

**TRYPANOPHOBIA-AN EXTREME AND IRRATIONAL FEAR OF MEDICAL PROCEDURES: AN OVERVIEW****Raghvendra<sup>1\*</sup>, Satyanand Tyagi<sup>2</sup>, Pramod Yadav<sup>2</sup>, Sunanda Saxena<sup>2</sup>, Rajesh A. Dodia<sup>3</sup>, Tanvi D. Patel<sup>4</sup>**<sup>1</sup> Department of Pharmaceutics, Aligarh College of Pharmacy, Aligarh (dt), U.P, India-202001.<sup>2</sup> K.N.G.D Modi Institute of Pharmaceutical Education & Research, Modinagar, Ghaziabad (dt), U.P, India-201204.<sup>3</sup> Department of Pharmaceutics, Shree Laxminarayanev college of pharmacy, Bharuch (dt), Gujarat, India-392 015.<sup>4</sup> Department of Pharmacognosy, Babaria Institute of Pharmacy, Vadodara (dt), Gujrat, India-391 240.**\*Email: [raghvendra\\_mpharm@rediffmail.com](mailto:raghvendra_mpharm@rediffmail.com)****ABSTRACT**

A phobia is an irrational, intense and persistent fear of certain situations, activities, things, animals, or people. The main symptom of this disorder is the excessive and unreasonable desire to avoid the feared stimulus. Trypanophobia is an extreme reaction of fear to the use of needles in any type of medical environment. While many people experience some degree of aversion to receiving a shot at the doctor's office, persons who suffer from trypanophobia tend to take on levels of anxiety that can result in the occurrence of a panic attack. This extreme aversion to needles can lead to serious health issues, as the phobia will motivate individuals to forego medical treatments and tests that involve the use of a needle to inject medication or to take blood samples. Trypanophobia is a most common phobia. This is not a fear of any needle but a fear of needles used by medical practitioners. In the present article, we have concentrated on phobia as well as trypanophobia; symptoms, types, comorbidity and triggers as well as possible treatments associated with trypanophobia. The aim of present article is to provide in depth knowledge about clinical aspects of trypanophobia.

**Keywords:** Trypanophobia, aichmophobia, belonephobia, enetophobia, needle phobia, phobia.

**INTRODUCTON**

A phobia is defined as an irrational, intense fear of an object or situation that poses little or no actual danger. At first glance, a phobia may seem similar to a normal fear, but it's the degree to which a person is affected that determines whether that fear has become a phobia. Phobias are known as an emotional response learned because of difficult life experiences. Generally phobias occur when fear produced by a threatening situation is transmitted to other similar situations, while the original fear is often repressed or forgotten. The excessive, unreasoning fear of water, for example, may be based on a childhood experience of almost drowning. The individual attempts to avoid that situation in the future, a response that, while reducing anxiety in the short term, reinforces the association of the situation with the onset of anxiety. Each person's symptoms are a little bit different. However, at least some of the following symptoms will be present during a phobic reaction:

- Dizziness, rapid heartbeat, trembling, or other uncontrollable physical response
- Sensation of terror, dread or panic
- Preoccupation of thoughts; inability to change focus from the feared situation
- Intense desire to flee the situation

Trypanophobia is the extreme and irrational fear of medical procedures involving injections procedures or hypodermic needles. It is occasionally referred to as aichmophobia, belonephobia, orenetophobia, names that are technically incorrect because they simply denote a "fear of pins/needles" and do not refer to the medical aspect of trypanophobia. Trypanophobia is a term that is rarely used among medical professionals. In the United

States National Library of Medicine database of medical journal articles, the term "trypanophobia" cannot be found, although the database contains several journal articles referencing needle phobia<sup>1</sup>. The name that is in common usage is simply needle phobia.

While the general concept of being afraid of hypodermic needles has been around for a long time, the actual identification of the situation as a phobia took place in the early 1990's. The phenomenon is estimated to affect in the range of ten percent of adults living in North America. As with many different types of phobia, the severity of the symptoms provoked by trypanophobia will vary in severity from one person to the next, as well as vary in strength and intensity from one situation to another. As with many different types of phobias, trypanophobia is usually associated with some event or series of events that led to the extreme fear of hypodermic needles. The fear may be exhibited after a hospital stay in which the attending medical staff unknowingly caused a great deal of pain while giving injections to the patient. Childhood memories of relatives or friends who were severely frightened of needles can also lead to a lifelong battle with this type of phobia.

**Symptoms of Trypanophobia**

Breathlessness, excessive sweating, nausea, dry mouth, feeling sick, shaking, heart palpitations, inability to think clearly, a fear of dying, trembling, becoming mad or losing control, a sensation of detachment from reality or a full blown anxiety attack. People with blood-injury phobias suffer extreme anxiety at the sight of blood. The anxiety is triggered not only if they happen to witness a person suffering an accidental injury but also in the controlled environment of someone giving a blood sample or donation or undergoing a surgical procedure. The fear is similarly acute if the person who is bleeding is



the phobic himself and people with this phobia are overly anxious at the thought of sustaining an injury. Injection phobics find it impossible to undergo any medical procedure that involves the insertion of a surgical needle because of their extreme fear and they have great difficulty in seeing this happen to anyone else. Routine immunisations and minor surgical procedures are feared and avoided and the phobic person may even refuse treatment that is needed for an underlying medical problem. Not only this, the phobic person characteristically experiences considerable anxiety out with the phobic situation in relation to his perceived inability to come to the aid of a person who is hurt. This anxiety is particularly acute if the phobic person has young children who would be reliant upon him for help.

### **Overview, Incidence and Evolutionary Basis of Trypanophobia**

The condition was officially recognized in 1994 in the DSM-IV (Diagnostic and Statistical Manual, 4th edition) as a specific phobia of blood/injection/injury type. Phobic level responses to injections cause sufferers to avoid inoculations, blood tests, and in the more severe cases, all medical care. It is estimated that at least 10% of American adults are trypanophobic, and it is likely that the actual number is larger, as the most severe cases are never documented due to the tendency of the sufferer to simply avoid all medical treatment.

According to Dr. James G. Hamilton, author of the pioneering paper on needle phobia, it is likely that the form of needle phobia that is genetic has some basis in evolution, given that thousands of years ago humans who meticulously avoided stab wounds and other incidences of pierced flesh would have a greater chance of survival<sup>2</sup>.

### **Types of Trypanophobia**

#### **► Vasovagal trypanophobia**

Although most specific phobias stem from the individuals themselves, the most common type of trypanophobia, affecting 50% of trypanophobes, is an inherited vasovagal reflex reaction. Approximately 80% of trypanophobes report that a relative within the first degree exhibits the same disorder.

People who suffer from vasovagal trypanophobia fear the sight, thought, or feeling of needles or needle-like objects. The primary symptom of vasovagal trypanophobia is vasovagal syncope, or fainting due to a decrease of blood pressure.

Many people who suffer from fainting during needle procedures report no conscious fear of the needle procedure itself, but a great fear of the vasovagal syncope reaction. A study in the medical journal *Circulation* concluded that in many patients with this condition (as well as patients with the broader range of blood/injury phobias), an initial episode of vasovagal

syncope during a needle procedure may be the primary cause of needle phobia rather than any basic fear of needles<sup>3</sup>. These findings reverse the more commonly-held beliefs about the cause and effect pattern of needle phobics with vasovagal syncope. The physiological changes associated with this type of trypanophobia also include feeling faint, sweating, nausea, pallor, tinnitus, panic attacks, and initially high blood pressure and heart rate followed by a plunge in both at the moment of injection.

Although most phobias are dangerous to some degree, trypanophobia is one of the few that actually kills. In cases of severe trypanophobia, the drop in blood pressure caused by the vasovagal shock reflex may cause death. In Dr. Hamilton's 1995 review article on needle phobia, he was able to document 23 deaths as a direct result of vasovagal shock during a needle procedure. The best treatment strategy for this type of trypanophobia has historically been desensitization or the progressive exposure of the patient to gradually more frightening stimuli, allowing them to become desensitized to the stimulus that triggers the phobic response. In recent years, a technique known as "applied tension" has become increasingly accepted as an often effective means for maintaining blood pressure to avoid the unpleasant, and sometimes dangerous, aspects of the vasovagal reaction<sup>4,5,6</sup>.

#### **► Associative trypanophobia**

Associative trypanophobia is the second most common type, affecting 30% of needle phobics. This type of trypanophobia is the classic specific phobia in which a traumatic event such as an extremely painful medical procedure or witnessing a family member or friend undergo such, causes the patient to associate all procedures involving needles with the original negative experience. This form of trypanophobia causes symptoms that are primarily psychological in nature, such as extreme unexplained anxiety, insomnia, preoccupation with the coming procedure and panic attacks. Treatments that are effective for this form of trypanophobia include cognitive therapy, hypnosis, and/or the administration of anti-anxiety medications.

#### **► Resistive trypanophobia**

Resistive trypanophobia occurs when the underlying fear involves not simply needles or injections but also being controlled or restrained. It typically stems from repressive upbringing or poor handling of prior needle procedures i.e. with forced physical or emotional restraint. This form of trypanophobia affects around 20% of needle phobes. Symptoms of this form of trypanophobia include combativeness, high heart rate coupled with extremely high blood pressure, violent resistance, avoidance and flight. The suggested treatment for this form of trypanophobia is psychotherapy, teaching the patient self-injection techniques or finding a trusted health care provider.



### ► **Hyperalgesic trypanophobia**

Hyperalgesic trypanophobia is another form that does not have as much to do with fear of the actual needle. Patients with this form of trypanophobia have an inherited hypersensitivity to pain, or hyperalgesia. To them, the pain of an injection is unbearably great and many cannot understand how anyone can tolerate such procedures. This form of trypanophobia affects around 10% of needle phobes. The symptoms of this form of trypanophobia include extreme explained anxiety, and elevated blood pressure and heart rate at the immediate point of needle penetration or seconds before. The recommended forms of treatment for this type of trypanophobia include some form of anaesthesia, either topical or general.

### **Vicarious, comorbidity and triggers associated with trypanophobia**

Whilst witnessing procedures involving needles it is possible for the phobic present to suffer the symptoms of a needle phobic attack without actually being injected. Prompted by the sight of the injection the phobic may exhibit the normal symptoms of vasal vagal syncope and fainting or collapse is common. While the cause of this is not known, it may be due to the phobic imagining the procedure being performed on themselves. Recent neuroscience research shows that feeling a pin prick sensation and watching someone else's hand get pricked by a pin activate the same part of the brain<sup>7</sup>.

Trypanophobia, especially in its more severe forms, is often comorbid with other phobias and psychological ailments, for example, iatrophobia, or an irrational fear of doctors, is often seen in needle phobic patients. A needle phobic patient does not need to physically be in a doctor's office to experience panic attacks or anxiety brought on by trypanophobia. There are many triggers in the outside world that can bring on an attack through association. Some of these are blood, injuries, and the sight of the needle physically or on a screen, paper pins, examination rooms, hospitals, white lab coats, hospital gowns, doctors, dentists, nurses, the antiseptic smell associated with offices and hospitals, the sight of a person who physically resembles the patient's regular health care provider, or even reading about the fear.

### **Possible treatment of trypanophobia**

Treating trypanophobia can sometimes involve finding ways to desensitize the trypanophobic to the anticipated pain and discomfort associated with the fear of needles. A topical anaesthetic cream may be administered prior to introducing the needle to the skin, minimizing the stinging sensation. The use of sedatives in advance such as a small amount of anti-anxiety medication or the administration of laughing gas may ease the fears of the patient sufficiently to allow for the use of needles.

Cognitive Behavioural Therapy, or CBT, has been helpful with a number of phobias, including trypanophobia, as the therapy is understood to retrain the brain to not

engage neural pathways that lead to the creation of agitation at the sight of a needle. While trypanophobia can be debilitating, there are ways to manage and even eliminate the phobia. With the help of a qualified healthcare specialist, the most appropriate form of treatment can be identified and administered. Eventually, the trypanophobic can be free of the fear of hypodermic needles and be able to undergo various medical procedures with relative calm and ease. The various fruitful approaches which can probably helpful in the treatment of trypanophobia are:-

### ► **Hypnotherapy**

Hypnotherapy helps to reprogram the patient subconscious "programs" that may be part of his fear. When these programs are "de-bugged", the symptoms of Trypanophobia often are minimized. However, some people don't like the feeling of loss of control in allowing someone else to play with their personal "software". Hypnotherapy is save and works fast.

### ► **Energy Psychology**

Energy Psychology is emerging as an excellent therapy for fears and phobias because in studies it is shown to be rapid, safe, effective and long-lasting. It is based on a theory and practice that has been around for a couple of thousand years. It has the same foundation or roots as acupuncture, except in this case there are no needles used. We may call it emotional acupuncture - without the needles. Recent scientific studies have shown it to be very effective. Energy Psychology combines the benefits of the above treatment therapies by following approaches:-

- The Patient quickly and easily changes his behaviour.
- Patient thought patterns change, often very quickly.
- Patient develops skills and techniques that are useful for a lifetime in all situations.

### ► **Psycho-counselling**

In order for the process to be successful, several aspects have to be addressed. One of the most important is to ensure that the person understands the reasons why he faints and the physiological processes that take place, which can be counteracted by applied tension. Secondly, the patient has to be taught to recognise the very first signs of faintness that he experiences (such as sweating, queasy feelings or nausea, sight and hearing disturbances) so that he knows when to begin applied tension. Thirdly, he needs to be instructed in applied tension and the therapist must ensure that the patient feels comfortable with the procedure and is able to perform it correctly.

### ► **Behavioural therapy**

Effectiveness of this varies greatly depending on the person and the severity of the condition. There is some



debate as to the effectiveness of behavioral treatments for specific phobias (like blood, injection, injury type phobias), though some data are available to support the efficacy of approaches like exposure therapy<sup>8,9</sup>.

Any therapy that endorses relaxation methods may be contraindicated for the treatment of trypanophobia as this approach encourages a drop in blood pressure that only enhances the vasovagal reflex. In response to this, graded exposure approaches can include a coping component relying on applied tension as a way to prevent complications associated with the vasovagal response to specific blood, injury, injection type stimulus.

#### ► Miscellaneous Treatments

The medical literature suggests a number of treatments that have been proven effective for specific cases of needle phobia, but provides very little guidance to predict which treatment may be effective for any specific case. The following are some of the treatments that have been shown to be effective in some specific cases:-

- ❖ **Ethyl Chloride Spray** (and other freezing agents): Easily administered, but provides only superficial pain control.
- ❖ **Jet Injectors** : Jet Injectors work by introducing substances into the body through a jet of high pressure gas as opposed to by a needle. Though these eliminate the needle, some people report that they cause more pain<sup>10,11</sup>. Also, they are only helpful in a very limited number of situations involving needles i.e. insulin and some inoculations.
- ❖ **Iontophoresis**: Iontophoresis drives anaesthetic through the skin by using an electric current. It provides effective anaesthesia, but is generally unavailable to consumers on the commercial market and some regard it as inconvenient to use.
- ❖ **EMLA (Eutectic mixture of Local Anaesthetic)**: EMLA is a topical anaesthetic cream that is a eutectic mixture of lidocaine and prilocaine. It is a prescription cream in the United States, and is available without prescription in some other countries. Although not as effective as iontophoresis, since EMLA does not penetrate as deeply as iontophoresis-driven anaesthetics, EMLA provides a simpler application than iontophoresis. EMLA penetrates much more deeply than ordinary topical anaesthetics, and it works adequately for many individuals<sup>12</sup>.
- ❖ **Nitrous Oxide** (Laughing Gas): This will provide sedation and reduce anxiety for the patient, along with some mild analgesic effects.
- ❖ **Inhalation General Anaesthesia**: This will eliminate all pain and also all memory of any needle procedure. On the other hand, it is often regarded as a very extreme solution. It is not covered by insurance in

most cases, and most physicians will not order it. It can be risky and expensive and may require a hospital stay.

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