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Letter to the Editor: Brief Case Report

Clonus, Hyperreflexia, and Hypertension: Serotonin Syndrome or Preeclampsia?



Introduction

Preeclampsia is a serious complication of pregnancy defined by hypertension with end-organ damage, as evidenced by proteinuria, thrombocytopenia, and liver or kidney injury.[1] Both a progression to eclampsia, signaled by seizure presence, and a variant known as HELLP (hemolysis, elevated liver enzymes, and low platelets) syndrome are life-threatening.[1] Of interest to the consultation-liaison psychiatrist, this disorder shares diagnostic overlap with serotonin syndrome; patients with either condition may have altered mental status, gastrointestinal distress, hyperreflexia, and hypertension (Figure 1).[2,3] Thus, if consulted for altered mental status in a pregnant patient, psychiatrists must be capable of identifying either clinical diagnosis. Here, we present a case in which the primary differential diagnosis was just that: preeclampsia versus serotonin syndrome.

Case

Ms. A, a 35-year-old female, gravida 3 para 2, with a history of hypertension, preeclampsia with prior pregnancy, depression, anxiety, and psychogenic nonepileptic seizures, presented at 25 weeks and 5 days gestation with severe headache and bilateral arm paresthesias. She was admitted with diagnosis of hypertensive emergency with possible superimposed preeclampsia, given protein to creatinine ratio of 0.41. Labs, including hemoglobin, creatinine, platelets, and liver function tests, were obtained, and all were within normal limits, ruling out HELLP syndrome. Obstetrics and neurology noted hyperreflexia and clonus on admitting exam, and she promptly received intravenous antihypertensives and magnesium.

Psychiatry was consulted on day 2 due to concern for serotonin syndrome based on multiple serotonergic medications, hyperreflexia, and clonus. Ms. A denied recent medication changes, other than switching to labetalol for pregnancy. Home medications included sertraline, buspirone, tramadol, and gabapentin, and she received cyclobenzaprine, diphenhydramine, metoclopramide, and promethazine after admission. She reported adherence to sertraline and tramadol and infrequently used buspirone. She denied taking more medications than prescribed or recreational substance use. She denied diaphoresis, agitation, confusion, and stiffness. Exam was negative for hyperthermia, spontaneous or inducible clonus, diaphoresis, tremor, and hyperreflexia. Bilateral upper and lower extremity tone was within normal limits.

Psychiatry recommended holding serotonergic agents for 24–48 hours as a precaution. Symptoms and exam did not subsequently change, and home psychotropics were restarted. No further hyperreflexia or clonus was reported, though blood pressure continued to be elevated.

Ms. A was discharged home with obstetric follow-up. She had two subsequent hospitalizations for hypertension during that pregnancy and ultimately was induced at 33 weeks and 5 days gestation due to preeclampsia with severe features including right upper quadrant pain, severe headache, sustained elevated blood pressures, and rising urine protein to creatinine ratio. Symptoms resolved after delivery.

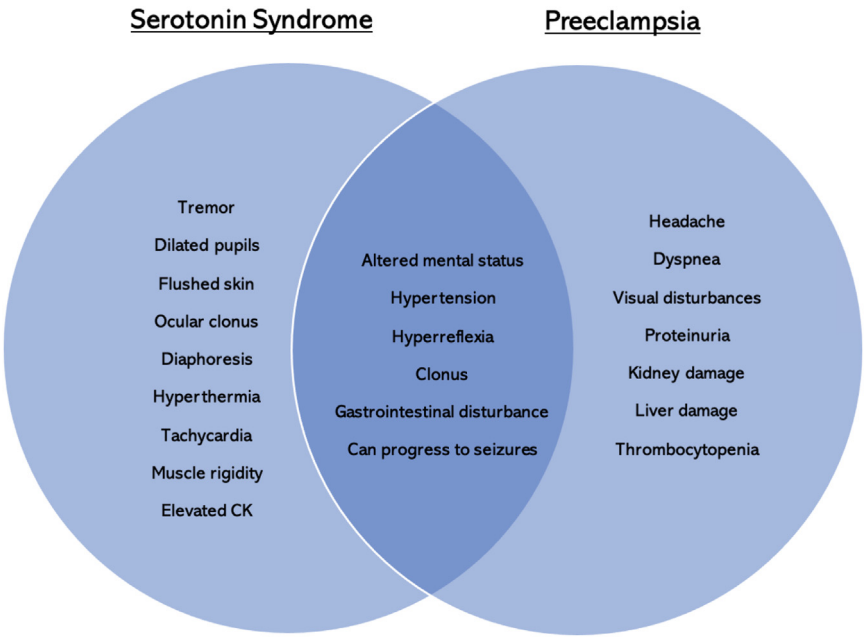
Discussion

Preeclampsia is a serious pregnancy complication, affecting 5% of pregnancies and causing significant maternal and fetal morbidity and around 50,000 deaths annually.[1] Diagnosis requires hypertension and end-organ damage, but presentation varies based on the involved organ systems. Symptoms can include proteinuria, kidney damage, liver damage, altered mental status, hyperreflexia, clonus, abdominal pain, and thrombocytopenia. Diagnosis necessitates close follow-up for the remainder of the pregnancy.[2] Management may require early delivery, and serious cases such as those involving HELLP syndrome can be life-threatening.[1] Progression to eclampsia warrants emergency delivery.

Serotonin syndrome is caused by excessive serotonin activity and can be precipitated by a variety of serotonergic agents.[3] Serotonin syndrome has variable severity, with treatment consisting of supportive management and discontinuation of offending agent(s).

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FIGURE 1. Comparison of Serotonin Syndrome and Preeclampsia



Symptoms may include altered mental status, myoclonus, hyperreflexia, diaphoresis, diarrhea, tremor, and seizures.[4]

In this case, concern for serotonin syndrome arose due to the presence of serotonergic medications (sertraline, buspirone, tramadol), hyperreflexia, clonus, and hypertension. The diagnosis was ultimately preeclampsia, given no recent home medication adjustments, resolution of neurological symptoms with magnesium and antihypertensives even before holding serotonergic medications, worsening throughout pregnancy, and resolution with delivery. Notably, the patient did have proteinuria, which would be expected for preeclampsia but not serotonin syndrome; however, proteinuria is nonspecific, so we caution against using it as a definitive diagnostic differentiator.

The presented case highlights the symptom overlap between preeclampsia and serotonin syndrome. Research suggests that serotonin plays a role in the establishment of preeclamptic hypertension, perhaps explaining the overlap in symptoms.[5] Given the substantial symptom overlap, consultation-liaison psychiatrists must be diligent in recognizing clinical findings of both conditions, particularly when patients present with altered mental status and are unable to provide history. Cases may present more inconspicuously than ours, such as with a childbearing-age patient who has altered mental status. Because serotonin syndrome and preeclampsia share similarities, it is prudent to consider both diagnoses together when one is on the differential, particularly as both can be life-threatening if not promptly treated.

Conflicts of Interest: The authors declare that they have no conflict of interest.

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Patient Consent Statement: Written patient consent for this case report was obtained from the patient.

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