

[NM-293] Can this be happening? Anaphylaxis in the newborn

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A 3 week old, 4kg female with sacrococcygeal teratoma presented for resection.

Course

The patient underwent an inhalation induction with nitrous oxide and sevoflurane. Mask-ventilation was easy (CL, lung compliance = 6 ml/cmH₂O). After IV access was obtained, she received a dose of rocuronium (4 mg). Approximately 1 minute later, she demonstrated difficult mask ventilation (CL = 0.26 ml/cmH₂O), decreasing SpO₂ values, relative tachycardia, and hypotension. An ETT was placed without clinical improvement. A rash on her abdomen was noted. A preliminary diagnosis of a drug reaction was considered. Following IV epinephrine (1 mcg/kg), she had brisk improvement in her hemodynamic and respiratory status, with slow resolution of skin discoloration. She received one additional dose of epinephrine (0.5 mcg/kg) for apparent recurrence. The operative case was cancelled. She was given adjunct medication treatment and observed for an additional 75 minutes prior to extubation, which occurred without incident.

Two days later, she returned to the OR and received an IV induction with propofol and vecuronium. Mild generalized cutaneous erythema was noted after induction without hemodynamic or respiratory compromise. Maintenance was with a balanced technique, and it was noted that the patient displayed erythema after administration of morphine as well as a brief episode of bronchospasm at the conclusion of the case. She was extubated and had an uneventful recovery.

Discussion

Diagnosis of medication reactions is difficult under general anesthesia but is suggested by hypotension, bronchospasm, and cutaneous eruption. Neonates are less likely to develop both Ig-E related anaphylaxis and non-immune related medication reactions. Neonatal anaphylaxis has been infrequently described with reported causative agents including atracurium, ceftriaxone, cefazolin, ceftazidime, vaccines, immunoglobulins, and foods.

Risk factors for anaphylaxis in the neonate are not well understood, but include mastocytosis, atopy, asthma, and bronchiolitis. Mechanism of anaphylaxis may differ in neonates as compared to those with more mature immune systems. Treatment for anaphylaxis includes removal of the offending agent, ensuring adequate airway protection, IV fluids, epinephrine, and adjuncts such as antihistamines, bronchodilators, and glucocorticoids. Confirmatory workup is less reliable in neonates. Explanation for the patient's clinical course remains uncertain. The differential for this case includes mastocytosis & non-immune causes of histamine release, bronchospasm, aspiration, and recurrence of fetal circulation.

In conclusion, neonatal drug reactions are exceedingly rare, but have been reported. Confirmatory diagnosis is difficult and unreliable. Empiric treatment often is a component of treating other possibilities on the differential diagnosis and should rapidly be considered in an acute situation.
