

RESISTANT HYPERTENSION IN A PATIENT WITH PRE-ECLAMPSIA

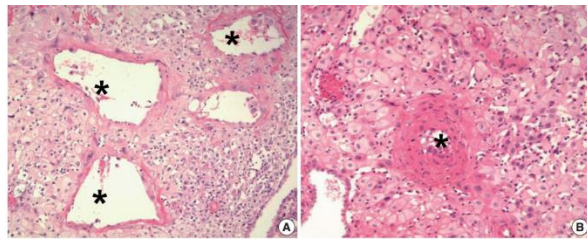
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Introduction:

Pre-eclampsia is defined as a new onset proteinuria and hypertension with systolic ≥ 140 and diastolic ≥ 90 after 20 weeks gestational period or hypertension and end-organ dysfunction despite proteinuria. End organ dysfunction is defined as damage to the kidneys, lungs, heart, and/or liver.

Etiology is due to abnormal development and remodeling of the spiral arteries. This results in decreased blood flow to the placenta and hypoxia, which releases anti-angiogenic factors into the maternal serum. Medical therapy may include labetalol, hydralazine, nifedipine, magnesium sulfate, and delivery of the baby.

We report a case of resistant hypertension in a pre-eclamptic patient unresponsive to conventional anti-hypertensive medications in the setting of spinal anesthesia converted to general anesthesia.



A) Normal: Transformed spiral arteries

B) Pre-eclampsia: Non-transformed spiral arteries with small vessel lumen

Case:

23 y/o female at 33 weeks EGA presents for an urgent cesarean section for preeclampsia with uncontrollable hypertension despite being administered a total of 280-mg IV labetalol.

Preoperative examination revealed resistant hypertension of 176/99 and a heart rate 80 bpm. History and physical exam were unremarkable. Lab studies revealed normal platelet count and LFTs, and urine studies were positive for elevated urine protein. Spinal anesthesia was administered, achieving a successful block to the T7 region.

Following spinal placement, the blood pressure remained elevated to MAPs greater than 120mmHg. The patient experienced symptoms of aphasia and confusion. Per obstetrics request, 4-mg of magnesium sulfate was administered. Patient's MAPs continued to rise to as high as 200 mmHg. In an attempt to reduce the pressure, 20-mg of IV hydralazine and 20-mg IV labetalol were administered. The patient became acutely ill resulting in uncontrollable vomiting, and therefore, difficulty with internalizing the uterus following delivery. She was emergently intubated, and sevoflurane was administered. The patient was started on a nicardipine drip given the resistance to previous medications and general anesthesia. This was successful in reducing the MAPs to 110s. The patient recovered in the ICU for pressure management following cesarean section.

Discussion:

This case illustrates the challenge of treating hypertensive crises in pre-eclamptic patients with resistance to anti-hypertensives and anesthesia.

Most common causes of resistant hypertension:

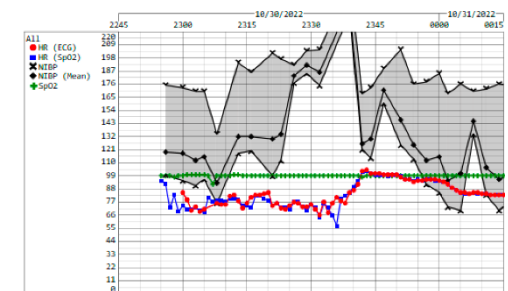
- CKD
- Thyroid disease
- OSA
- Primary aldosteronism¹

Goals of treatment:

- Lower blood pressure by 25% from initial levels
- Systolic levels < 140 mmHg and diastolic levels > 80 mmHg to avoid decreased placental flow¹

Considerations:

- Advanced monitoring with arterial line
- Early intervention with nicardipine, nitroglycerin, and hydralazine



A) Demonstrates the patient's elevated MAP's

References:

Bortolotto, M. R., Francisco, R. P. V., & Zugaib, M. (2018, June 11). *Resistant hypertension in pregnancy: How to manage? - current hypertension reports*. SpringerLink. Retrieved March 30, 2023, from <https://link.springer.com/article/10.1007/s11906-018-0865-z>