Management of Violence and Aggression in Emergency Environment; a Narrative Review of 200 Related Articles

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Abstract

Context: The aim of this study is to reviewing various approaches for dealing with agitated patients in emergency department (ED) including of chemical and physical restraint methods.

Evidence acquisition: This review was conducted by searching "Violence," "Aggression," and "workplace violence" keywords in these databases: PubMed, Scopus, EmBase, ScienceDirect, Cochrane Database, and Google Scholar. In addition to using keywords for finding the papers, the related article capability was used to find more papers. From the found papers, published papers from 2005 to 2018 were chosen to enter the paper pool for further review.

Results: Ultimately, 200 papers were used in this paper to conduct a comprehensive review regarding violence management in ED. The results were categorized as prevention, verbal methods, pharmacological interventions and physical restraint.

Conclusion: In this study various methods of chemical and physical restraint methods were reviewed so an emergency medicine physician be aware of various available choices in different clinical situations for agitated patients.

Key words: Aggression, Emergency Service, Hospital, Restraint, Physical, Violence

CONTEXT

Workplace Violence (WPV) of medical personnel has diverse forms, accounting for one of the potential risk factors in society (1-7). Among different jobs, medical personnel are the most vulnerable groups to WPV; some studies have shown that the probability of WPV for medical personnel is higher than that for police officers and prison guards (8). Today, accurate statistics of WPV are not available for some reasons such as unavailability of a unique definition and effective deterrent rules (9-11). However, based on available data, 35 to 80% of medical personnel, especially emergency department (ED) personnel, experienced physical violence at least once, and 100% of them experienced verbal violence in their career (12-14). WPV is highly prevalent as almost 25% of respondents in one study in the United States that was published in 2009, reported experiencing physical violence more than 20 times in the past 3 years (15). WPV is associated with severe financial and psychological costs such as career burnout, depression, fear, post raumatic stress disorder (PTSD), decreased job satisfaction, reduced performance, or even career quitting (9, 16-18). This phenomenon, in addition to the medical personnel, can harmfully affect the offender and the other patients, as there are some reported cases of death following excited delirium (19). Among the different departments of hospitals, the emergency department is one of the most vulnerable departments toward violence of the patients; one of its reasons is lack of well-trained and armed security guards that are apparent to patients (12, 20-22). Stressful and special conditions of the emergency department and critical state of its patients are other reasons for the stimulus of physical and verbal violence toward its personnel (20). The constant rising violence phenomenon in emergency departments has been highly discussed in numerous studies (23-25), and some government agencies have tried to establish deterrent rules against WPV via intensifying the punishment of offenders (26-28). However, based on evidence and experience of medical personnel, these rules alone, are not competent enough and in many cases, direct act from medical personnel is needed. The importance and high prevalence of

this phenomenon and the need of knowing effective approaches for medical personnel to control and act directly in WPV situations were the purposes of this review article.

EVIDENCE ACQUISITION

This review was conducted by searching "Violence," "Aggression," and "workplace violence" keywords in these databases: PubMed, Scopus, EmBase, ScienceDirect, Cochrane Database, and Google Scholar. In addition to using keywords for finding the papers, the related article capability was used to find more papers. From the found papers, published papers from 2005 to 2018 were chosen to enter the paper pool for further review. As this article was conducted as a review, no independent data from direct clinical interventions or field collection were entered the study; therefore, no written consent was needed. Ultimately, 200 papers were used in this paper to conduct a comprehensive review of the management of violence in ED.

RESULTS

Ultimately, 200 papers were used in this paper to conduct a comprehensive review regarding violence management in ED. The results were categorized as prevention, verbal methods, pharmacological interventions and physical restraint.

Prevention

One of the highly recommended methods in many articles is to train medical personnel to determine and take necessary measures with the patients in the edge of losing control; as these courses are mandatory in some healthcare centers (29). However, some studies have questioned the effectiveness of these courses (30). Among the medical personnel, triage nurses are the first line exposed to violence and aggression of clients (25, 31, 32). Therefore, the ability to determine the alarming signs of the beginning of violence is highly essential in preventing and taking proper actions. Among the different methods of screening and identification of warning signs of violence, STAMP (33), STAMPEDAR (34) are the fastest and most practical methods useable in triage. In addition, other used methods include Brief Agitation Rating Scale (35), Clinical Global Impression Scale for Aggression (36), Historical-Clinical-Risk Management-20 Violence Risk Assessment Scheme (37), and Positive and Negative Syndrome Scale-Excited Component (38-41).

Violence management in emergency

Actions used to manage the patient with violence episode in an emergency environment consist of verbal, physical, mechanical methods and various pharmacological methods that can be combined based on situations (42, 43). As there are possibilities of physical and psychological harm, retraumatization, loss of dignity, and even death, especially in physical and mechanical restraint (44, 45), it is necessary to identify the advantages and disadvantages of every method to choose the best option. As evidenced by some studies, contrary to old methods and beliefs, it is recommended that use of mechanical and physical restraint should be reduced to significantly decrease the complications and prevent the patient isolation, which can predispose future violent actions (44, 45). Most medical personnel consider control of violence and agitation of the patient an easy task, particularly in recent years, haloperidol use has increased In emergency departments (46-49). However, some studies have shown that this drug and controlling method has not shown desirable results all the time. In the following, different methods of managing violence in patients in the emergency environment will be reviewed.

Verbal methods

The first task when confronting a patient with violent and agitated behavior is the evaluation and improvement of the environmental setting to increase the security of people on stage (50). In line with the mentioned task, some rules should be generally considered:

- Assuring patient's physical safety
- Reducing environmental triggers and isolating the patient
- Reducing the patients waiting time
- Removing potentially dangerous objects
- Observing and evaluating the used approach by healthcare staff toward the patient
- Making efforts toward establishing a safe, private, and caregiving communication with the patient, and staying calm
- Maintaining safe distance with the patient
- Identifying possible causes of patients violence
- Respecting and maintaining the privacy of the patient
- Avoiding direct and harsh encounter with the patient
- Avoiding prolonged and intense direct eye contact with the patient
- Avoiding using any threatening body language

The very first therapeutic method in approach toward the agitated and aggressive patient is

verbal de-escalation (Defusing or talking down). This method helps the patient to understand the empathy and professional concern of the medical personnel and assure the patient that purpose of the medical team is his/her well-being and safety, and no danger threats him/her (50). In some situations, and if available, help and consults from social services consultants can also be used (51).

Pharmacological interventions
- **First-generation antipsychotics (Typical)**

First-generation antipsychotics (FGAs) are more commonly used drugs to control and treat aggression and agitation in patients (52), and their effects are due to inhibition of dopaminergic transmission in the brain (46). Despite the widespread use of these drugs, their effectiveness and side effects are among the discussed issues in the studies (52). Usage of these drugs has potential risks for development of extrapyramidal and tardive dyskinesia side effects (53).

Based on high- or low-potency, these drugs are divided as follows:
- The first division, the high-potency FGAs consist of fluphenazine, haloperidol, loxapine, perphenazine, pimozide, thiothixene, and trifluoperazine
- The second division, the low-potency FGAs consist of chlorpromazine and thioridazine

Among the first division drugs, fluphenazine, haloperidol, loxapine, pimozide, and thiothixene have the highest risk for development of Extrapyramidal Syndrome (EPS) (53). Based on one study by Gao et al., 21 to 31% of patients under treatment with haloperidol for 3 to 8 weeks developed drug-induced EPS (54). The second division drugs of FGAs have a lower risk of EPS development and are comparable with the second-generation antipsychotics drugs such as risperidone (55).

A) Haloperidol
Haloperidol is a highly potent neuroleptic that can induce a proper sedative effect if administrated intramuscular (56). Despite the side effects of this drug that can occur even after one-time injection, it is still used worldwide in emergency set-up (47, 51) and the main reasons for that are lower complications such as excessive sedation and hypotension compared to the same generation drugs (48, 57, 58). However, haloperidol alone, can induce dangerous EPS complications such as acute dystonia (59). In addition to EPS, studies have shown that high doses of intravenous haloperidol can cause prolonged QT and TdP in electrocardiogram (60-65). These complications

have become more prominent considering the fact that haloperidol is the most used drug for controlling acute agitation in the world , and it is the treatment of choice in some healthcare centers (46, 51).

B) Chlorpromazine
Discovery of chlorpromazine in 1952 was named the "psychopharmacological revolution" in the treatment of psychological diseases (66, 67). Nevertheless, future studies showed that use of this drug for rapid tranquilization was not a suitable choice in clinical settings due to local hypersensitivity and discomfort following intramuscular injection. Furthermore, there is a well-documented potential risk for cardiovascular disease when using needed doses of this drug for rapid tranquilization of the patient (68). However, in a Cochrane review conducted by Ahmed et al., no statistically significant difference was found between EPS complications owing to using haloperidol and chlorpromazine (69).

- **Second-generation antipsychotics (Atypical)**

The newest turning point in the treatment of psychosis and acute agitation in patients has been the production of second-generation antipsychotics (Atypical) that have less EPS complications (70, 71), hyper prolactinoma (72), and movement disorders (58, 71) compared to their previous generations. The most important drugs of this generation are Risperidone, Olanzapine, Ziprasidone, Aripiprazole, and Quetiapine (73, 74). In some drugs of this generation (e.g. risperidone and olanzapine), there is a direct relation between the administered dose and incidence of EPS, whereas in some other drugs (e.g. clozapine and quetiapine), this relation is not apparent (71). It is important to point out that some trials have questioned the advantages of these antipsychotics in speed on onset (75) and degree of response (76, 77) compared to the previous generation and even haloperidol alone (78, 79), and even some studies have considered this two generation to have a one category (46, 80). Furthermore, notwithstanding the benefits of this generation of drugs and their superiority in reducing morbidity and mortality, their prolonged use can induce complications such as overweighting, disruption of glucose metabolism, dyslipidemia, and cardiovascular disease (81). Based on available guidelines, to control the patient's symptoms, monotherapy is preferred over polytherapy, and according to a general rule, an administrated dose of the drug should be equal to 300 to 1000 chlorpromazine to reduce the incidence of a dangerous side effect (82, 83). One of

the main problems of using atypical antipsychotic drugs in an emergency is a limited number of the performed randomized clinical trial concerning these drugs in emergency setup (80, 84-91). Many of the studies into using these drugs have been conducted on recently admitted agitated patients (79, 92, 93). This can be one of the main obstacles facing emergency medicine physicians when choosing and using these drugs. Nevertheless, most of the conducted studies in different hospital settings confirm high effectiveness of these drugs compared to haloperidol (Either same effectiveness or higher) in the treatment of the agitated patient (79, 87, 91, 94, 95).

A) Risperidone

It is a second-generation antipsychotic drug administered in variable ways (96); even in its oral intake form (Risperidone OS), it is efficient as much as other forms (97). Furthermore, there is no statistically significant difference between the oral form of risperidone and injected haloperidol regarding compliance, the speed of onset, and effectiveness (98). Villari et al. in their study observed that risperidone, olanzapine, and quetiapine were effective as much as haloperidol, and interestingly they showed its better compliance compared to haloperidol (99). In addition to its advantageous position to atypical antipsychotics, it has shown equal or better action compared to some typical antipsychotics such as zuclopenthixol (100).

B) Olanzapine

Olanzapine is one of the second-generation antipsychotics and is a dopamine/serotonin antagonist that Its effect on controlling and relaxing patients in the injectable and oral administration is higher than intramuscular haloperidol in the first 90 minutes and after that, the effects are equal (96). According to the study of Pascual et al., oral administration of 20 milligrams of olanzapine was effective in rapid and safe improvement of acutely agitated patients (101). Although oral administration of olanzapine (Olanzapine ODT) is more effective than its injectable form, studies have not shown any statistically significant difference (96). Since intramuscular administration of olanzapine is effective and safe in improving and treating agitated patients (102, 103), choosing between different forms of administration is related to circumstances and physician's opinion. In one study by Castle et al., intramuscular administration of olanzapine compared to other antipsychotics was more effective in improving patients' symptoms two hours after administrations, and the

results were statistically significant (104); there are more studies confirmative of this result (84, 90). In this regard, studies have indicated better or equal effects of olanzapine compared to haloperidol (99, 105, 106). Other advantages of olanzapine use in managing agitated patients are that the need for other antipsychotic, anticholinergic, and anxiolytic/hypnotic drugs administration is reduced compared to other drugs (104, 107). In one study by Kinon et al., no statistically significant difference was found between the effects of using olanzapine and aripiprazole (both with co-administration of lorazepam). The most observed side effect in olanzapine use was insomnia (5.2%) and in aripiprazole was insomnia (8.3%) and headache (5.3%) (108). It is important to know that concurrent administration of intramuscular olanzapine with benzodiazepines increases the probability of occurring side effects (109-111); olanzapine can affect the Alpha-1 receptors and induce hypotension (112).

C) Quetiapine

In contrast to other atypical antipsychotics and like olanzapine, it has a high affinity toward antihistaminic receptors; therefore, it poses a higher sedative effect on the patient compared to other drugs of its generation (48). Drowsiness and orthostasis are among the most reported side effects of this drug. These side effects can be a limiting factor for their use in patients with dehydration and electrolytes imbalance (113, 114).

D) Ziprasidone

Ziprasidone was the first drug of atypical antipsychotic drugs in injectable form (86). Compared to other atypical antipsychotic drugs, its affinity toward serotonin receptors compared to D2 receptors is 10-folds (115). Based on conducted clinical trials, this drug can improve the symptoms of an agitated patient in 15-30 minutes (116). Though this drug like other drugs in its generation has lower side effects (e.g. EPS, dystonia, and oversedation), but the danger of QTc prolongation and cardiac arrhythmia still exist (117). Despite this, Jangro et al. study showed that monotherapy with intramuscular ziprasidone could induce an effective and relevant sedative effect compared to the combined use of haloperidol and lorazepam (86).

E) Aripiprazole

Among the variable atypical antipsychotic drugs, there is Aripiprazole that different studies have showed its high effectiveness (up to 90% of patients) in intramuscular administration (92, 93, 118). No statistically significant relationship has

been found between clinical effectiveness and its blood serum levels; this is similar to most of the atypical antipsychotics drugs (except olanzapine (118-120). This is one of the challenges ahead of clinical practice in using Aripiprazole that can affect acquiring therapeutic levels and controlling its side effects. However, some of its side effects such as sedation can be compared to drugs such as lorazepam; as in one study by Zimbroff et al., levels of effectiveness of Aripiprazole were the same as intramuscular lorazepam, but it showed lower sedative effects (92).

• Benzodiazepines
Benzodiazepines, with their anxiolytic and sedative effects, can cause rapid agitation of the patient. However, their side effects such as respiratory depression, excessive sedation, ataxia, and paradoxical disinhibition limit their usage (46, 121-128).

A) Lorazepam
Other drugs that can be used to control patients with agitation are lorazepam, which has positive outcomes particularly in combination with haloperidol (91); therefore, the most commonly used antipsychotic combination in the United States is haloperidol+lorazepam (129). However, a 2005 Cochrane review study found that there was insufficient evidence to suggest a superior benefit in a combination of haloperidol+lorazepam than other antipsychotics such as haloperidol+promethazin (130). In addition, its IM form is not readily available in many regions (56).

B) Diazepam and Midazolam
Diazepam along with haloperidol, lorazepam, midazolam, and chlorpromazine have been controversial in tolerability profiles in studies (131). Among these drugs, diazepam and midazolam have a potential risk for respiratory depression, especially in high-risk patients and those with metabolic disorders of benzodiazepines (such as hepatic impairment and alcohol users) (131-133). Diazepam, as with lorazepam, is also contraindicated in patients suspected of being poisoned with Propylene glycol (131). Despite these complications, some studies have indicated better effects of midazolam on psychomotor agitation than haloperidol (73).

• Other drugs
A) Promethazine
Studies have shown that this anti-histamine, especially in combination with haloperidol (59), can be useful in acute improvement of the patient's agitation in emergencies. The reason for this drug combination is to accelerate the final results following sedative and antimuscarinic effects of

promethazine (56, 80, 117, 129). However, the combination of this drug with olanzapine is not recommended due to increased likelihood of symptomatic hypotension, particularly in alcohol users (112, 134).

Physical restraint
Physical restraint refers to a set of actions taken on the body or near the patient's body to limit the degree of freedom of movement (135, 136). Restraining the patients is performed in two ways: Physical restraining whereas some areas of the patient's body is held by other people and mechanical restraining whereas the movements of the patient are limited by using approved devices and appliances such as straps (leather and cloth) and belts (18, 137-140). Most of the times, the term "physical restraint" is used to refer to the two above-mentioned ways. Physical restraint is performed in various ways: limiting the movements of limbs and body on specific beds with straps [4 points (ankles and wrists) and 5 points (ankles, wrist, and chest)]; fasten the patient on chair and limiting the movements of limbs (Ambulatory restraint); limiting the whole-body movement by camisole or straightjacket. When restraining patients, there should be some considerations: either restraint the 4 limbs or none, since freedom of one limb can cause many problems and complications; to prevent kicking from the patient, right leg can be tied up to the left corner of the bed, and the left leg can be tied up to the right corner of the bed; using a soft padding beneath the skin of restrained ankles and wrists; unlocking the fastened parts of the patient's body in periodical manner to prevent the possible complications; moving the body of the patient every 2 hours; examination distal of the limbs for sensory and neurological signs; immobilizing the chest or waist to prevent falling down from the bed; checking patients respiratory rate every hour; for patients that are in the wheelchair, chest should be immobilized not the waist (141-143).
There are some rules provided by "American College of Emergency Physicians (ACEP)" for physical restraint usage (144):
- It should be used only after verbal de-escalation
- Privacy and dignity of the patient should be maintained during the physical restraint
- Limitation should be as low as possible
- Medical personnel should be properly trained for using physical restraint and monitoring the patient under physical restraint
- The existence of appropriate protocols to ensure patient safety, including the necessary

care and treatment during the period of physical restraint and periodic evaluations to determine whether to maintain physical restraint

- The patient under physical restraint should be explicitly and continuously observed by his or her physician
- The use of physical restraint should be consistent with standards and rules.

Owing to the possibility of complications and the use of physical restraint, which may be subject to pressure and threats and punishment, it is difficult to make decisions about physical restraint (142).

DISCUSSION

Based on conducted studies, a significant portion of violence in an emergency environment is caused by patients (88.2%) aged between 20 and 30 years, and with male sex (64.7%). Alcohol use (52.3%), methamphetamine and other drugs abuse (5%), long waiting hours (11.9%) (11, 145-147), suicidal thoughts (13.8%) (145), high severity of previous violence of patient (148), inadequate number of personnel (149), weak safety proceedings (150), an out-of-sight security team (151, 152), crowded and busy emergency unit (153), time of the patient arrival (evening and night shifts) (23), and weak ability of medical personnel in communicating with the patient and patient companion (154) are among the influencing factors (155).

Pharmacological interventions in the management of violent patients in emergency departments consist of using first-generation antipsychotics (especially haloperidol), benzodiazepines, and second generations antipsychotics (atypical). The most important fact that should be considered when choosing drugs is that the primary purpose of managing the violent patient in the emergency department is calming down and reducing agitation not over sedating the patient (73, 91, 156-159).

Physical restraint should provide acceptable protection against injury for the patient and others. Aggressive behavior can occur suddenly, and it should be considered that in the every moment, it occurs, the first reaction for controlling it, should always be verbal de-escalation (135, 160). Physical restraint is used when verbal de-escalation and pharmacological intervention are not effective, and the patient has dangerous and harmful behaviors for himself/herself and others (135, 161, 162). The goals of physical restraint are preventing harm and injury to physical and psychological integrity, and safety of the patient and other patients and medical personnel; preventing severe damage to the

healthcare center environment (135, 142, 163). Furthermore, physical restraint can provide a way for performing necessary therapeutic actions and grant the time for administrated drugs to reach their therapeutic levels (135, 162, 164, 165). From the beginning of the physical restraint, the reason for it should be declared for the patient so that it should be explained to the patient that the purpose of this action is not punishment and it is for the safety of the patient and others (161, 166). Physical restraint is always accompanied by numerous dangers and complications. Therefore, specific and detailed rules and instruction for its use should be available in every healthcare center.

Various factors affect the decision-making of medical personnel to apply physical restraint, including lack of alternative ways, underlying needs, escalation effects of restraint itself, and so on (167). Several hazards to the patient under physical restraint may occur, including the following: dehydration, choking, blood circulatory problems in under pressure areas and limbs, bedsore, losing power and movement by the patient, incontinence, thromboembolic incidents, Deep Vein Thrombosis, bone fracture, lactic acidosis, aspiration, stress cardiomyopathy, respiratory depression and asphyxia, and even death (57, 168-176). Preventing these complications is achieved via periodic and constant evaluations (166).

In one study by Cowman et al. conducted in 17 European countries, among mental health personnel (mental inpatient services, forensic, emergency, and so on), the results showed that the most common method of intervention against violence was to use physical restraint (177). One study showed that there was limited empirical evidence for using physical restraint to control the violence of admitted mentally ill patients (178). The use of physical restraint in mental patients, if not controlled, can tend to increase (179). One study in China showed a positive correlation between the use of physical restraint, unemployment, low incomes, and the amount of patients' aggression in the last month (180). In some countries such as Britain and the Netherlands, mechanical and physical restraint is against the law (57, 181). In Brazil, the most common way of controlling violence and invasion is to use physical restraint (57).

In recent years, many efforts have been made to reduce the use of physical restraint. In one study, a six-core strategy based on "Trauma Informed care" was used between young patients admitted to the hospital, the results showed that this strategy

reduced the use of physical restraint in young patients admitted to hospital. The main causes of using physical restraint were maladaptive behavior and mood disorders (182). Another study conducted on hospitalized patients in New York City could significantly reduce the amount of physical restraint during a 5-year period follow-up by employing several interventions, including reducing the timing of new orders for physical restraint, teaching staff to diagnose patients at risk for immediate intervention, and a questionnaire filled by patients that determined their own choices in When anxiety was detected (183). In one study by Martin et al., a "Collaborative problem solving" treatment program for children and adult patients reduced the use of physical restraint in children (184).

Owing to cultural and regional differences, it is difficult to create a universal protocol for using physical restraint. Physical restraint can influence the rate of acceptance of post-discharge treatment interventions by the patient after being discharged from the emergency department. In one study, the effect of physical restraint on the rate of referral for outpatient psychiatric visits after discharge was examined. The results showed that patients with physical restraint were less likely to conduct these post-discharge visits (185). In one study, the abundance and type of physical restraint used by ICU, emergency department, and neurosurgery nurses, their views on physical restraint, as well as the complications of this work in several hospitals in Turkey were investigated. Nurses performed physical restraint on ankle, hand or body at different levels. Those working in the surgical and emergency ICU sections having in-service training used more physical restraint. There were also 9 deaths. The reduction in the rate of services to patients was directly related to the complications of physical restraint (186). In one retrospective study conducted in a hospital over a 1-year period in patients with acute behavioral disorders referred to the emergency department that needed intervention, the results showed that from 122 cases with this condition, physical restraint alone was performed in 14 cases, and it was performed along with pharmacological therapy in 66 cases (187). In another study conducted by Dumais et al., results from a mental hospital in Canada showed that over 2 years, out of 2721 admitted patients, physical restraint was used in 476 cases (188). In another study, the use of physical restraint in patients over the age of 60 was determined by nurses to be patient safety and nurses' workload (189, 190). In another study in the emergency

department of four hospitals in Australia, results showed that physical restraint was used in 0.04% of the total number of referrals. The physical restraint was mainly carried out using a soft bracelet and soft sole. The average physical restraint time was 2 hours and 5 minutes (191).

There is a considerable difference between duration of physical inhibition in different areas. In one study, the average physical restraint time in 10 European countries varied from 4.5 hours to 1182 hours (137, 192). In one study, the relationship between the degree and type of physical restraint with age and sex and the history of immigration in a hospital in Norway was investigated. The results indicated that from 960 hospitalized patients, in 14% of them, physical restraint was used. Physical restraint was higher among immigrants and especially young people. Physical restraint alone was higher in local people, and along with drug interventions, it was higher in immigrants. Physical restraint was reduced at the age of 60 or more (193).

In one study investigating the first physical restraint experience in psychiatric wards over 2 years, the results indicated that physical restraint along with pharmacological intervention took longer than physical restraint alone (194). Another study found that patients who were periodically subjected to physical restraint were hospitalized more often and longer (195). In one study, the patients' opinion about physical restraint and possible improvement and alternative were investigated. The results demonstrated that failure to address and provide the patients' basic needs and lack of communication during the time of physical restraint were the most important factors among the mentioned problems (196). In another study, the study of patients' perceptions and impressions subjected to physical restraint revealed that patients were inadequately connected with medical staff and feel distorted and trampled on their human rights (197). Another study conducted by McCurdy et al. demonstrated that installation of a door between the patients' accessible area and the waiting area of the ward, significantly reduced the amount of physical restraint (198). A study performed in 3 psychiatric emergencies in Rio, Brazil on aggressive patients showed that of 301 patients, 73 of them were physically restrained in the first 2 hours after admission (199). Physical restraint can undermine the trust and relationship between the patient and the medical team members. A series of factors can reduce this damage. In this regard, one study by Khatib et al. showed that duration of the restraint,

contact with medical personnel during the period of physical restraint, supportive interventions of medical personnel and their response to the patient's needs were critical and significant factors in determining how the patient experienced physical restraint and its consequence (200).

CONCLUSIONS

In this study various methods of chemical and physical restraint methods were reviewed so an emergency medicine physician be aware of various available choices in different clinical situations for agitated patients.

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