

What a Shock!

Anaphylaxis Rapid Recognition and Treatment



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The Problem

- The number of individuals who suffer severe systemic allergic reactions is on the rise in the US
- The incidence of anaphylaxis during general anesthesia is reported to be rare *but*:
 - Perioperative anaphylaxis is more severe
 - The perioperative mortality rate is 3-6 % which is three times the general incidence
 - 2% of individuals who survive anaphylaxis intraoperatively will have brain damage

Anaphylaxis during surgery

- Recognition of an allergic reaction that occurs during anesthesia is complicated by several factors:
 - Hypotension produced during anesthesia (by propofol or other induction agents)
 - Sympathectomy associated with spinal/epidural anesthesia
 - Inability of anesthetized patient to communicate early symptoms such as itching
 - Coverage of the patient by surgical drapes that may obscure detection of cutaneous signs

Case Study

Time Line: 7:37 AM Case started 8:05 AM Surgery aborted

What Happened?

Pre-Op Assessment

- Young adult patient with no known allergies; planned day surgery
- Prior medical history: Hypertension, Obstructive Sleep Apnea, Obese
- Previous general anesthesia without adverse event
- Procedure: Planned Lap Band Removal

Intraoperative Course

Patient received:

- Midazolam, Fentanyl
- **Cefazolin, Rocuronium, and Succinylcholine**

Medications listed in red are known agents responsible for anaphylaxis during surgery.

Suspected Anaphylactic Reaction in the OR

8:05 AM:

- Rapid hypotension 75/40; O2 sat 90%
- Red, raised rash noted under drapes

8:15 AM:

- Discontinuation of all anesthetic drugs
- Epinephrine 40 mcgs IV drip at 1 mcg/min
- Also received methylprednisone, phenylephrine, diphenhydramine, famotidine, dexamethasone; fluid bolus

9:00 AM Central line placed

9:30 Admitted to PACU

- Unresponsive; intubated
- Epinephrine drip 0.25 mcg/min via central line
- Propofol drip at 10 mg/hr
- Edema of lips and eyes, enlarged tongue



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Archna, K. (2011). A Critical Incident Report. *Indian Journal of Anesthesia*. 55(5).

Significant lab value

- Lab test: Serum Tryptase
- Mast cell specific protease
- Used to clarify diagnosis
- Peaks one hour after anaphylactic reaction
- Must be drawn within four hours of reaction

Impact on the PACU

- Interdisciplinary team approach by anesthesia and nursing to provide care for patient
- Two nurses assigned to patient
- CXR and routine blood work *plus* significant lab test: Serum Tryptase
- Observation required for 6-12 hrs or until admitted

Implications for the Perioperative Nurse

- Prior planning
- Prompt assessment and treatment is critical to the outcome
- Consider differential diagnosis of *anaphylaxis*
- Awareness of biphasic reaction of anaphylaxis - can last up to 38 hours
- **Epinephrine** is the drug of choice
- Consider appropriate level of care

Advancing the practice

- Development of a PACU forum called "Fall into Success" that provides opportunities to share our experiences with colleagues on our hospital intranet site.

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