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 methylprednisolone, 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

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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