

## Postpartum Seizure Disorder

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### Abstract

Eclampsia and severe pre-eclampsia are usually rare, but potentially life threatening medical disorders that the emergency physicians should diagnose and treat promptly. In this case report, we discuss a young female with generalized tonic clonic seizure in the postpartum period, the diagnosis and management in the emergency department of our hospital along with review of literature.

**Keywords:** Postpartum seizure; Eclampsia; Generalized tonic clonic seizure; Pritchard regimen for magnesium sulfate.

## INTRODUCTION

Pregnancy related conditions are one of the most common reasons for female patients for visiting the Emergency department. It accounts for around 1.3% of total emergency departments over all.<sup>1,2</sup> The most common neurological complication in pregnancy is seizure. Eclampsia remains a major cause of gestational morbidity and mortality as it increases the risk of hypoxic ischemic brain injury and seizure related intracranial hemorrhage.<sup>3,4</sup> Eclampsia is one of the top six causes of maternal

death world wide following postpartum hemorrhage, infection, and cardiovascular conditions.<sup>5</sup> Emergency care providers play a crucial role in recognizing and actively managing patients with eclampsia, especially those who lack proper prenatal care or those who present in the postpartum period. Prompt diagnosis and administration of magnesium sulfate remains the key in managing patients with eclampsia or severe pre-eclampsia.

## CASE

A 30 year old female, along with the emergency response team and patient's husband, was wheeled into the Emergency department with a history of multiple generalized seizure episodes since the last 2-3 hours. The EMT (emergency medical technician) stated that on their arrival to her house, they found the female to be lying on the floor without any movement, her pulse was around 86/minute, oxygen saturation was around 82% on room air and blood pressure was around 180/110

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mmHg. She had an episode of generalized tonic clonic seizure during the transit when she was administered injection lorazepam. Her seizure episode subsided, but after 30 minutes, she again had a seizure episode, injection lorazepam was again administered and seizure episode subsided.

Her husband stated that she is 2 weeks postpartum female. Her antenatal period was uneventful, she had no regular check up with her doctor. She has been a known hypertensive patient since her second pregnancy. Her obstetrics score is P3L2A1. Her husband stated that she was complaining of a headache with lethargy and visual disturbance for the last 2 days. While in the emergency room, she again had an episode of generalized tonic clonic seizure. She was positioned in the left lateral position. Injection magnesium sulfate was administered - 4 grams IV over 10-15 minutes (in 100mL normal saline) + 5 grams IM in each buttock. Her seizure activity subsided. The patient

was admitted in the critical care unit for further observation and magnesium dose completion.

The patient recovered well, her blood pressure settled down to normal baseline. She was started on oral antihypertensives. Family counseling was done for the patient and her husband. She was discharged in well condition, postnatal follow up was continued and uneventful.

## DISCUSSION

This was a case of eclampsia in the postpartum period. Eclampsia is defined as "the occurrence of one or more generalized tonic clonic convulsions unrelated to any other medical conditions in pregnant or postpartum patients with hypertensive disorders of pregnancy".<sup>4,6</sup>

Hypertensive disorders of pregnancy include a spectrum of clinical conditions like gestational

Condition	Definition
Chronic Hypertension	SBP $\geq$ 130 or DBP $\geq$ 80 mmHg prior to 20th week pregnancy
Gestational Hypertension	SBP $\geq$ 140 or DBP $\geq$ 90 mmHg after to 20th week pregnancy on >2 occasions
Pre-eclampsia	<p>Blood Pressure</p> <ul style="list-style-type: none"> <li>• SBP<math>\geq</math>140 or DBP<math>\geq</math>90 mmHg after to 20th week pregnancy on &gt;2 week pregnancy</li> </ul> <p>and proteinuria</p> <ul style="list-style-type: none"> <li>• <math>\geq</math>300g 24hr urine collection</li> <li>• or protein: creatine ratio<math>\geq</math>0.3</li> <li>• or dipstick reading of <math>\geq</math>2+</li> </ul> <p>or any of the following:</p> <ul style="list-style-type: none"> <li>• Platelets <math>&lt;100 \times 10^9</math> / dL</li> <li>• Serum creatine <math>&gt;1.1</math> mg/dL</li> <li>• Doubling of baseline creatinine</li> <li>• Doubling of baseline transaminases</li> <li>• New onset headache unresponsive to medication without alternative diagnosis</li> </ul>

hypertension, chronic hypertension, pre-eclampsia, preeclampsia superimposed on chronic hypertension, and Hemolysis, Elevated liver enzymes and Low platelets (HELLP) syndrome.<sup>7,8</sup> The convulsions may be the presenting symptom of preeclampsia and seizure in pregnant or postpartum females must be considered as eclampsia until proven otherwise.<sup>9</sup>

Eclampsia can occur during the antepartum, intrapartum, or post-partum period.<sup>10,11</sup> In the postpartum period, the onset of seizure can occur within the first 48 hours (early postpartum) or up to

six weeks following delivery (late postpartum).<sup>10,11</sup> More than 50% of eclamptic seizures are preceded by prodromal symptoms like headache (66-82%), visual disturbances (27-44%), and epigastric pain (25%).<sup>12</sup> Hypertension and proteinuria remain the most common diagnostic features in patients with eclampsia and patients prone to develop eclampsia (severe pre-eclamptic patients).

Though eclampsia remains the most common diagnosis in postpartum and antepartum females with seizure (hypertension and proteinuria), other diagnosis must be considered in these females if the

Regimen	Loading dose	Maintenance dose
Pritchard's <sup>4</sup>	20 ml of 20% (4 gm) slow in 3-5 min; +10ml of 50% (5 gm) deep IM* on each buttock (10 gm)	10 ml of 50% (5 gm) deep IM on alternate buttock every 4h

blood pressure and protein levels remain within the normal range.

The mainstay in patients visiting the Emergency department with seizure is maintaining the airway and circulation of the patient. Supplemental oxygen to prevent hypoxic brain injury is important. The drug of choice for eclamptic seizure is magnesium sulfate.<sup>13</sup> The most common regime followed in the Indian subcontinent is the "Pritchard's regime" (as described above). The mainstay in this treatment is the check for magnesium toxicity level before administration of magnesium sulfate every 4 hourly. Signs of magnesium toxicity include decrease in blood pressure, decrease in urine output production, decreased respiratory rate, absent/reduced patellar reflex.

While rare, seizure activity resistant to magnesium sulfate, or with recurrence following a second magnesium bolus, the treatment of choice is benzodiazepines. The recent reviews recommending dosing 4 mg lorazepam over 3 to 5 minutes.<sup>5</sup> In cases where magnesium sulfate is unavailable or there is a delay in preparation, patients can be initiated on benzodiazepine therapy with intravenous diazepam or lorazepam or intramuscular midazolam.<sup>14</sup>

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