

ED QUICK QUIZ

WHAT IS THE DIAGNOSIS?

BACKGROUND

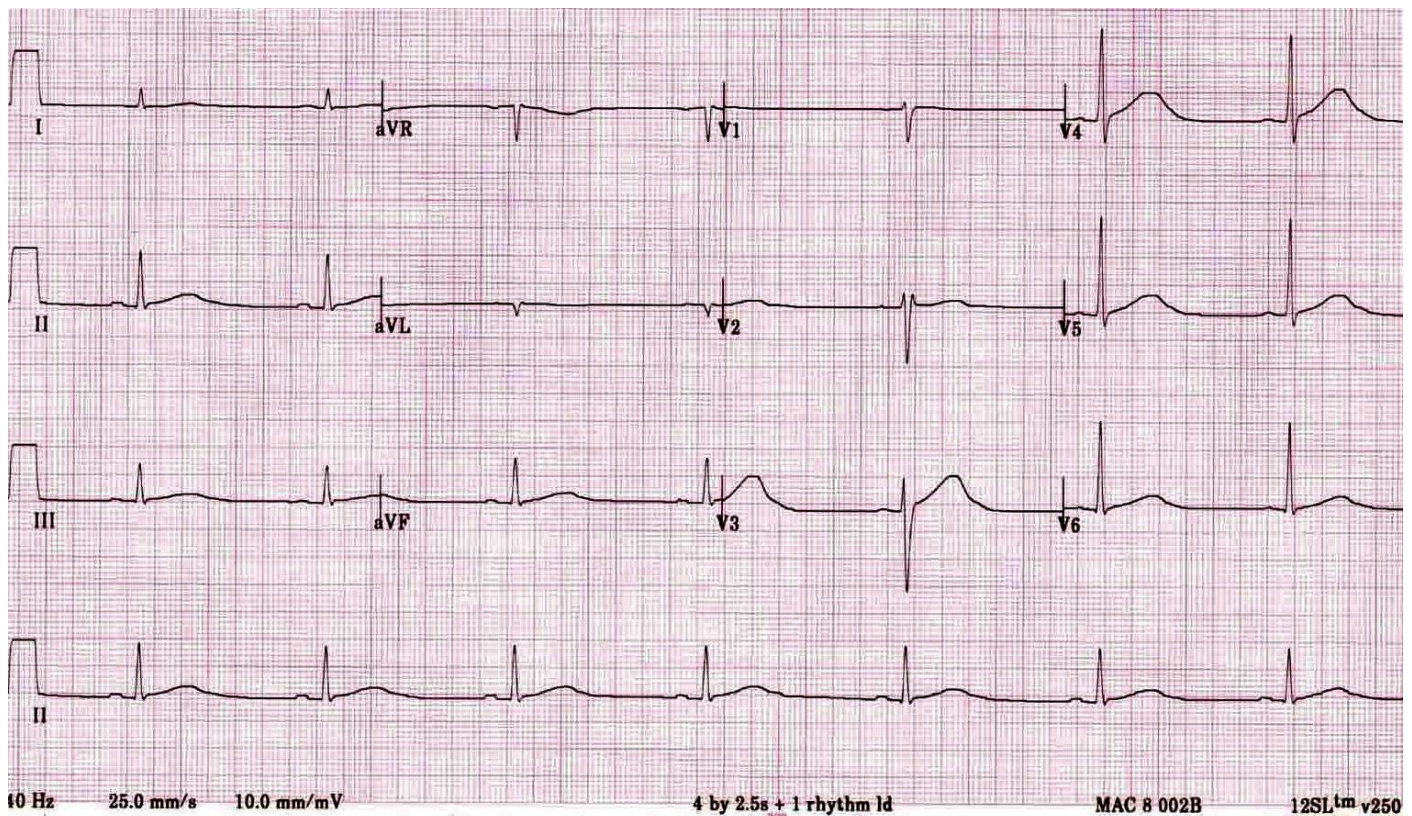
24 year old female presenting to the emergency department at 3:00 with an intentional overdose of propranolol. Known recurrent attendances for DSH. Patient is unwilling to state amount of medication ingested, if any co-ingestions present nor a give time course of events.

ASSESSMENT

Observations include : HR 45, RR 12, SaO₂ 94% on RA, BP 92/62

Patient maintaining her own airway. Good air entry to both lung fields. Pulses present with a regular bradycardia with auscultation showing no added heart sounds. Capillary refill less than 2 seconds. BM = 7.0.

GCS : 14/15 E: 4 M: 6 V:4



QUESTIONS

1. What is the cause of current presentation?
2. What are the next steps in evaluation?
3. What is the initial treatment?

ANSWERS & DISCUSSION

1. β -adrenergic blocker toxicity

β -blockers undergo first pass metabolism in the liver leading to reduced bioavailability following ingestion compared to intravenous preparations. Propranolol is highly lipophilic causing possible CNS penetration and toxicity secondary to Na^+ channel blockade making toxic exposures associated with the highest rate of fatality amongst β -blockers, and these patients may present with seizure activity.

Peak effects vary between β -blocker preparations. Individuals may experience life-threatening bradycardia or CNS effects as soon as within 30 minutes of exposure. Patients ingesting delayed-release preparations are often initially asymptomatic with a period of toxicity lasting up to 24 hours.

2. **Evaluation:**

Assess using an ABCDE approach. Obtain venous access. Initiate cardiac monitoring.

ECG: Evaluate for bradycardia, AV blocks, and QRS widening (secondary to Na^+ blockade), or alternatively sinus or ventricular tachycardias.

Determine a blood glucose level.

Take a history. Attempt to get information specifically regarding the details of exposure.

Evaluate for any co-ingestions as applicable (serum ETOH, serum salicylates, and serum paracetamol)

3. **Treatment:**

Initiate immediate fluid resuscitation.

Atropine is advised for symptomatic bradycardia. Give a dose of 0.5 – 1 mg IV bolus.

If patient develops refractory hypotension consider intravenous calcium. Give a dose of 3g from 10% Calcium Gluconate (30 mL) IV bolus.

Glucagon may be used due to both inotropic and chronotropic effects which function independently of β -adrenergic stimulation; allowing it to counteract β -blocker induced hypoglycemia and can be utilized as a bridge to high-dose insulin therapy, if needed.