A panic disorder is when recurrent and episodic panic attacks occur abruptly without a trigger. Diagnosing a panic disorder may become challenging because panic attacks can also occur with other anxiety and mental disorders. However, by following the correct approach, which first includes ruling out other disorders (by taking a thorough history and performing relevant investigations) and then following the proposed diagnostic criteria for panic disorder, one can reach a diagnosis. The pathogenesis of the panic disorder is a combination of an underlying predisposition that triggered by life stress (e.g. separations during childhood or interpersonal loss in adulthood). Management includes both psychological treatments, as well as medical treatment.

Definition

In order to understand the definition of the panic disorder, it is important to understand the definition of anxiety disorders and its classification. Anxiety disorders are disorders in which anxiety dominates the clinical symptoms. Anxiety disorders can be persistent or episodic. Episodic anxiety disorders are further classified according to whether the episodes are regularly triggered by a stressor (phobia) or not (panic disorder).

A patient is said to have a panic disorder when he is having recurrent panic attacks that are not triggered by a stressor. The exact diagnostic criteria for panic disorder are described below under ‘diagnostic criteria of panic disorder’.
A panic attack is not a mental disorder. They are discrete periods of heightened anxiety that affect much of the general population. Panic disorder is characterized by the experience of panic attacks accompanied by a persistent fear of having additional attacks.

Definition of a panic attack

A panic attack is defined as an abrupt surge of intense fear that reaches the height within minutes, and during which time four or more of the following 13 symptoms occur:

1. Palpitations, a pounding heart, or increased heart rate
2. Sweating
3. Trembling or shaking
4. Sensation of shortness of breath
5. Sensation of choking
6. Chest pain or chest discomfort
7. Nausea or abdominal distress
8. Feeling dizzy, unsteady, light-headed, or faint
9. Chills or heat sensation
10. Paresthesias
11. De-realization (feelings of unreality) or depersonalization (being detached from one’s own self)
12. Fear of losing control or ‘going insane’
13. Fear of dying

**Note:** The abrupt surge of intense fear or can occur from a calm state or an anxious state.

Diagnostic Criteria for Panic Disorder

It is important to note that a person having just panic attacks does not mean he has a panic disorder. Panic attacks are also seen with other anxiety disorders, other mental disorders, and some medical disorders; therefore, in order to diagnose a true panic disorder, the following criteria must be met:

1. **Recurrent unexpected panic attacks**
2. **At least one of the attacks has been followed by a month or more of one or both of the following:**
   - Persistent worry about further panic attacks, or their expected consequences (e.g., losing control, having a heart attack, going insane).
   - A significant adaptive change in behavior related to the attacks (e.g., behaviors designed to avoid having panic attacks, such as avoidance of the precipitating factors of a panic attack like exercise, or **agoraphobia**).
3. **The symptoms of panic disorder are not due to the physiological effects of a substance (e.g., medication or illicit drug) or another medical condition (e.g., hyperthyroidism or cardiopulmonary disorders).**
4. **The panic attacks are not better explained by another mental disorder.**
   - As examples, the panic attacks do not occur only in response to:
     - Feared social situations, as in social anxiety disorder.
     - Specific phobic objects or situations, as in specific phobia.
     - Obsessions, as in obsessive-compulsive disorder.
     - Reminders of traumatic events, as in post-traumatic stress disorder.
     - Separation from family members, as in separation anxiety disorder.
**Agoraphobia:** Agoraphobia occurs commonly with panic disorder. It is defined as the fear or avoidance of places from which escape would be difficult in the event of panic symptoms. Such places include public places, public transportation, crowded places or being outside alone. Agoraphobia is more common in women. It often leads to severe restrictions on the individual’s travel and daily routine.

**Pathogenesis of Panic Disorder**

The pathogenesis of the panic disorder is a combination of an underlying predisposition (probably genetics making the patient have a sympathetic nervous system over-activity, increased muscle tension and hyperventilation) interacting with or triggered by life stress (e.g. separations during childhood or interpersonal loss in adulthood). Many patients with panic disorder have panic symptoms in response to ‘panicogens’ (lactate carbon dioxide, caffeine, and other substances).

**Neurobiology**

There are differences in the brains of those with panic disorders. Many intricate neuronal pathways involved and various areas of the brain. Certain receptors and neurotransmitters are altered.

Proposed neuroanatomical model for panic disorder focused on specific areas in the amygdala or hypothalamus as the potential site of neural triggers for panic attacks. This suggests that individuals may inherit specific areas that are hyperexcitable. Yet another theory for how a patient develops panic—exposure to internal or external stressors leads lights up the excitable parts of their brain.

Brain areas involved include:

- Amygdala
- Prefrontal
- Temporal
- Anterior cingulate
- Insula
- Hippocampus
- Hypothalamus

They suggest that the human panic response is more complex and involves a broad set of neural circuits and processes.

Alterations in the GABA-benzodiazepine receptor and serotonin receptor systems show that panic disorder patients have increased fear of generalization.

**Clinical Features of Panic Disorder**

Patients with continuing, frightening symptoms of panic disorder are often unsatisfied following a negative general medical workup and repeatedly seek medical care. This delays the diagnosis of panic disorder by as long as 10 years.

Recurrent episodes of panic attack without being triggered by a stressor.

The episode is followed by one month or more of either worry about future attacks or consequences, or a significant adaptive change in behavior related to the attacks (as described above).
The episodes are accompanied by at least 4 symptoms of autonomic hyperactivity as mentioned above. Such autonomic symptoms, especially cardiorespiratory, gastrointestinal and otoneurologic symptoms, often predominate in patient’s clinical presentations. This causes many patients to seek health care from a general medical doctor, rather than a psychiatrist, and the dramatic and paroxysmal nature of panic may result in more emergency room visits.

Some patients present with panic attacks but not otherwise feel fear or anxiety. Such attacks are called ‘non-fearful’ panic attacks. The absence of subjectively experienced fear in some patients may make recognition of panic attacks more difficult.

Panic disorder prevalence is increased in patients with alcohol use disorders, as are a variety of other anxiety disorders. Evidence suggests that this association is due to both self-medication as well as a progressive anxiogenic (anxiety-causing) effect of alcohol over time. Patients use alcohol or sedative hypnotics in an attempt to control symptoms of panic disorder. These agents have a short lived anxiolytic (anxiety ceasing) action, but subsequently, cause rebound exacerbation of anxiety and panic attacks when blood levels of these agents decline.

Spontaneous episodes of fear

- Begin abruptly
- Last minutes to an hour
- Patients with panic attacks can develop agoraphobia (i.e., anxiety about and avoidance of situations where help may not be available or where it may be difficult to leave the situation in the event of developing panic-like symptoms or other incapacitating or embarrassing symptoms)
- Often accompanied by somatic features (faster breathing, heartbeats, sweating, etc.)
- Sometimes associated with agoraphobia (not leaving the house for months on end, avoiding social contact and situations which patient perceives as causative)

Investigations of Panic Disorder

Panic disorders are usually diagnosed clinically based on the previously mentioned criteria. The following investigation modalities are usually carried out to rule out other diagnoses.

Electrocardiogram

It’s done to rule out myocardial infarction which might come with severe pain and panic feeling.

Thyroid profile

It’s done to rule out hyperthyroidism which may present sometime with psychiatric manifestations, such as anger and panic attacks.

Chemistry panels

It’s done to rule out metabolic derangements and drugs level. Some addicts may use certain drugs such as sympathomimetics which may cause panic attacks.
Management of Panic Disorder

Psychological treatments

**Cease anxiogenic drugs**
Initial treatment should involve advice to gradually cease taking anxiogenic drugs such as caffeine and alcohol, which can cause rebound anxiety.

**Relaxation techniques**
Relaxation techniques can be effective in mild to moderate anxiety.

Relaxation can be achieved in many ways, including complementary techniques such as meditation and yoga. Conventional relaxation training involves slowing down the rate of breathing, muscle relaxation, and mental imagery.

**Anxiety management training**
Anxiety management training involves two stages:

1. In the first stage, verbal cues and mental imagery are used to arouse anxiety to demonstrate the link with symptoms.
2. In the second stage, the patient is trained to reduce this anxiety through relaxation, distraction, and reassuring self-statements.

**Biofeedback**
Biofeedback is useful for showing patients that they are not relaxed, even when they fail to recognize it, having become so used to anxiety.

**Behavior therapies**
Behavior therapies are treatments that are intended to change behavior and thus symptoms. The most common and successful behavior therapy (with 80% success in agoraphobia) is *graded exposure*, otherwise known as *systematic desensitization*.

Firstly, the patient rates the phobia into a hierarchy or ladder of worsening fears (e.g. in agoraphobia: walking to the front door with a coat on, walking out into the garden, walking to the end of the road).

Secondly, the patient practices exposure to the least fearful stimulus until no fear is felt. The patient then moves ‘up the ladder’ of fears until they are cured.

**Cognitive behavior therapy (CBT)**
Cognitive behavior therapy is the treatment of choice for panic disorder because the therapist and patient need to identify the mental cues (thoughts and memories) that may subtly provoke exacerbations of anxiety or panic attacks. CBT also allows identification and alteration of the patient’s ‘schema’, or way of looking at themselves and their situation, that feeds anxiety.

**Drug treatments**
Prescribed drugs used in the treatment of anxiety can be divided into two groups:

1. Drugs that act primarily on the central nervous system.
2. Drugs that block peripheral autonomic receptors.

**Benzodiazepines**

Mechanism of action: Benzodiazepines are centrally acting anxiolytic drugs. They are agonists of the inhibitory transmitter gamma-aminobutyric acid (GABA).

Drugs: Diazepam, Alprazolam, and Chlordiazepoxide have relatively long half-lives (20–40 hours) and are used as anti-anxiety drugs in the short term.

Side effects: Side effects include sedation and memory problems. Patients should be advised not to drive while on treatment. They cause dependence and tolerance within 4–6 weeks, particularly in those with dependent personalities. A withdrawal syndrome can occur after just 3 weeks of continuous use and is particularly severe when high doses have been given for a longer time; thus, if a benzodiazepine drug is prescribed for anxiety, it should be given in as low a dose as possible, preferably on an ‘as necessary’ basis, and for not more than 2–4 weeks.

Withdrawal symptoms with benzodiazepines:

1. Insomnia
2. Perceptual distortions
3. Anxiety
4. Hallucinations (which may be visual)
5. Tremulousness
6. Hypersensitivities (light, sound, touch)
7. Muscle twitching
8. Convulsions

**Selective serotonin reuptake inhibitors (SSRIs)**

Most SSRIs (e.g. fluoxetine, paroxetine, sertraline, escitalopram, citalopram) are useful symptomatic treatments for panic disorders.

Treatment response is often delayed several weeks; a trial of treatment should last 3 months.

**Antipsychotics**

Antipsychotics such as aripiprazole or olanzapine can be effective for more severe or refractory cases of panic disorder.

**Beta-blockers**

Beta-blockers are effective in reducing peripheral symptoms. Many of the symptoms of anxiety are due to an increased or sustained release of adrenaline and noradrenaline from the adrenal medulla and sympathetic nerves.

Beta-blockers, such as propranolol, are effective in reducing peripheral symptoms such as palpitations, tremor, and tachycardia, but they do not help central symptoms such as anxiety.

**Differential Diagnosis of Panic Disorder**
Somatic disorders

Patients with both panic disorder and somatic symptom disorder present with multiple physical symptoms. Many patients with somatic symptom disorder also have comorbid panic disorder. However, somatic symptoms are more long-lasting in somatic symptom disorder and more episodic in panic disorder.

Anxiety disorders

Illness anxiety disorder is defined as an intense fear of acquiring a serious illness. Many patients with panic disorder can also develop fears of acquiring a serious medical illness such as HIV or cancer. However, patients with panic disorder can be differentiated from patients with illness anxiety as patients with panic disorder also have multiple somatic symptoms.

Substance abuse

Overuse of caffeine, as well as abuse of stimulant drugs such as cocaine and amphetamines, can precipitate panic attacks. In addition, withdrawal from sedative-hypnotics, alcohol, and opiates can also precipitate panic attacks.

Other mental disorders such as acrophobia (fear of heights)

Symptoms of the panic disorder must be distinguished from panic-like symptoms that occur as part of other mental disorders such as acrophobia.

General medical conditions

The possibility of organic etiologies should be considered prior to make the diagnosis of panic disorder. A number of conditions can mimic symptoms of panic attacks including angina, arrhythmias, chronic obstructive pulmonary disease, temporal lobe epilepsy, pulmonary embolus, asthma, hyperthyroidism, and pheochromocytoma.

Treatment side effects

Treatment side effects like hypoglycemia in patients with diabetes and toxic serum aminophylline concentrations in patients with asthma can also mimic symptoms of panic disorder.

Medical Comorbidity

Anxiety disorders have been seen to increase the risk of multiple medical disorders. Studies have shown that patients with panic disorder have a higher prevalence of other medical disorders compared with controls. These include:

1. Asthma
2. Coronary artery disease
3. Hypertension
4. Ulcer
5. Interstitial cystitis
6. Migraine headaches
7. **Sleep apnea**

*Mitral valve prolapse* is also seen to be encountered in patients with panic disorder, but is unlikely to be the cause of the panic symptoms; in such instances, the panic disorder should be treated.

There is evidence that panic attacks are also associated with an increased risk of mortality due to vascular causes, like *stroke* and *coronary heart disease*.

Panic disorder is also seen to worsen the course of asthma, already present in a patient.

**References**


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