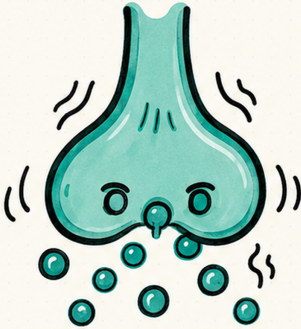


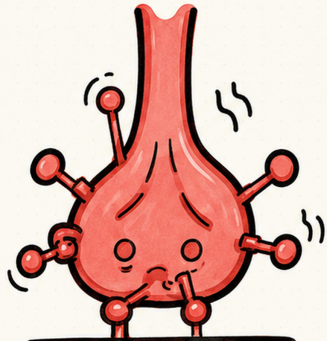
SEROTONIN SYNDROME VS NMS

spot the difference. save the patient.

USMLE high yield



TOO MUCH
SEROTONIN



DOPAMINE
BLOCKED

OVERVIEW

2/6

two emergencies. different culprits.

SEROTONIN SYNDROME	NMS
<i>too much serotonin (↑ 5-HT activity)</i>	<i>dopamine blockade (↓ D2 activity)</i>
<i>serotonergic drugs doses, combos, or interactions</i>	<i>antipsychotics dopamine blocking drugs</i>
<i>rapid onset minutes to hours</i>	<i>slower onset hours to days</i>
<i>usually no CK rise mild ↑ at most</i>	<i>marked CK rise rhabdomyolysis</i>
<i>hyperreflexia, clonus, myoclonus</i>	<i>lead-pipe rigidity, bradyreflexia</i>



KEY DIFFERENCES

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what tells them apart

SEROTONIN SYNDROME	NMS
• onset: minutes-hours • mental status: agitated, confused • neuromuscular: hyperreflexia, clonus (esp. ankles), myoclonus • autonomic: hyperthermia, diaphoresis, HTN, tachycardia • GI: diarrhea, hyperactive bowel sounds • CK: normal or slightly ↑	• onset: hours-days • mental status: slowed, altered mental status • neuromuscular: lead-pipe rigidity, bradyreflexia or hyporeflexia • autonomic: hyperthermia, diaphoresis, labile BP, tachycardia • GI: bowel sounds normal or decreased • CK: markedly ↑ (rhabdomyolysis)



SEROTONIN SYNDROME

too much 5-HT

1

CAUSES

SSRIs, SNRIs, MAOIs, MDMA, meperidine, tramadol, linezolid, methylene blue, St. John's wort

2

TRIAD

mental status changes (agitation, confusion)
autonomic instability (hyperthermia, diaphoresis, HTN)
neuromuscular hyperactivity (clonus, hyperreflexia, myoclonus)

3

TREATMENT

stop serotonergic agents
supportive care, benzodiazepines
cyproheptadine (5-HT antagonist)



NMS

dopamine blockade

1

CAUSES

*antipsychotics (typical > atypical),
antiemetics (metoclopramide),
lithium, abrupt D2 agonist withdrawal*

2

TRIAD

*hyperthermia, “lead-pipe” rigidity
autonomic instability
altered mental status*

3

TREATMENT

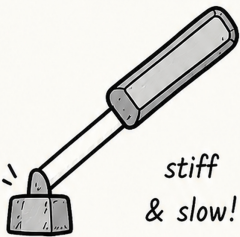
*stop offending drug
supportive care, dantrolene
bromocriptine (D2 agonist)*



MEMORY TRICK

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clonus vs. "clunk"

SEROTONIN SYNDROME	NMS
"CLONUS = SEROTONIN" hyperreflexia clonus (ankles) myoclonus  keeps bouncing!	"CLUNK = NMS" lead-pipe rigidity bradyreflexia high CK  stiff & slow!

PEARL:

hyperreflexia + clonus → think serotonin

lead-pipe rigidity + bradyreflexia → think NMS

