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Serotonin syndrome: not a benign toxidrome

Philippe Birmes and associates[1] suggest that serotonin syndrome is a less serious condition than neuroleptic malignant syndrome (NMS), but this has not been our experience.[2-5] In our prospective study of serotonin syndrome,[4,5] 6 of the 16 patients experienced disseminated intravascular coagulation (DIC), rhabdomyolysis and hypotension necessitating admission to the intensive care unit. Acute renal failure developed in 2 patients, and 1 patient died.

Table 2 in the article by Birmes and associates[1] does not capture the key differences between NMS and serotonin syndrome. Both conditions can be fulminant, and patients may present with delirium, hyperthermia, rhabdomyolysis, dilated pupils, tachycardia, daphoresis, rigidity and blood pressure changes[2-5] (see Table 1 with this letter). The main difference lies in the clinical gestalt: typically a patient with serotonin syndrome is agitated, speaks incoherently and has prominent myoclonus, whereas a patient with NMS is immobile, mute and staring. Although rhabdomyolysis is a complication of both toxidromes, DIC, seizures, ventricular tachycardia and severe hypotension are extremely rare in NMS.[2]

We agree with the mainstays of treatment suggested by Birmes and associates,[1] but we also advise monitoring of vital signs, platelet count, muscle enzymes and myoglobin twice daily for at least 72 hours. We have serious concerns about the use of chlorpromazine and propranolol for serotonin syndrome. Both drugs decrease blood pressure, which will exacerbate the hard-to-treat hypotension that can occur in serotonin syndrome; in addition, chlorpromazine may precipitate NMS. An absolute contraindication for the use of propranolol is a history of asthma, which is difficult to elicit if the patient is delirious. Finally, it is important to advise patients taking serotonergic agents about the risks of this potentially serious and fulminant syndrome.

Table 1: Clinical characteristics, laboratory abnormalities, complications, and risk factors for neuroleptic malignant syndrome and serotonin syndrome[2-5]

Characteristic	Neuroleptic malignant syndrome	Serotonin syndrome
Typical clinical presentation	Rigid, mute, staring, immobile	Agitated, incoherent speech, myoclonic twitching, bruising
Cognitive	Mild confusion to delirium; difficult to assess because of mutism	Mild confusion to delirium
Autonomic	Fever, tachycardia, diaphoresis, dilatation of pupils, blood pressure instability	Fever, tachycardia, diaphoresis, dilatation of pupils, blood pressure instability (hypertension in moderate cases, hypotension in severe cases)
Gastrointestinal	Constipation, ileus	Nausea, vomiting, diarrhea
Neurologic	Severe muscular rigidity (cogwheel), rigours, tremulousness	Hyperreflexia, myoclonus, tremulousness, clonus, fasciculations, ataxia, with or without rigidity
Psychiatric	Facial expression "fearful," underlying psychosis, premorbid mood disorder	Underlying mood or anxiety disorder; delirium may be misinterpreted as psychosis
Common laboratory abnormalities	Leukocytosis, elevation of muscle enzymes (CPK, ALT, AST, LDH), low serum iron	Leukocytosis, elevation of muscle enzymes (CPK, ALT, AST, LDH), thrombocytopenia
Complications	Aspiration pneumonia, renal failure, pulmonary embolus, contractures, postepisode muscle weakness	Falls, seizures, severe hypotension, ventricular tachycardia, disseminated intravascular coagulation, renal failure, coma (mortality rate unknown)
Risk factors	Antipsychotic drug use (all types), polypharmacy, rapid increase in neuroleptic dosage, concurrent use of lithium, dehydration, catatonia, agitation, benzodiazepine withdrawal during neuroleptic treatment	Use of serotonergic agents (all types), polypharmacy, concurrent use of lithium, MAOIs plus demerol (other risk factors unknown)

Note: CPK = creatine phosphokinase, ALT = alanine aminotransferase, AST = aspartate aminotransferase, LDH = lactic dehydrogenase, MAOIs = monoamine oxidase inhibitors.

Sarah Garside
Clinical Scholar
Patricia I. Rosebush
Associate Professor
Department of Psychiatry and Behavioural Neuroscience
McMaster University
Hamilton, Ont.

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Smith-Magenis syndrome

Waleed Al Busairi and Fawzi Ali[1] describe a 15-year-old boy with mental retardation and a history of putting inedible objects into his mouth. The authors might want to investigate