

THE CALM IN THE STORM

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68 year old female with multiple co-morbidities presented in a gasping state with decreased responsiveness

Primary Survey

Airway

Patent

Breathing

RR - 40/min

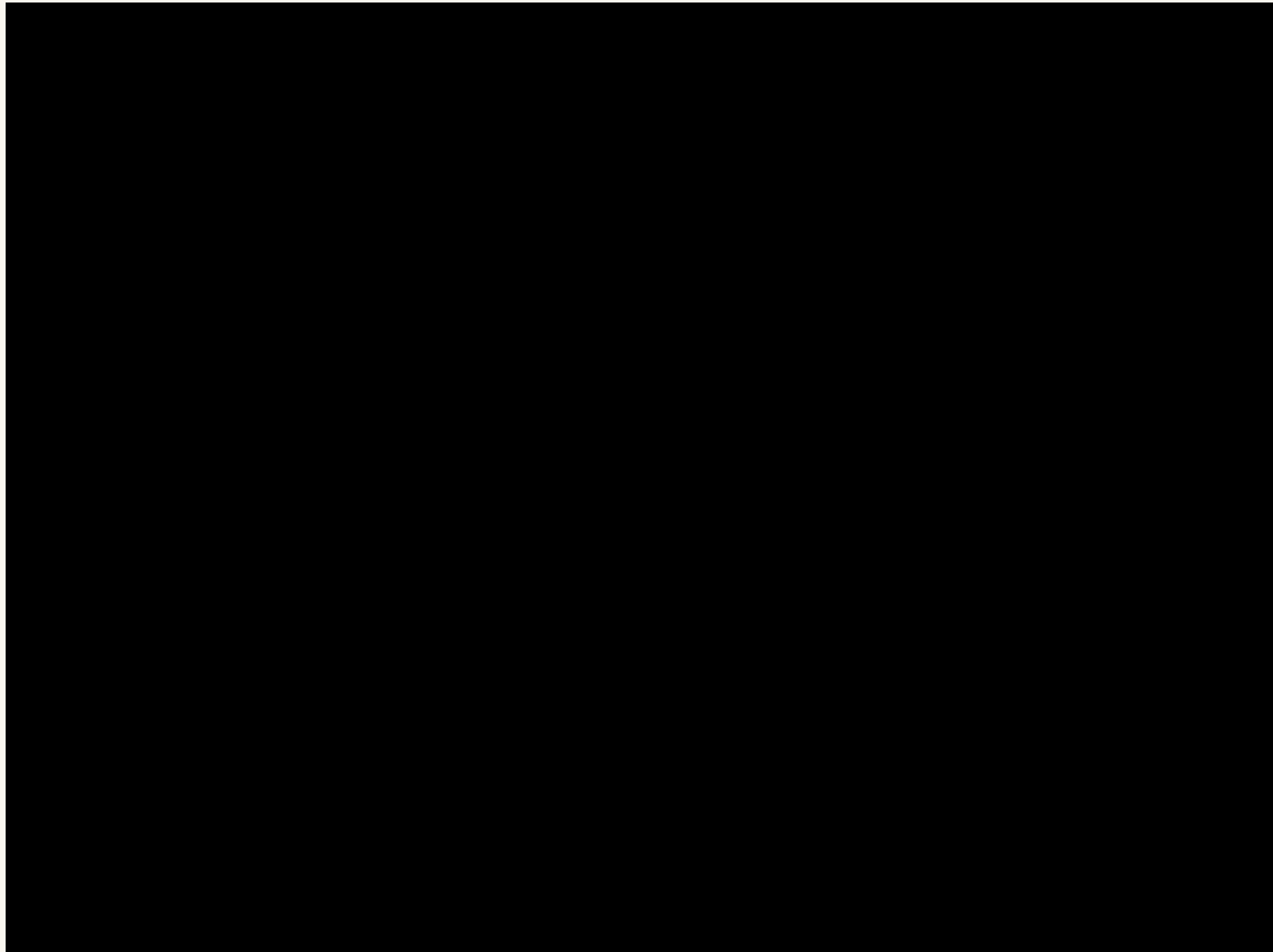
SpO2 - 76% RA

Circulation

Pulse Rate- 220/min

Blood Pressure - 70/60mmHg

Synchronised Cardioversion



Primary Survey and Adjuncts

Disability

GCS - 10/15
Pupils - BERRL

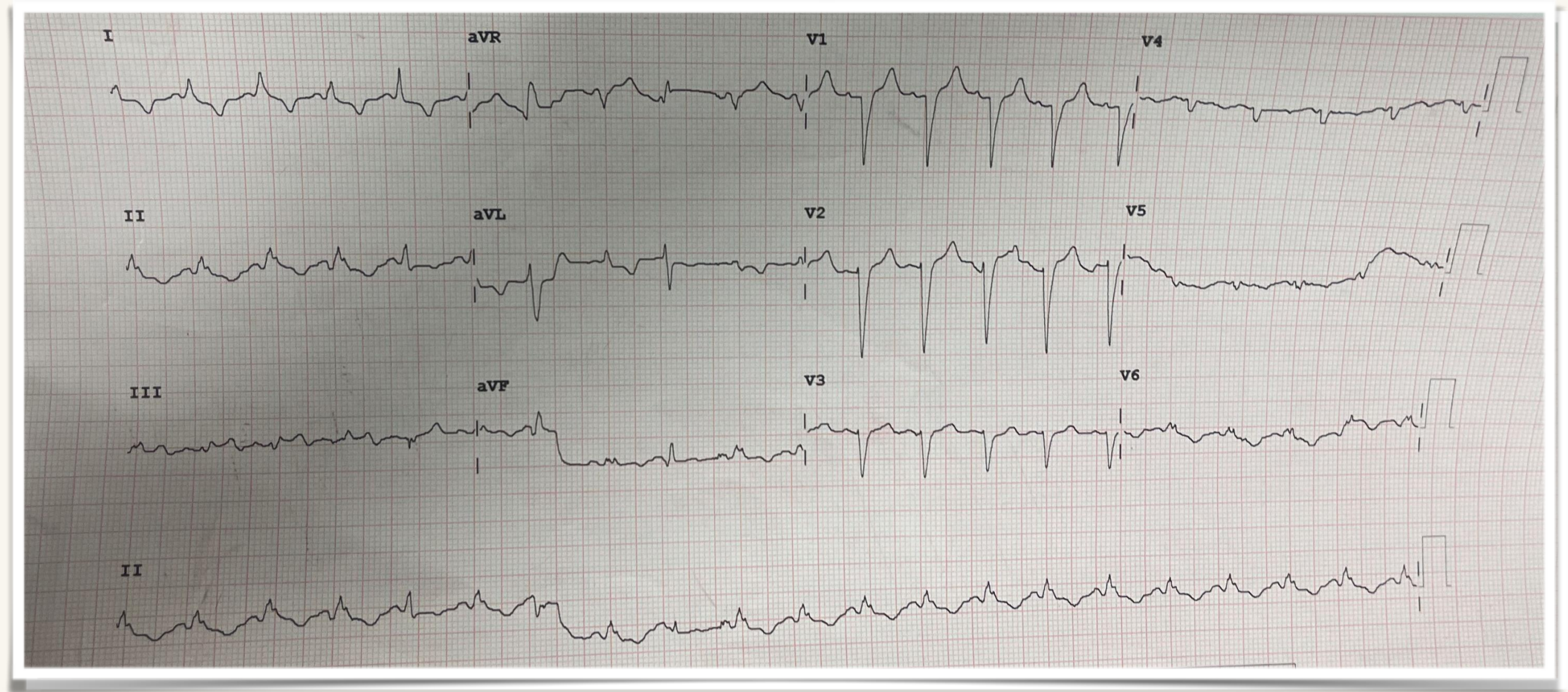
BSL

Urinary Ketones

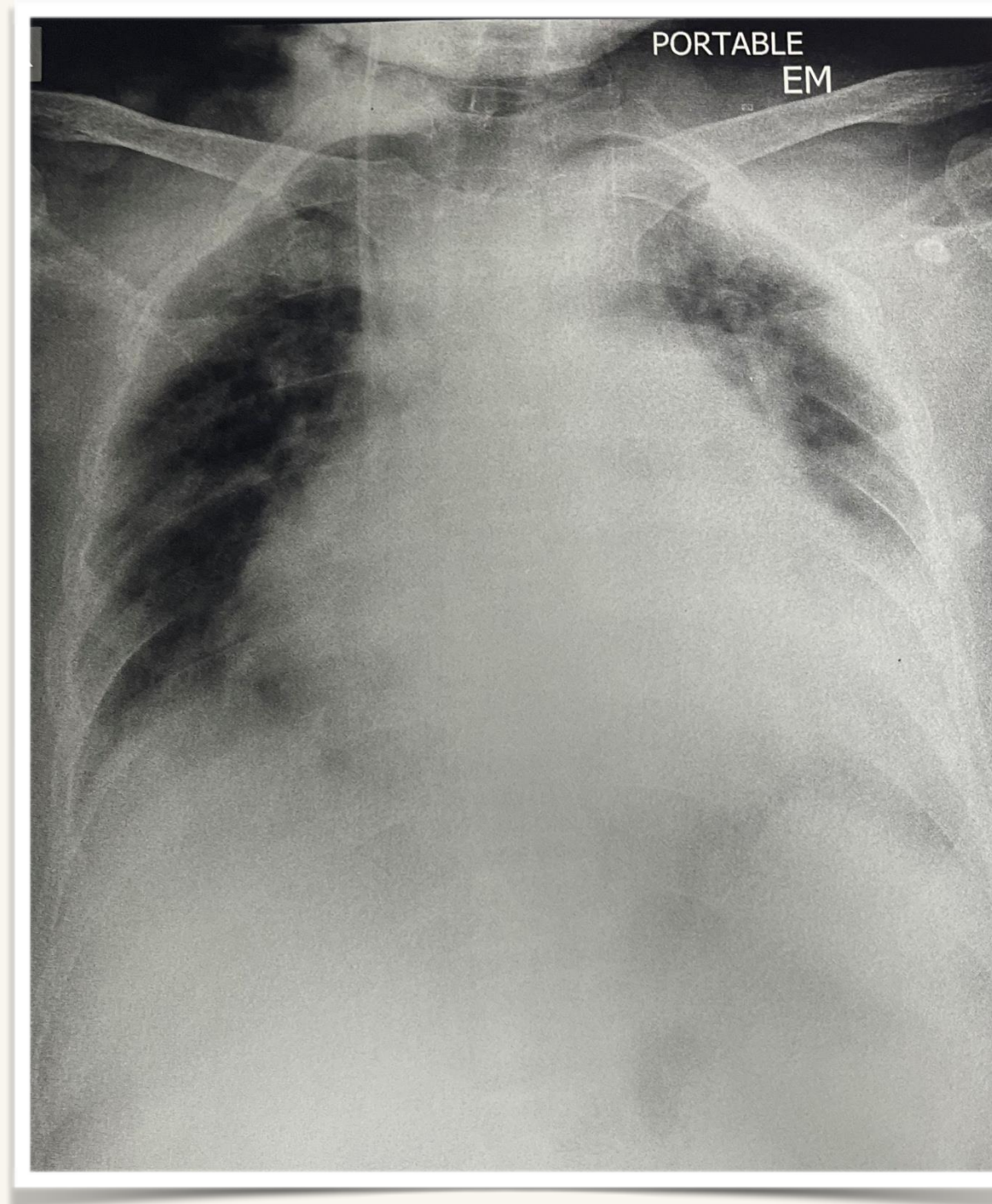
>600mg/dl

Negative

ECG



Chest Xray



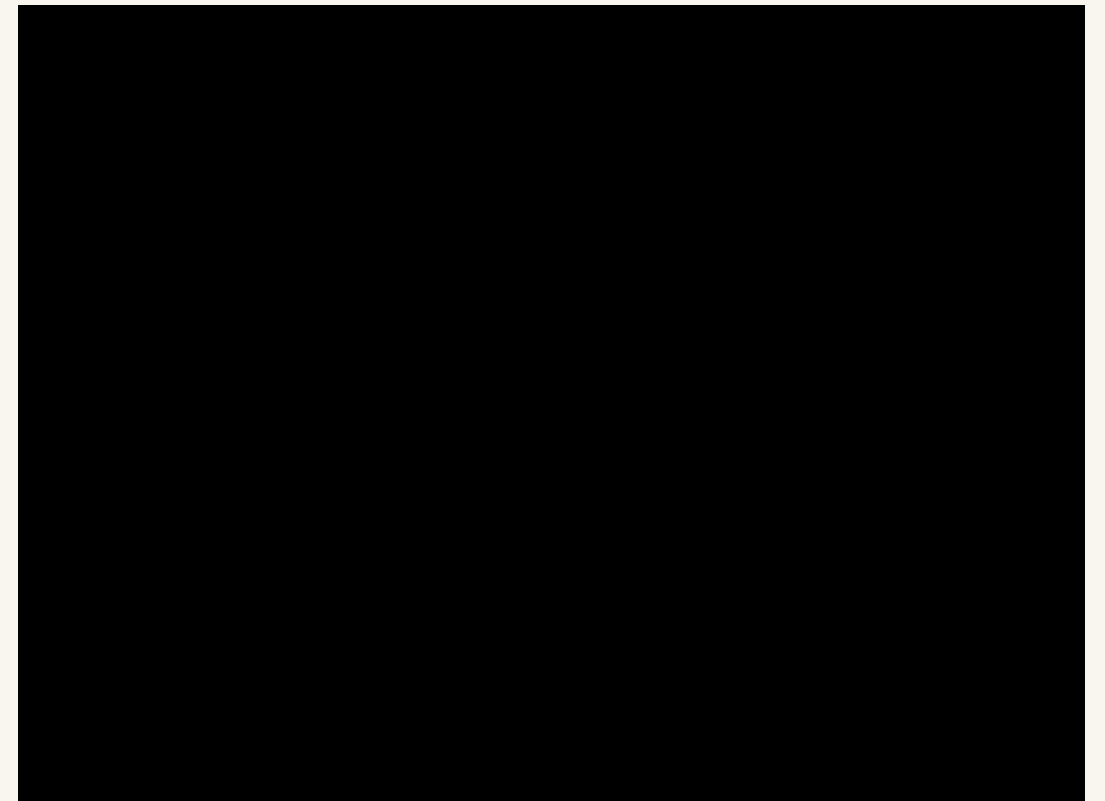
Systemic Examination

CVS - S1 S2+, no added sounds

RS - B/L coarse crepitations present

P/A - Soft distended, BS+

CNS - No FND. Reflexes and plantars - WNL. Pupils - BERRL



Investigations

Complete Blood Count	Hb- 8 g/dL WBC- 15,100 cells/mm ³ Platelet-1,12,000 cells/mm ³
Electrolytes & Osmolarity	Na - 130 mg/dL K - 5.4 mg/dL Cl- 98 mg/dL Ca - 7.90 (0.98) Mg - 2.60 mg/dL S. Osmolarity - 348mOsm/L
RFT	Urea - 291 mg/dl Creat - 5.52 mg/dl

Differentials

- ❖ Recurrent VT
- ❖ Hyperglycaemic Hyperosmolar State/Uremic Encephalopathy
- ❖ Pneumonia/Septic Shock
- ❖ ACS

Treatment

- ❖ Fluid Resuscitation
- ❖ Titrated Noradrenaline
- ❖ Insulin Infusion
- ❖ IV Antibiotics
- ❖ Antiarrhythmic - Amiodarone bolus f/b infusion
- ❖ IV Heparin

The Storm

- ❖ Patient went into another episode of Ventricular tachycardia



Cardioversion at 200 J



No Response

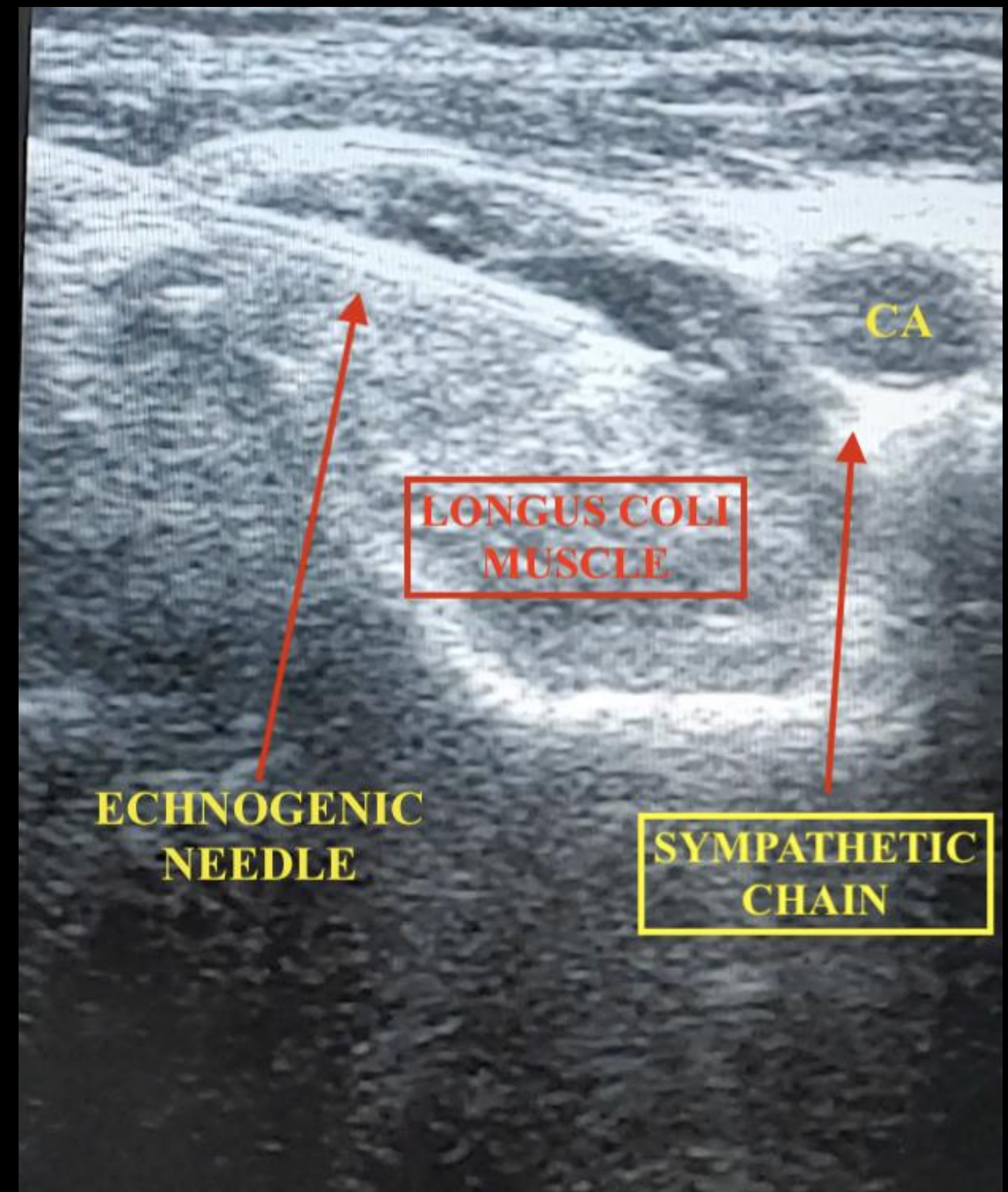
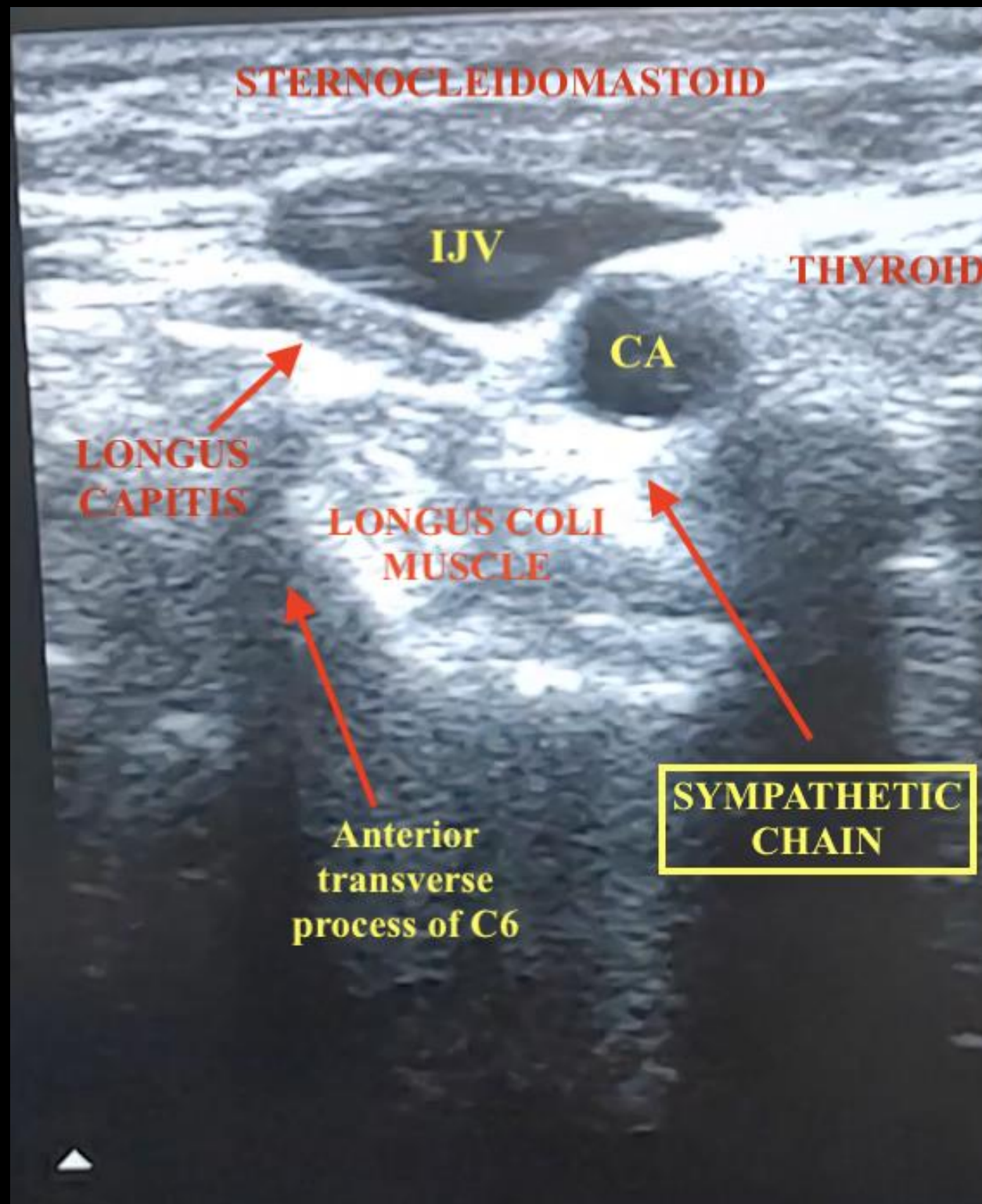


>20 episodes of cardioversion
+
Serial Antiarrhythmic Mediation

Stellate Ganglion blockade

- ❖ Left sided stellate ganglion blockade given.
- ❖ Extended to B/L blockade.
- ❖ Resolution of Ventricular tachycardia within 6 min of blockade

Electric Storm - Stellate Ganglion blockade



Discussion

Electrical Storm

Electric Storm

It is a life-threatening syndrome that involves recurrent episodes of ventricular arrhythmias.

It is defined as 3 or more sustained episodes of

- Ventricular tachycardia (VT),
- Ventricular fibrillation (VF) or
- ICD shocks

during a 24-hour period

Electric Storm - Arrhythmias

The relative distribution of arrhythmias encountered in ES is:

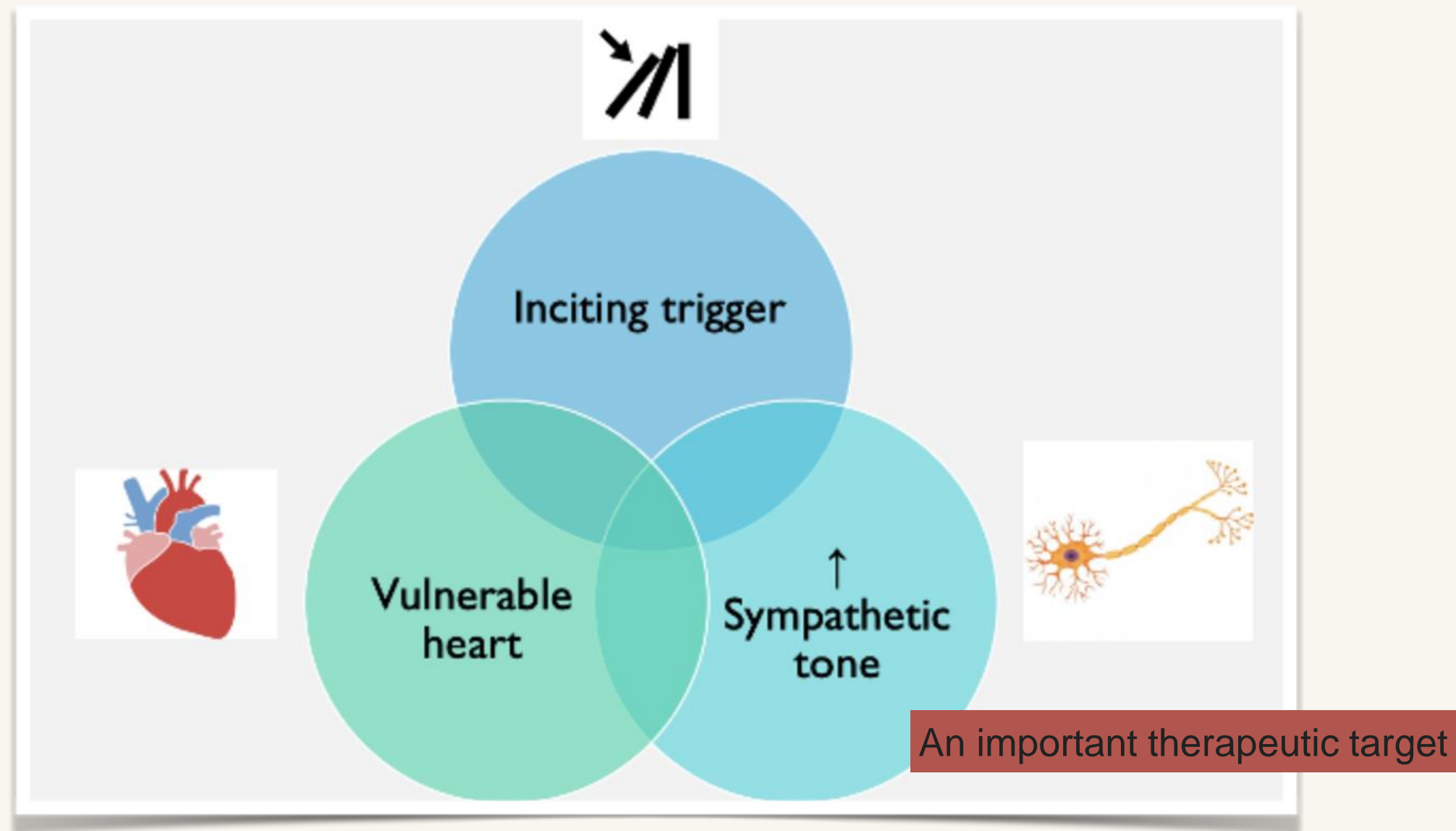
- Monomorphic VT- 86-97%
- VF- 1-21%
- Mixed VT/VF- 3-14%
- Polymorphic VT 2-8%

Electric Storm - Etiology

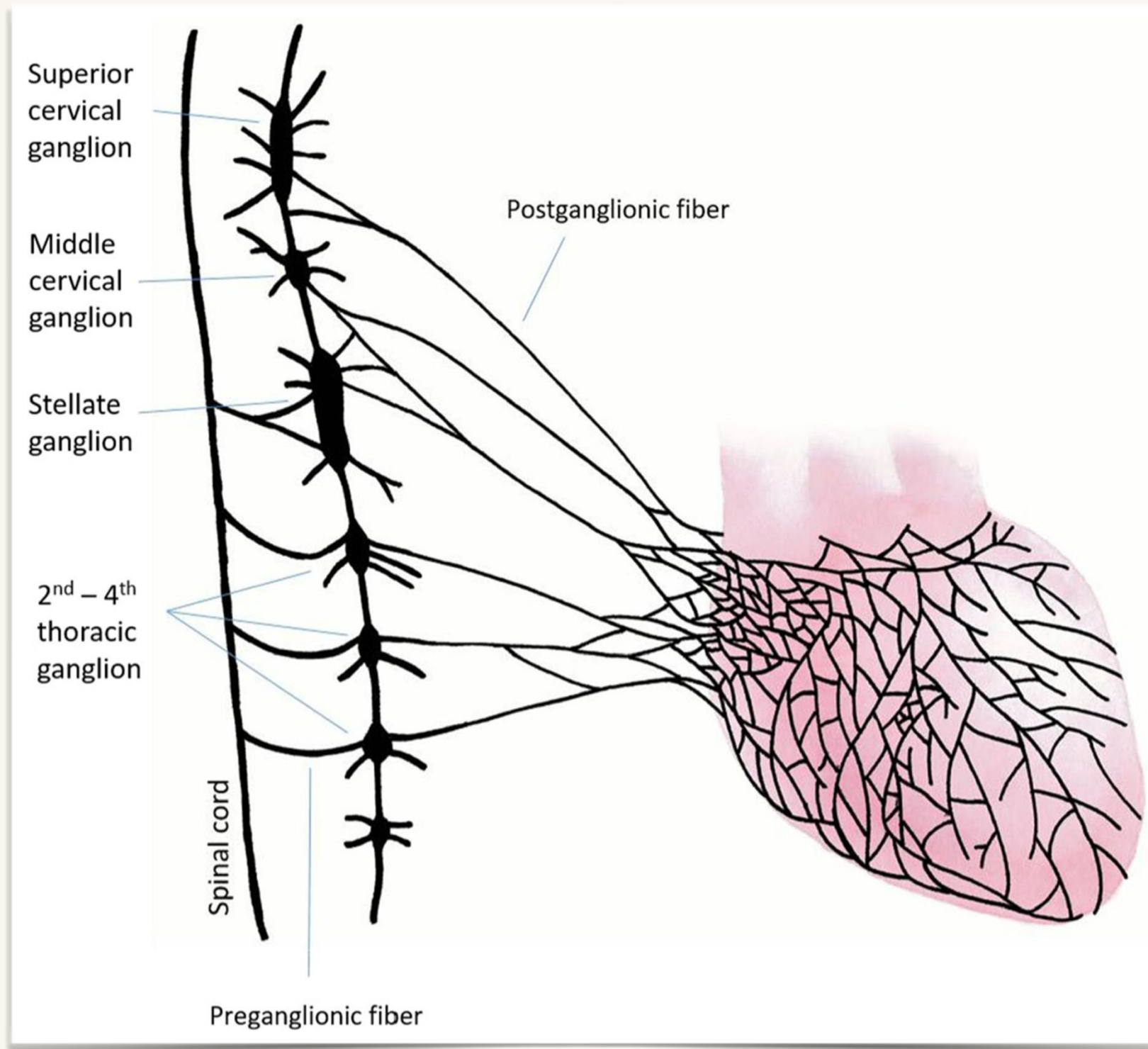
The causes of electrical storm can be classified into 2 categories:

1. Scar-mediated reentry due to previous MI
2. Reversible causes which including:
 - Acute ischemia
 - Acute decompensated heart failure
 - Electrolyte abnormalities (primarily hypokalemia and hypomagnesemia)
 - Drug toxicity or overdose, or recent changes to antiarrhythmic medication
 - Sepsis
 - Thyrotoxicosis

Electric Storm - Pathophysiology



Stellate Ganglion Blockade

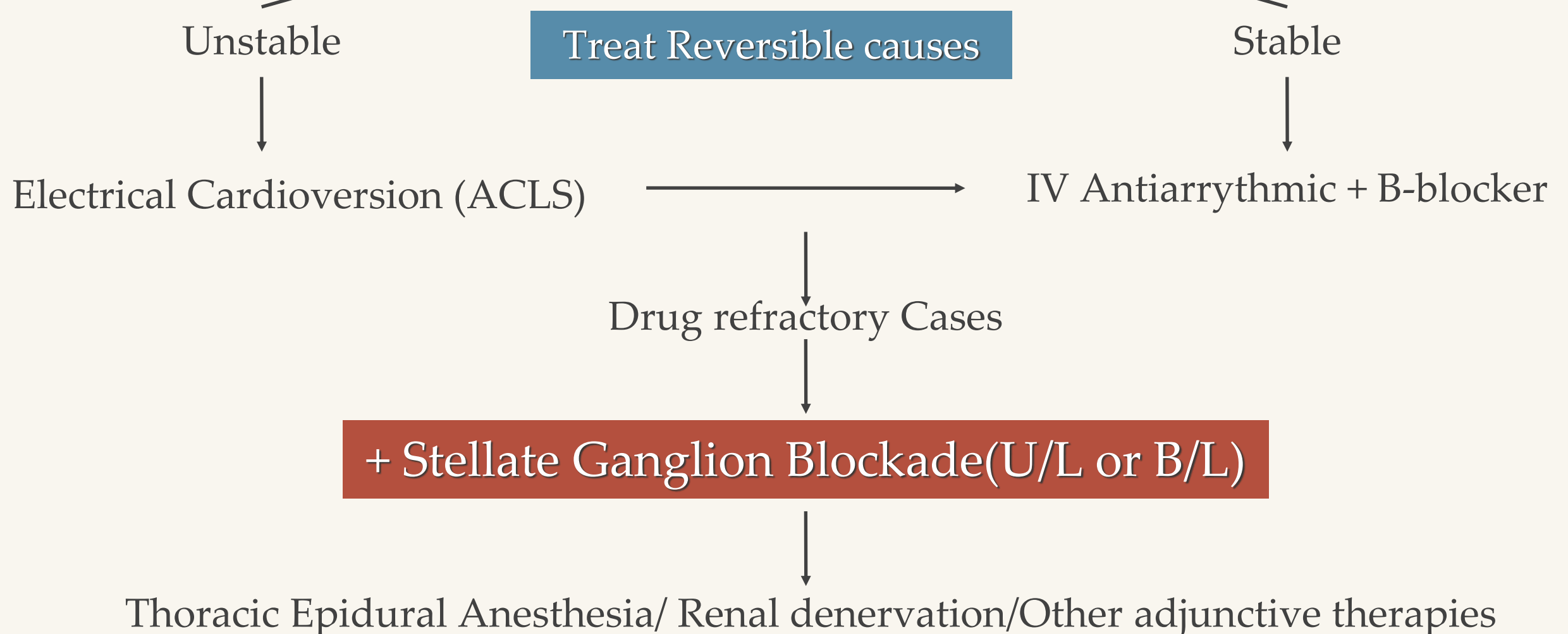


Stellate Ganglion Blockade

- Relatively recent addition to the electrophysiologic armamentarium
- Commonly used for treatment of chronic pain conditions like CRPS, orofacial pain, and post-mastectomy pain

Electric Storm - Treatment

Ventricular Arrhythmias



Circulation: Arrhythmia and Electrophysiology

ORIGINAL ARTICLES

Effective Use of Percutaneous Stellate Ganglion Blockade in Patients With Electrical Storm

Ying Tian, Erica D. Wittwer, Suraj Kapa, Christopher J. McLeod, Peilin Xiao, Peter A. Noseworthy, Siva K. Mulpuru, Abhishek J. Deshmukh, Hon-Chi Lee, Michael J. Ackerman, Samuel J. Asirvatham, Thomas M. Munger, Xing-Peng Liu, Paul A. Friedman and Yong-Mei Cha ✉

Originally published 13 Sep 2019 | <https://doi.org/10.1161/CIRCEP.118.007118> | Circulation: Arrhythmia and Electrophysiology. 2019;12:e007118



Treating Electrical Storm

Sympathetic Blockade Versus Advanced Cardiac Life Support–Guided Therapy

Koonlawee Nademanee, Richard Taylor, William E. Bailey, Daniel E. Rieders and Erol M. Kosar

Originally published 15 Aug 2000 | <https://doi.org/10.1161/01.CIR.102.7.742> | Circulation. 2000;102:742–747

Teaching points

- Percutaneous SGB is a relatively safe procedure performed at bedside.
- Anatomic proximity to multiple major vascular structures.
- Sonographic localisation of stellate ganglion is often not so clear in all patients.
- PC-SGB is highly effective in cases of excessive sympathetic drive. caution must be exercised when extrapolating these findings to more chronic forms of cardiomyopathy.

A close-up photograph of a medical procedure on a patient's neck. A yellow, handheld medical device is being used to guide a needle into the skin. A hand is visible holding the device. The patient's head is tilted back, and their hair is visible. The background is blurred, showing a clinical setting.

“Anythings’ possible if you’ve got
enough nerve”

—— J.K. Rowling ——