

## Serotonin Syndrome Assessment

Serotonin Syndrome may begin within minutes to hours after initiation of any medication that increases serotonin levels. Mild clinical features include restlessness, diaphoresis, tachycardia, hypertension, and diarrhea. Moderate effects include hyperthermia, decreased level of consciousness, and muscle rigidity. Severe serotonin syndrome can result in seizures or coma. Treatment for serotonin syndrome is using serotonin receptor antagonists like cyproheptadine and stopping all serotonin increasing drugs.



PLAY PICMONIC

### Mild Signs & Symptoms

#### Restlessness

##### Restless-wrestler

Serotonin syndrome occurs when there is increased serotonin. This syndrome can affect mental status by increasing serotonergic activity in the central nervous system. Benzodiazepines may be given to help alleviate agitation and restlessness.

#### Diaphoresis

##### Sweaty-sweatband

Serotonin receptors are mostly in the brain, but they also are present in peripheral organs. As a result, excess serotonin can increase autonomic instability leading to issues with the heart, sweat glands, intestinal tract, and blood pressure.

#### Tachycardia

##### Tacked-heart-cards

Patients with serotonin syndrome commonly present with rapidly fluctuating autonomic changes such as tachycardia. Excess serotonin can cause vasoconstriction which increases the workload on the heart.

#### Hypertension

##### Hiker-BP

Patients with serotonin syndrome commonly have hypertension and tachycardia due to vasoconstriction. Short acting medications like esmol or nitroprusside should be titrated to an effective dose for blood pressure and heart rate management.

#### Diarrhea

##### Diarrhea and Toilet-paper

Autonomic instability may lead to diarrhea. IV fluids may be needed to maintain normovolemia.

### Moderate Signs & Symptoms

## Hyperthermia

### Hiker-thermometer

Patients may also present with a temperature over 39C or 102F. Hyperthermia is a serious complication that must be addressed quickly to prevent further severe complications like seizures. Antipyretics are **not** given for serotonin syndrome associated hyperthermia. The source of hyperthermia is excessive muscle activity, so treatment should reduce muscle activity.

## Decreased Level of Consciousness

### Delta circles

The brain, particularly the cerebellum, cannot handle hyperthermia which leads to mental status changes. Mental status changes can progress from restlessness to decreased level of consciousness. Hyperthermia must be quickly treated to avoid permanent damage to the brain and other body systems.

## Muscle Rigidity

### Hiker-thermometer's Stiff Arm

Muscle rigidity is a neuromuscular manifestation of serotonin syndrome. Muscle rigidity is most commonly present in lower extremities.

## Severe Signs & Symptoms

### Seizure and Coma

#### Caesar with Comb

Shock and tonic-clonic seizures may occur if serotonin syndrome recognition is delayed or if treatment is unsuccessful.

## Treatment

### Cyproheptadine

#### A-zippo-head

Cyproheptadine (brand name Periactin) is a first generation antihistamine that is also a nonspecific serotonin receptor antagonist. This drug is used after all other efforts like benzodiazepines, antihypertensives, oxygen therapy, and other interventions have failed to control serotonin syndrome.