Serotonin (5HT) Toxicity

Serotonin toxicity is often only mild to moderate in severity, but severe toxicity can be life-threatening, primarily due to complications from hyperthermia

Clinical features:

Typically manifests via changes in mental status, autonomic hyper-activity, and neuromuscular excitation

Mild: tremor, tachycardia, inducible clonus (ankle, ocular), hyperreflexia

Moderate: agitation, sustained clonus, hyperthermia (< 39 deg C)

Severe: severe hyperthermia (≥ 39 deg C), muscle rigidity, and seizures

Severe serotonin toxicity is a medical emergency and can lead to multi-organ failure especially in the setting of exposure to MAOi

Mechanisms of ↑5HT (more than one may apply)

-Inhibition of 5HT metabolism (MAOIs, and other MAOIs including - lamotrigine, methylene blue, linezolid)

- Prevention of 5HT reuptake (SSRIs, tramadol, clomipramine)

- 5HT release (cathinones, MDMA, amphetamines)

Severe Serotonin Toxicity usually results from a combination of >1 mechanism of 5HT excess

Management: Supportive care is the mainstay of management

- IV hydration, titrated benzodiazepine, discontinuation and avoidance of serotonergic agents

Mild toxicity: Anti-5HT agents (NOT indicated in minor toxicity)

Titrated benzodiazepines (Diazepam 5-10 mg orally 2 to 4 hourly) to achieve clinical response

Moderate to severe toxicity: Discuss with clinical toxicologist

Aggressive cooling (if T >39 deg C): along usual treatment lines, may require intubation and paralysis

Chlorpromazine: 25 mg IV in 1000 mL 0.9% N/Saline over 1 hour OR

Cyproheptadine: administered orally or via NGT. 12 mg loading dose and repeat 2 mg 2 hourly until adequate therapeutic response is achieved (maximum 32 mg over 24 hours) OR

Olanzapine: 10 mg SL/PO

Endpoint: resolution of neuromuscular excitation and normal vital signs

Disposition:

Toxicity usually resolves over 24-48 hours. Discharge when symptomatically well.

Hunter Serotonin Toxicity Criteria: