Drug Name: Procainamide
Trade Name: Pronestyl, Procan
Class: Antidysrhythmic (Class IA)

Mechanism of Action:
Suppresses ectopy in atrial & ventricular tissue, has little use on arrhythmias of nodal origin.
In normal ventricular muscle and Purkinje fibers, it suppresses phase 4 diastolic depolarization thus reducing the automaticity of all pacemakers.
It also slows intraventricular conduction, thus suppressing reentry arrhythmias.
If there is ischemic tissue and conduction is already slowed, procainamide may further slow conduction and produce bi-directional block and may terminate reentry dysrhythmias.
Potent vasodilator.
Decreases chronotropy, excitability, negative dromotrope. Modest negative inotrope.

Indications:
Refractory and recurrent VF, pulseless VT
Stable monomorphic or polymorphic VT
Wide-complex tachydysrhythmias of uncertain type
Malignant, refractory PCVs
Supraventricular Dysrhythmias including: PAC, PAT, A-Fib, A-Flutter, WPW

Contraindications:
Procainamide is mutually contraindicated in presence of TCA overdose and/or Amiodarone use.
AV blocks (especially 2nd and 3rd degree) (unless controlled by a pacemaker)
Torsades or QT prolongation
TCA poisoning (prolonged QT interval)
Previous (recent) use of Amiodarone
Shock

Precautions:
Hypokalemia
Hypomagnesemia
Pregnancy (C)
CHF (Listed as a relative contraindication in one source, accumulation of drug can lead to toxicity)
Digitalis toxicity (Listed as a relative contraindication in one source)
Hepatic / renal dysfunction (accumulation of drug can lead to toxicity)
Lupus (can precipitate an episode of SLE)
Myasthenia Gravis (can exacerbate muscular weakness)
**Dosage:**

**Adults:**
OPTIONAL BOLUS IN ARREST SITUATIONS: 100 mg IVP every 5 minutes.
Initial infusion IV: Mix 1 g in 50 cc (20mg/cc) buritrol. Run 20-50 mg/min (60-150 gtts/min) until:
- Max of 17 mg/kg
- QRS widens by 50%
- Rhythm resolves
- Hypotension develops
Maintenance infusion: Mix 1 g /250 cc of NS. Run at 1-4 mg/minute (15-60 gtts/min.)

**Pediatrics:**
Perfusing ventricular arrhythmias-- 15 mg/kg IV over 30—60 minutes. PALS does not recommend procainamide for pulseless VF/VT.

**Onset:**
IV—peak at 10-30 minutes

**Duration:**
IV--3-6 hours

**Side Effects:**
- Bradycardia
- Reflex Tachycardia
- Hypotension, Dizziness
- AV Blocks
- Dysrhythmias
- Conduction delays (prolonged PR interval, QT interval, or widened QRS)
- Respiratory depression/arrest (usually with too rapid or excessive doses)
- Cardiac arrest (usually with too rapid or excessive doses)

**Interactions:**
Additive or Antagonistic when used with other antidysrhythmics
Additive with anticholinergics (antidepressants (REMEMBER TCAs), atropine, antihistamines, haloperidol).
Use with caution in patients taking antihypertensives.
Can potentiate the effects of depolarizing or non-depolarizing neuromuscular blockers.

**PEARLS:**
- With rapid injection, hypotension is common; constantly monitor blood pressure when administering in non-cardiac arrest settings
- The duration of Procainamide’s effect is shorter than Lidocaine, thus establishing an infusion is essential