

ANTI-ARRHYTHMIC DRUGS

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Anti-arrhythmic drugs

1. Class I: Sodium channel blockade
2. Class II: Beta-blockers
3. Class III: K channel blockers
4. Class IV: Calcium channel blockade.

Classification of Anti-arrhythmic drugs

1. Class 1 (Na channel blockers):

These act on phase 0 and have membrane stabilizing (Local Anaesthetic effect). They are divided into the following subgroups:

Class 1A: increase action potential duration e.g. quinidine, disopyramide, procainamide

Class 1B: decrease action potential duration e.g. Lignocaine, Mexiletine, Phenytoin

Class 1C: has negligible effects on action potential duration e.g. Flecainide

2. Class II (Beta-blockers):

- These act on phase 4 of action potential
- **Propranolol, Esmolol** are examples

3. Class III (K channel blockers):

- These drugs lengthen refractoriness and prolong action potential duration by acting on phase 1, 2 & 3
- **Amiodarone, Bretylium**

4. Class IV (Ca-channels blockers):

- These act on phase 2 of action potential
- **Verapamil** is an example

Drug	class	Main adverse effects
. Disopyramide	1A	.Anti-muscarinic effects <u>.hypotension</u>
Quinidine	1A	<u>.Hypotension</u> . heart failure
. Procainamide	1A	.with prolonged use (drug-induced SLE) <u>.Hypotension</u>
. Lignocaine	1B	<u>hypotension</u> , sleepiness, confusion and convulsions with high doses.
Mexiletine	1B	tremor, ataxia, dysarthria & <u>hypotension</u>
Phenytoin <u>Note :useful in digitalis induced arrythmia</u> Phenytoin	1B	

Amiodarone	3	Corneal microdeposit (photophobia), photosensitivity, Thyroid disorders Pneumonitis or pulmonary fibrosis & hepatitis
Bretylium	3	
Verapamil	4	Headache, constipation, Hypotension, bradycardia
Adenosine	Other Anti-arrhythmic agents	bronchospasm (avoided in asthma), flushing and chest pain
Digoxin	Other Anti-arrhythmic agents	Digoxin has a narrow therapeutic index. Manifestations of digoxin toxicity include: Cardiac effects: arrhythmias and heart block GI effects: nausea and vomiting. CNS effects: headache, confusion, nightmares, psychosis, coloured vision

Summary of drug therapy of main types of arrhythmias:

- **APC:** choice: a **beta-blocker** if symptomatic
- **PVC:** choice: **Disopyramide**, Lignocaine, Flecainide
- **Atrial fibrillation:** choice: **Propranolol**, **amiodarone**, **digoxin**
- **SVT:** choice: **Beta-blocker**, **verapami**, adenosine
- **Ventricular tachycardia:** choice: **Lignocaine**, **amiodarone**