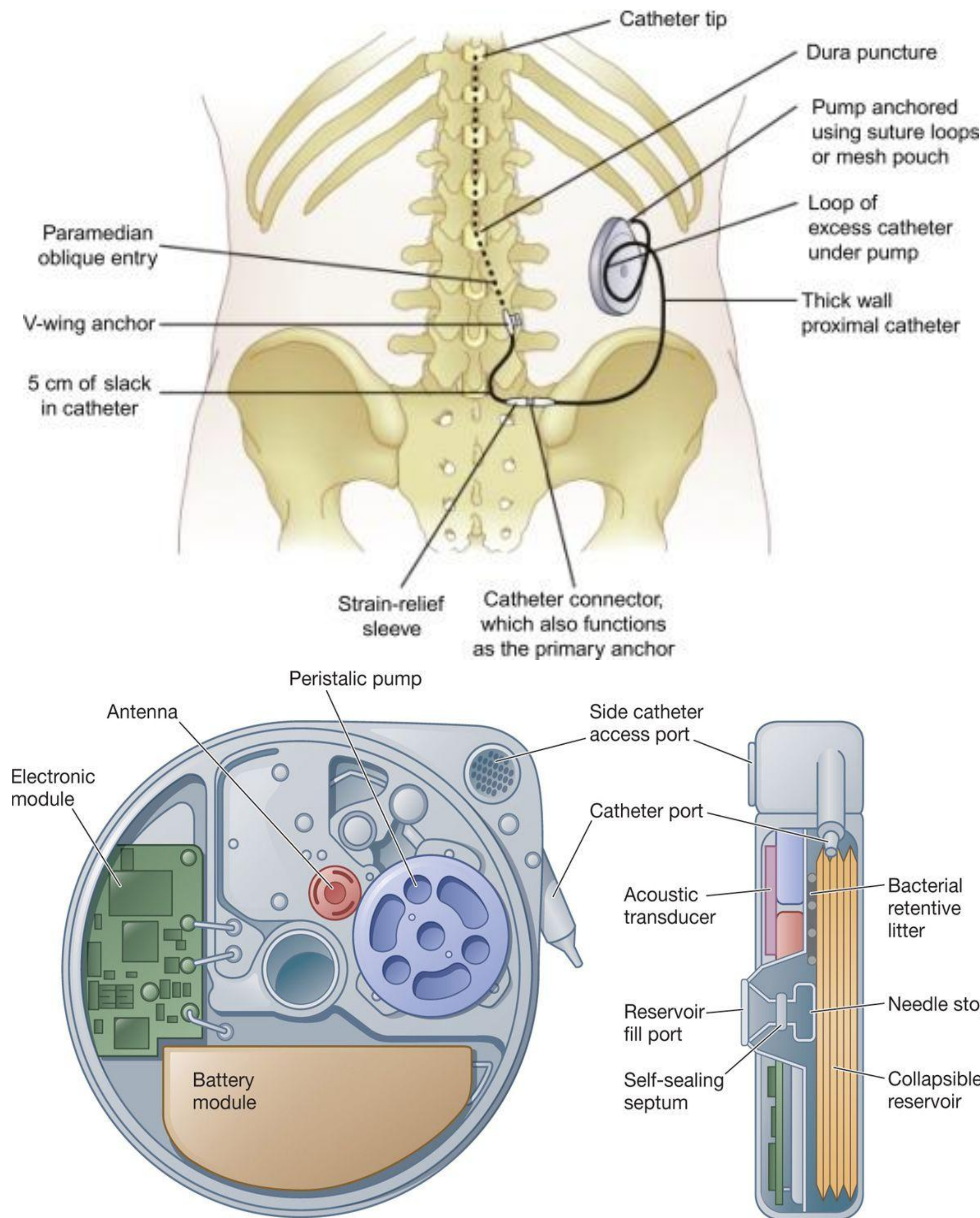
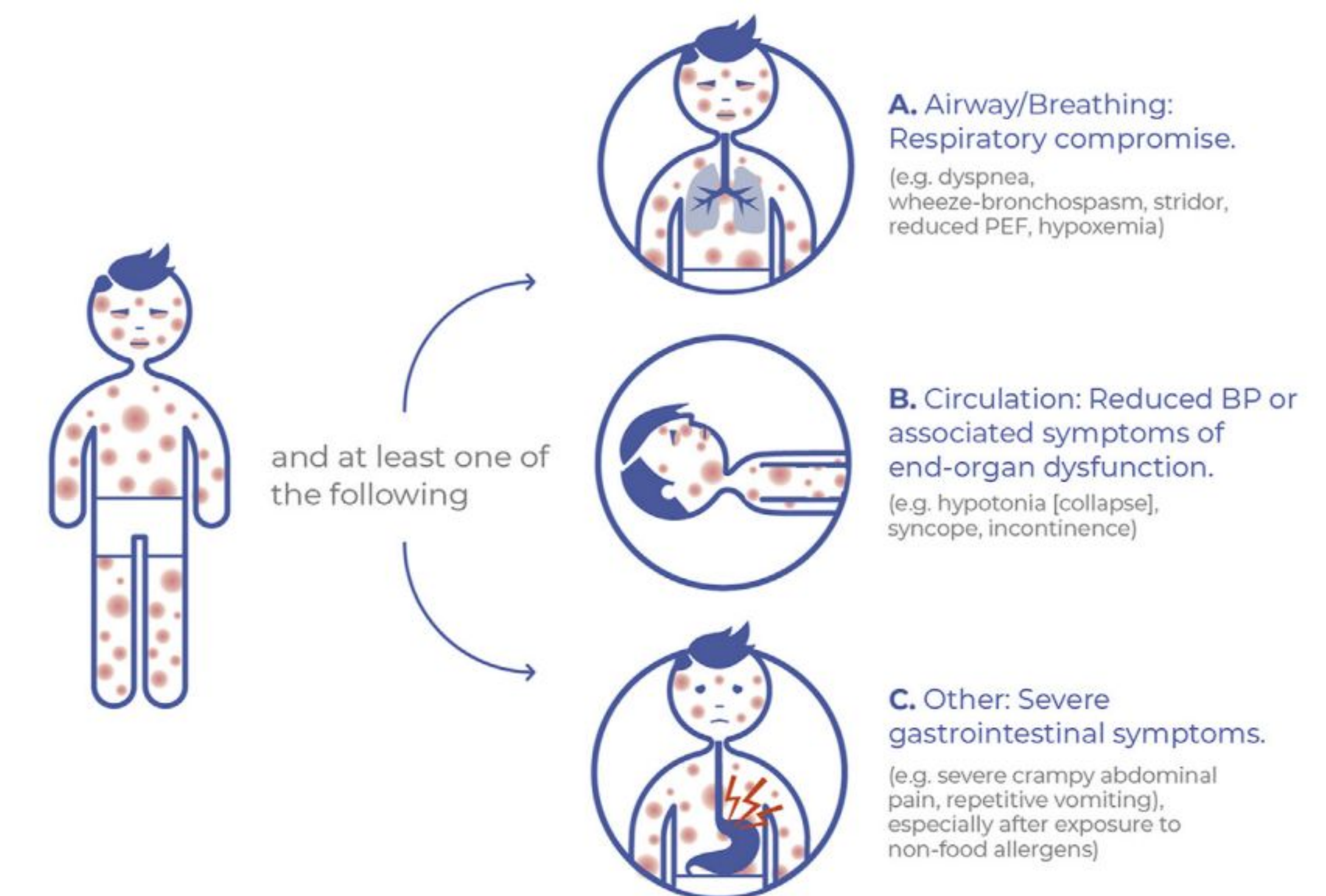
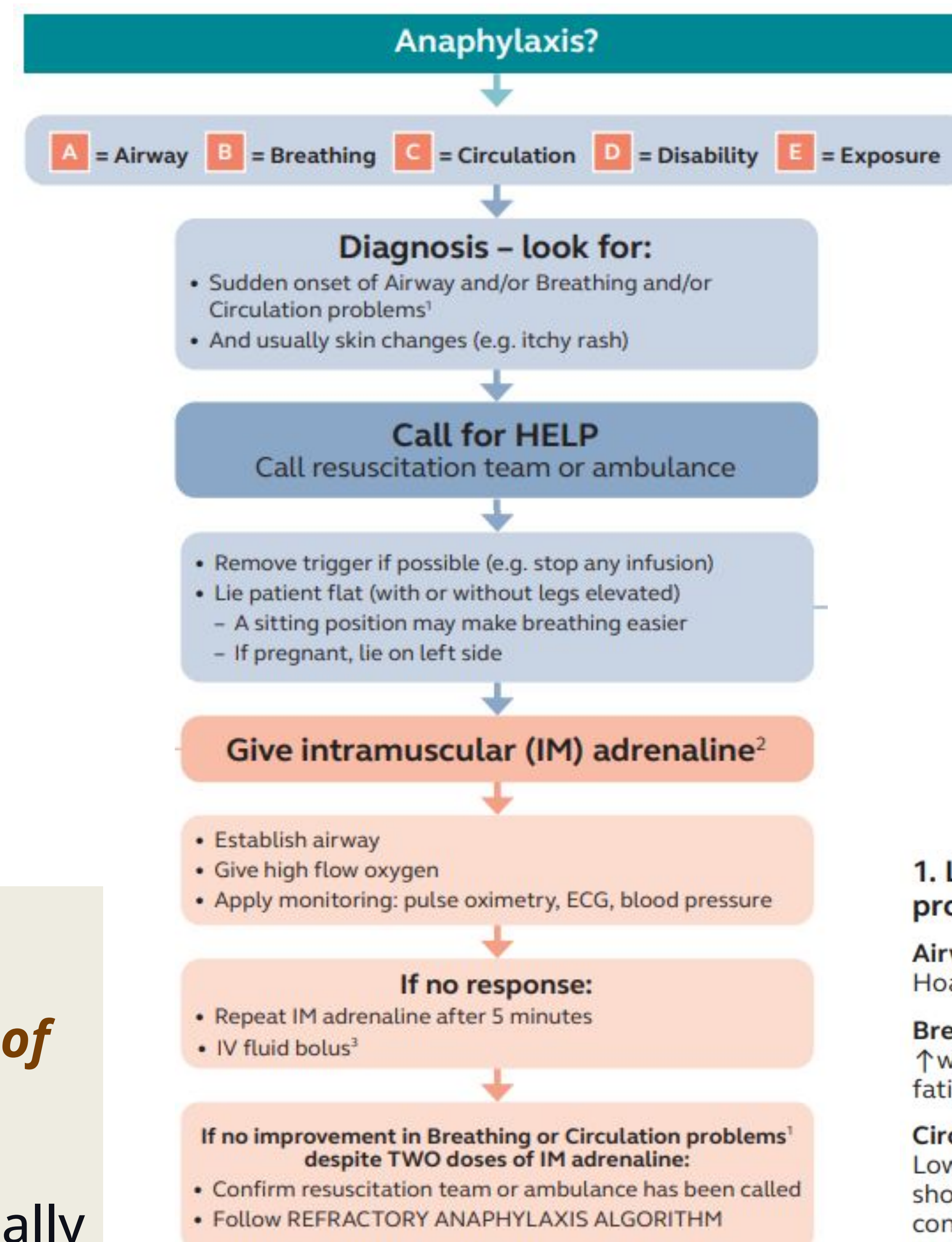


**Case Description:** A 71-year-old woman with chronic low back pain secondary to lumbar radiculopathy who failed multiple epidural steroid injections received an intrathecal (IT) drug trial as part of the targeted drug delivery for pain relief. She denied any history of atopy or drug allergy. She has **received intravenous fentanyl** in the past without any adverse events.



## Clinical Course:

- Following a successful procedure, a first bolus consisting of 1.5 mL of 0.75% bupivacaine and 50 mcg of fentanyl citrate were administered through the IT catheter.
- She had remarkable pain relief, but subsequently developed **Ring-Messmer Grade III anaphylaxis**. She then required treatment with 100% oxygen, three doses of intravenous (IV) epinephrine 0.1 mg, methylprednisolone 125 mg and albuterol nebulization 2.5mg/3ml. Bupivacaine or fentanyl was suspected to have caused the anaphylaxis.
- After 2 weeks, an **intradermal allergy test confirmed fentanyl as the culprit**. She had another episode of anaphylactic reaction requiring hospitalization.



## Discussion:

- To our knowledge, this is the **first reported case of anaphylaxis to Intrathecal fentanyl**.
- **Pathophysiology:** we hypothesize that prior exposure to IV fentanyl may have caused a clinically silent sensitization.
- IT fentanyl may have resulted in **IgE mediated** mast cell degranulation via the meningeal lymphatics
- Alternatively, fentanyl could have caused **non-immunologic** or direct mast cell degranulation resulting in anaphylaxis.

### 1. Life-threatening problems

- Airway**  
Hoarse voice, stridor
- Breathing**  
↑ work of breathing, wheeze, fatigue, cyanosis, SpO<sub>2</sub> <94%
- Circulation**  
Low blood pressure, signs of shock, confusion, reduced consciousness

### 2. Intramuscular (IM) adrenaline

- Use adrenaline at 1 mg/mL (1:1000) concentration
- Adult and child >12 years:** 500 micrograms IM (0.5 mL)
- Child 6–12 years:** 300 micrograms IM (0.3 mL)
- Child 6 months to 6 years:** 150 micrograms IM (0.15 mL)
- Child <6 months:** 100–150 micrograms IM (0.1–0.15 mL)

The above doses are for IM injection only. Intravenous adrenaline for anaphylaxis to be given only by experienced specialists in an appropriate setting.

### 3. IV fluid challenge

- Use crystalloid
- Adults:** 500–1000 mL
- Children:** 10 mL/kg

## Conclusion:

Although rare, anaphylactic reactions to IT fentanyl must be recognized and treated expeditiously to avoid fatal outcomes. **Perioperative training and preparedness remain key to a successful outpatient interventional pain practice.**

## References

