



Posterior reversible encephalopathy syndrome (PRES) in parturients is associated with severe maternal morbidity

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Background

- Posterior reversible encephalopathy syndrome (PRES) is a rare neurological disorder of subcortical vasogenic brain edema.¹
- PRES is more common in female patients and presents clinically with acute neurological symptoms including headache, nausea and vomiting, visual disturbances, altered mental status, and seizures.¹
- PRES in parturients has been studied almost exclusively in the setting of preeclampsia and eclampsia.
- The relationship between PRES and maternal outcomes is incompletely understood.²

Hypothesis

We hypothesized that pregnant and peripartum women with PRES would have increased rates of severe maternal morbidity (SMM).

Methods

- Retrospective cohort analysis using the NIS (National Inpatient Sample) from 2002 to 2014³
- Women hospitalized for delivery identified using ICD-9 codes
- Outcomes measured using Center for Disease Control definition of SMM⁴
- We performed both an unadjusted logistic regression and a regression adjusted for pre-eclampsia. An Elixhauser comorbidity score was used to adjust for a variety of comorbid conditions based on the Healthcare Cost and Utilization Project specifications.
- Institutional Review Board at the University of Chicago declared this study exempt.

Results

	Hospitalized Parturients without PRES (N= 57975712)	% of Parturients without PRES	Hospitalized Parturients with PRES (N=4617)	% of Parturients with PRES	P-value*
Severe Maternal Morbidity	1149331	1.98	3148	68.19	0.000
Acute Myocardial Infarction	1064	0.01	4	0.42	0.050
Aneurysm	1782	0	5	0.1	0.333
Acute Renal Failure	39466	0.07	307	6.65	0.000
Acute Respiratory Distress Syndrome	68975	0.12	839	18.17	0.000
Amniotic Fluid Embolism	2635	0	15	0.33	0.088
Cardiovascular Arrest/Ventricular Fibrillation	6654	0.01	62	1.35	0.000
Conversion of Cardiac Rhythm	7382	0.01	38	0.83	0.012
Disseminated Intravascular Coagulation	142438	0.25	297	6.44	0.000
Eclampsia	54954	0.09	1917	41.52	0.000
Heart Failure/Arrest during surgery	8046	0.01	5	0.11	0.383
Periparturient cerebrovascular disorders	40295	0.07	668	14.47	0.000
Pulmonary Edema/Acute Heart Failure	83595	0.14	135	2.93	0.000
Severe anesthesia complication	10311	0.02	10	0.22	0.195
Sepsis	75175	0.13	228	4.94	0.000
Shock	33098	0.06	158	3.42	0.000
Sickle Cell Disease with Crisis	32764	0.06	15	0.31	0.156
Air and thrombotic embolism	39676	0.07	49	1.07	0.003
Blood transfusion	664389	1.15	531	11.51	0.000
Hysterectomy	60578	0.1	24	0.53	0.072
Temporary Tracheostomy	3037	0.01	73	1.59	0.000
Ventilation	24213	0.04	48	1.04	0.002

Table 1. Comparison of morbidity in hospitalized parturients with and without PRES. *p<0.05 considered significant

	Unadjusted Model	Adjusted Model
Odds Ratio of SMM	104.3 (90.2-120.6)	62.1 (50.3-76.8)
Predicted SMM without PRES	1.9%	1.9%
Predicted SMM with PRES	67.6%	51.3%

Table 2. Comparison of odds ratios and predicted SMM rates between an unadjusted model versus a model adjusted for pre-eclampsia and Elixhauser comorbidity index

Conclusions

- Women with PRES were more likely to be white, younger, live in an area with a lower median household income, be on Medicaid and reside in the South compared to women without PRES.
- PRES was associated with an increased risk of all-cause SMM and in-hospital mortality when compared to patients without PRES.
- While an association exists between pre-eclampsia and PRES, a significant number of patients with PRES do not have an associated diagnosis of pre-eclampsia.
- Further research is needed to identify the best approach to diagnosis and treatment of PRES during pregnancy.

References

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