waiting room environment as pleasant as possible may diminish previolent aggression. The presence of surveillance cameras and a visible security force also act as deterrents.

Secondary prevention of violence involves response to previolent agitation and aggression. Successful intervention involves the recognition of risk and implementation of de-escalation techniques. Staff should be trained to recognize previolent individuals who should be seen in a timely manner. The aura of preferential treatment often defuses the situation.\textsuperscript{133} Training of staff in techniques for management of violence leads to increased staff confidence and comfort while decreasing the rate of aggressive incidents.\textsuperscript{150,151}

Tertiary prevention refers to limitation of the actual act of violence itself once it has occurred. Physical and chemical restraints are used, and security and police intervention are often needed. Protocols for dealing with the violent patient are important to minimize risks to the patient and staff. Enhanced security measures may be indicated in an ED with substantial risk for violence.

Violence is increasingly a major public health issue, with increased focus on improving surveillance and universal preventive measures to target large populations.\textsuperscript{152-154} Physicians are increasingly aware of their role in reducing violence, and the ED is uniquely positioned to have an impact on at-risk populations. Proposed agendas for violence prevention for emergency medicine include improvements in medical education, research, and clinical practice as well as involvement with public education and advocacy.\textsuperscript{155,156} Resources, particularly those aimed at youth violence intervention and prevention in the medical setting, are available to assist health care providers in the ED.\textsuperscript{154}

KEY CONCEPTS

- ED staff should be trained to recognize potentially violent individuals and to intervene with de-escalation techniques.
- The ED should have a written plan of action to deal with violence that integrates the activities of ED staff, hospital administration, security, and local authorities.
- The emergency physician should be familiar with the use of physical and chemical restraints.
- The possibility of an organic (medical) cause of aggressive behavior should be considered in all violent patients, even those with known psychiatric disease.
- ED leadership should be proactive in attempting to create an environment that is safe and supportive for both patients and staff.

The references for this chapter can be found online by accessing the accompanying Expert Consult website.
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