www.ijrps.pharmascope.org

ISSN: 0975-7538
Review Article

Post-Traumatic Stress Disorder: A Comprehensive Review

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ABSTRACT

Post-traumatic stress disorder (PTSD) is a disorder in which an overwhelming traumatic event is re experienced, causing intense fear, helplessness, horror, and avoidance of stimuli associated with the trauma. In other words, PTSD is a debilitating condition that follows a terrifying event. The main symptoms of PTSD are Flashbacks (also called re-experiencing symptoms), Emotional detachment, Jumpiness (also called hyper-arousal symptoms), Substance abuse, Depression and Suicide Thoughts. PTSD can have severe and long lasting effects on people's lives. Examples of outcomes of PTSD include Physiological outcomes (Neurobiological changes, Psycho physiological Changes), Psychological outcomes as well as Social outcomes. PTSD is also reported in children. Treatment for PTSD consists of three types of therapies namely Pharmacotherapy, Psychotherapy and Behavioral Therapy. Pharmacotherapy with several drugs is widely used in the Treatment of PTSD. Among different antidepressant drugs, the drugs which are effective in the treatment of PTSD include Selective Serotonin Reuptake Inhibitors (SSRIs) and MAO Inhibitors.

Keywords: PTSD; Re-experiencing Symptoms; Treatment; SSRIs; MAOs

INTRODUCTION

Post-traumatic stress disorder (PTSD) is among only a few mental disorders that are triggered by a disturbing outside event, unlike other psychiatric disorders such as depression. In 1 out of 10 Americans, the traumatic event causes a cascade of psychological and biological changes known as Post-traumatic stress disorder. Wars throughout the ages often triggered what some people called "shell shock," in which returning soldiers were unable to adapt to life after war (Mathew J. Friedman et al., 2007). Although each successive war brings about renewed attention on this syndrome, it wasn't the Vietnam War that PTSD was first identified and given this name (National Center for PTSD). Now, mental health providers such as Psychiatrists, Psychologists, and other health care professionals made an attempt to understand people's response to these traumatic events and help them recover from the impact of the trauma.

In the United States, 60% of men and 50% of women experience a traumatic event during their lifetimes. Of these, 8% of men and 20% of women may develop PTSD. A higher proportion of people who are raped develop PTSD than those who suffer any other traumatic event. Some 88% of men and 79% of women with PTSD also have another psychiatric disorder, Nearly half suffer from major depression, 16% of women from anxiety disorders, and 28% from social phobia. They also are more likely to have risky health behaviors such abuse, which affects 52% of men with PTSD and 28% of women, while drug abuse is seen in 35% of men and 27% of women with PTSD (Mathew J. Friedman et al., 2007)

More than half of all Vietnam veterans, about 1.7 million have experienced symptoms of PTSD. Although 60% of war veterans with PTSD have had severe medical problems, only 6% of them have a problem due to injury in combat (National Center for PTSD). African Americans, when they are exposed to trauma, are more likely to develop PTSD than whites. Lifetime prevalence of experiencing PTSD is at least 1%, and in high-risk populations, such as combat veterans or victims of criminal violence, prevalence is reported to be between 3% and 58%.

Sometimes, people who have heart attack or cancer develop PTSD. New mothers may develop PTSD after an unusually difficult delivery during childbirth (Joseph S, Bailham D., 2003). Also, patients who regain partial consciousness during surgery under general anesthesia may be at risk of developing PTSD. Refugees (eg, people who have been through war conditions in their native country or fled from conflict) may develop PTSD and often go years without treatment. (Yehuda R., 1998).

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Received on: 02-09-2011
Revised on: 05-10-2011
Accepted on: 06-10-2011

Definition

Post-traumatic stress disorder is a type of disorder in which an overwhelming traumatic event is experienced, causing intense fear, helplessness, horror, and avoidance of stimuli associated with the trauma. A traumatic event is something horrible, scary and a life threatening event. In other words, PTSD is a debilitating condition that follows a terrifying event.

Symptoms

Symptoms of PTSD may be terrifying. They may disrupt the life of the individual, whose is been affected and may make it hard to continue with his daily activities. It may be hard to get through the day.

PTSD symptoms usually start after the traumatic event, but they may not happen until months or years later. They also may come and go over many years. If the symptoms last longer than 4 weeks, cause great distress, or interfere with work or home life, then an individual probably have PTSD (National Center for PTSD). Most people who go through a traumatic event have some symptoms at the beginning but don't develop PTSD.

The main symptoms of PTSD are as follows:

Flashbacks (also called re-experiencing symptoms)

Bad memories of the traumatic event can come back at any time. A person may feel the same fear and horror he did when the event took place. Person feels like he is going through the event again. Sometimes there is a trigger: a sound or sight that causes a person to relive the event (Mathew J. Friedman et al., 2007).

A flashback takes the person out of reality. They are truly living the experience over again. Holocaust survivors are one example of a group of people with a common horrifying experience.

Emotional detachment

Emotional detachment is a second symptom of PTSD, which is often not as obvious outwardly to anyone other than the person experiencing it. For these people, their emotional systems are in overdrive. They have a hard time being a loving family member. They avoid activities, places, and people associated with the traumatic event. They are simply drained emotionally and have trouble functioning every day.

Jumpiness (also called hyper-arousal symptoms)

Any sudden noise might startle a normal person, but for someone with PTSD that noise would make them practically "jump out of their skin" (known as hyperactive startle reflex event (Mathew J. Friedman et al., 2007). These people might overreact to small things and have difficulty concentrating, have a hard time sleeping. They may always be looking around as if searching their environment for danger (this is hypervigilance).

There are other symptoms of PTSD:

Physical symptoms: Chronic pain, headache, stomach pain, diarhhoea, tightness or burning in the chest, muscle cramps or low back pain.

Substance abuse: Using drugs or alcohol to cope with the emotional pain.

Relationship problems: having problems with intimacy, or feeling detached from family and friends.

Depression: persistent sad, anxious or empty mood; loss of interest in once-enjoyed activities; feelings of guilt and shame; or hopelessness about the future. Other symptoms of depression may also develop (Keane TM. et al., 2001).

Suicidal thoughts: thoughts about taking one's own life.

CONSEQUENCES OF PTSD

PTSD can have severe and long lasting effects on people's lives. Examples of outcomes of PTSD are:

Physiological outcomes

- Neurobiological changes (alterations in brainwave activity, in size of brain structures, and in functioning of processes such as memory and fear response) (Foa FB., 1998) (Mathew J. Friedman et al ., 2007).
- Psychophysiological changes (hyper-arousal of the sympathetic nervous system, increased startle, sleep disturbances, increased neurohormonal changes that result in heightened stress and increased depression) (Southwick SM et al ., 1999) .
- Physical complaints that are often treated symptomatically, rather than as indications of PTSD (headaches, stomach or digestive problems, immune system problems, asthma or breathing problems, dizziness, chest pain or fibromyalgia).

Psychological outcomes

- Depression (major depressive episodes, or pervasive depression)
- Other anxiety disorders (such as phobias, panic, and social anxiety).
- Conduct disorders
- Dissociation ("splitting off" from the present and into parts of the self).
- Eating disorders.

Social outcomes

- Interpersonal problems
- Low self esteem
- Alcohol and substance abuse
- Employment problems

- Homelessness
- Trouble with the law

Self-destructive behaviors

- Suicidal attempts
- Risky sexual behaviors leading to unplanned pregnancy or STDs, including HIV
- Reckless driving
- Self-injury

Post-Traumatic Stress Disorder in Children

Today, children are exposed to various forms of traumatic events and violence. The more personal the trauma, evidence suggests, the more likely long –term psychological problems are to arise from it. Such traumas are also more likely to include elements of anger and hostility (Campbell K., 2003). In addition, Childhood experiences such as sexual abuse may interfere with a child development and affect him or her throughout life (Yehuda R., 2001).

Symptoms of PTSD in children (National center for PTSD)

Young children (1-6 years)

Helplessness and passivity, lack of usual responsiveness, generalized fear,

Heightened arousal and confusion, Cognitive confusion, Difficulty talking about the event, Difficulty identifying feelings, Nightmares, Sleep disturbances, Separation fears and clinging to caregivers, Regressive symptoms, Inability to understand death permanent, somatic symptoms (such as stomach aches, headaches), Startle Response to loud noises.

School-aged children (6-11 years)

Feelings of responsibility and guilt, Repetitious traumatic play, Feeling disturbed by reminders of the event, Nightmares, Concerns about safety, preoccupation with danger, Aggressive behaviors, angry outburst, Behavior, mood, personality changes, Somatic symptoms, Spacey or distractible behavior.

Preadolescents and adolescents (12-18 years)

Self-consciousness, Life-threatening re-enactment, Depression, Social withdrawal, Trauma-driven acting out, such as sexual activity or other reckless risk-taking, Sleep/ eating disturbances, including nightmares.

DIAGNOSIS

There are no specific tests that can be done to diagnose PTSD. A diagnosis is made when main symptoms are present for an extended period and are interfering with normal life. To qualify for a formal diagnosis, the symptoms must persist for over one month, cause significant distress, and affect the individual's ability to function socially, occupationally, domestically.

Common assessments for PTSD

The two categories of PTSD evaluations are structured interviews and self report questionnaires. The Clinician Administered PTSD scale (CAPS) was developed by National center for PTSD and is among the most widely used types of interviews. (Malekzai AS. et al .,1996). It has a format that request information about the frequency and intensity of the core PTSD symptoms and of common associated symptoms, which have important implications for treatment and recovery. Another widely used interview is the Structured Clinical Interview for DSM (SCID). The SCID can be used to assess a range of psychiatric disorders including PTSD (National center PTSD). Other interview instruments include the Anxiety Disorder Interview Schedule-Revised(ADIS), the PTSD-Interview, the Structured Interview for PTSD (SI-PTSD), and the PTSD Symptom Scale Interview (PSS-I). Each has unique features that might make it a good choice for a particular evaluation.

Several self-report measures have also been developed as time- and cost-efficient vehicles for obtaining information about PTSD-related distress. These measures provide a single score representing the amount of distress an individual is experiencing. Among this set is another widely used measure developed by National Center for PTSD, the PTSD Checklist (PCL). This measure comes in two versions, one oriented for civilians and another specifically designed for military personnel and veterans. Other widely used self-report measures are the Impact of Event-Revised (IES-R), the Keane PTSD Scale of the MMPI-2, the Mississippi Scale for combat related PTSD and the Mississippi Scale for Civilians, the Posttraumatic Diagnostic Scale (PDS), the Penn Inventory for Posttraumatic Stress, and the Los Angeles Symptom Checklist (LSAC) (National Center PTSD). **Diagnostic validity of PTSD:**

Efforts to validate the diagnosis of PTSD are currently evolving rapidly. The validational procedures have been classified under four content areas:

- Empirical efforts in diagnosis (based extensively on variety of assessment procedures)
- Model-building attempts (emphasizing phenomenology and conceptual formulations)
- Focused biologic and physiologic approaches (reflecting the search for intrinsic biologic or centrally mediated markers)
- Epidemiologic approaches (examining disease distributions across populations) (Paige SR. ,1997)

TREATMENT

Treatment for PTSD consists of three types of therapies:

1. Pharmacotherapy
2. Psychotherapy

3. Cognitive Behavioral Therapy (CBT)

PHARMACOTHERAPY

Symptom Management: Potentially Useful Medication Classes

Antidepressant Drugs

The drugs which are used to treat depression are called antidepressant drugs. These drugs are also used in the treatment of PTSD (John H. et al., 2007).

Among different antidepressant drugs, the drugs which are effective in the treatment of PTSD include Selective Serotonin Re-Uptake Inhibitors and Monoamine Oxidase Inhibitors.

Selective Serotonin Re-Uptake Inhibitors

The Selective Serotonin Re-uptake Inhibitors (SSRIs) are a group of chemically unique antidepressant drugs that specifically inhibit serotonin re-uptake, having 300- to 3000-fold greater selectivity for the serotonin transporter as compared to the norepinephrine transporter (Southwick SM. Et al., 1999). SSRIs have little ability to block the dopamine transporter. As Depression is one of the main symptoms of PTSD, SSRIs are used to treat PTSD. SSRIs lower depression and anxiety (Leon Shargel et al., 2004).

The most commonly used and approved SSRIs include

- Sertraline(Zoloft)
- Paroxetine(Paxil)
- Citalopram(Celexa)
- Fluoxetine(Prozac)

Mechanism of Action

SSRIs block the re-uptake of serotonin, leading to increased concentrations of the neurotransmitter in the synaptic clefts and, ultimately, to greater postsynaptic neuronal activity. SSRIs, typically take two weeks to produce improvement in mood, and maximum benefit may require twelve weeks or more(Leon Shargel et al., 2004).

Monoamine-oxidase inhibitors (MAOs)

Phenelzine ("Nardil") has for some time been observed to be effective with hyperarousal and depression, and is especially effective with nightmares.

Alpha-adrenergic antagonists

Prazosin ("Minipress"), in a small study of combat veterans, has shown substantial benefit in relieving or reducing nightmares. Clonidine ("Catapres") can be helpful with startle, hyperarousal, and general autonomic hyperexcitability.

Anti-convulsants, mood stabilizers, anti-aggression agents

Carbamazepine ("Tegretol") has likely benefit in reducing arousal symptoms involving noxious affect, as well as mood or aggression. Topiramate ("Topamax") has been effective in achieving major reductions in flashbacks and nightmares, and no reduction of effect was seen over time. Zolpidem ("Ambien") has also proven useful in treating sleep disturbances.

Lamotrigine ("Lamictal") *may* be useful in reducing reexperiencing symptoms, as well as avoidance and emotional numbing. Valproic acid ("Depakene") and has shown reduction of symptoms of irritability, aggression, and impulsiveness, and in reducing flashbacks. Similarly, lithium carbonate has worked to control mood and aggressions (but not anxiety) symptoms. Buspirone ("BuSpar") has an effect similar to that of lithium, with the additional benefit of working to reduce hyperarousal symptoms.

Antipsychotics

Risperidone can be used to help with dissociation, mood issues, and aggression.

Atypical antidepressants

Nefazodone ("Serzone") can be effective with sleep disturbance symptoms, and with secondary depression, anxiety, and sexual dysfunction symptoms. Trazodone ("Desyrel") can also reduce or eliminate problems with disturbed sleep, and with anger and anxiety.

Beta blockers

Propranolol ("Inderal") has demonstrated possibilities in reducing hyperarousal symptoms, including sleep disturbances.

Benzodiazepines

These can be used with caution for short-term anxiety relief, hyperarousal, and sleep disturbance. While benzodiazepines can alleviate acute anxiety, there is no consistent evidence that they can stop the development of PTSD, or are at all effective in the treatment of posttraumatic stress disorder. Additionally benzodiazepines may reduce the effectiveness of psychotherapeutic interventions and there is some evidence that benzodiazepines may contribute to the development and chronification of PTSD. Other drawbacks include the risk of developing a benzodiazepine dependence and withdrawal syndrome; additionally individuals with PTSD are at an increased risk of abusing benzodiazepines.

Glucocorticoids

Additionally, post-stress high dose corticosterone administration was recently found to reduce 'PTSD-like' behaviors in a rat model of PTSD. In this study, corticosterone impaired memory performance, suggesting that it may reduce risk for PTSD by interfering with

consolidation of traumatic memories. The neurodegenerative effects of the glucocorticoids, however, may prove this treatment counterproductive.

Heterocyclic / Tricyclic anti-depressants anti-depressants.

Amitriptyline ("Elavil") has shown benefit for positive distress symptoms, and for avoidance, and Imipramine ("Tofranil") has shown benefit for intrusive symptoms.

Miscellaneous other medications

Clinical trials evaluating methylenedioxymethamphetamine (MDMA, "Ecstasy") in conjunction with psychotherapy are being conducted in Switzerland and Israel.

Symptom Prevention: Potentially Useful Medication Classes (Berger W et al., 2009)

Some medications have shown benefit in preventing PTSD or reducing its incidence, when given in close proximity to a traumatic event. These medications include:

Alpha-adrenergic antagonists

Anecdotal report of success in using clonidine ("Catapres") to reduce traumatic stress symptoms suggests that it may have benefit in preventing PTSD.

Beta blockers

Propranolol ("Inderal"), similarly to clonidine, may be useful if there are significant symptoms of "over-arousal". These may inhibit the formation of traumatic memories by blocking adrenaline's effects on the amygdala.

Glucocorticoids

There is some evidence suggesting that administering glucocorticoids immediately after a traumatic experience may help prevent PTSD. Several studies have shown that individuals who receive high doses of hydrocortisone for treatment of septic shock, or following surgery, have a lower incidence and fewer symptoms of PTSD.

Opiates

In a retrospective analysis of combat injury field data for US troops in Iraq, it was found that those who received morphine in the early stages of their treatment had a significantly lower rate of subsequent PTSD, when compared with those who did not receive morphine at that time.

PSYCHOTHERAPY

Psychotherapy is an effective treatment for post-traumatic stress disorder (PTSD) and survivors of trauma. There are a variety of psychotherapies available, but they all share a number of common attributes. The goal of psychotherapy is to enable the survivor to gain a realistic sense of self-esteem and self-confidence in dealing with bad memories and upsetting feelings caused by trauma. Trauma memories usually do not go away entirely as a result of therapy, but become manageable with new coping skills.

COGNITIVE BEHAVIORAL THERAPY (CBT)

Cognitive Behavioral Therapy seeks to change the way a trauma victim feels and acts by changing the patterns of thinking and/or behavior responsible for negative emotions. CBT have been proven to be an effective treatment for PTSD, and is currently considered the standard of care for PTSD. In CBT, individuals learn to identify thoughts that make them feel afraid or upset, and replace them with less distressing thoughts. The goal is to understand how certain thoughts about cause PTSD-related stress (Mulick PS et al., 2005). Recent research on contextually based third-generation behavior therapies suggests that they may produce results comparable to some of the better validated therapies.

CONCLUSION

Life is a series of stressful episodes and PTSD can happen to anyone at any age. It may involve the threat of death to oneself or to someone else, or to one's own or someone else's physical, sexual, or psychological integrity. As an effect of psychological trauma, PTSD is less frequent and more enduring than the more commonly seen acute stress response. A doctor or mental health professional who has experience in treating people with PTSD can help you. Treatment may include talk therapy, medication, or both

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