

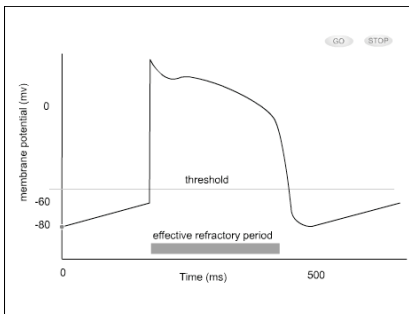
Antiarrhythmic Drugs

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arrhythmias

- = dysrhythmias
- abnormal cardiac rhythm
- may be spectacular but not significant

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arrhythmia mechanisms

- delayed afterdepolarisation
- re-entry
- abnormal pacemaker
- heart block

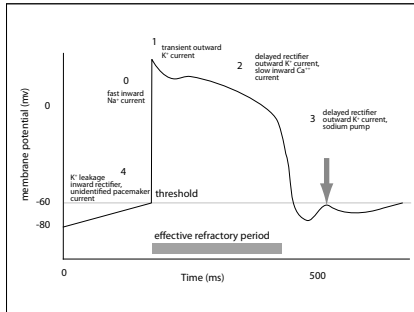
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arrhythmias

- **delayed afterdepolarisation**
 - excess intracellular calcium
 - excess adrenergic stimulation
 - digitalis overdose
- **re-entry**
- **abnormal pacemaker**
- **heart block**

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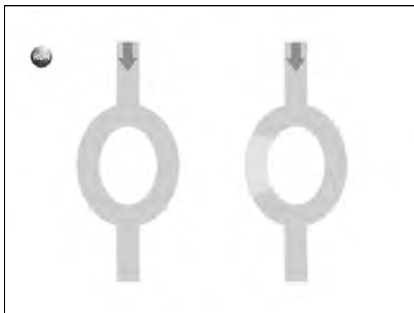
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arrhythmias

- **delayed afterdepolarisation**
- **re-entry**
- **abnormal pacemaker**
- **heart block**

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arrhythmias

- delayed afterdepolarisation
- re-entry
- abnormal pacemaker
- heart block

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7 year old mare



- gradual loss of performance
- unwilling to gallop
- coughs

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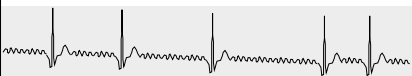
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examination

- irregular pulse
- pulse rate 24 bpm
- otherwise normal

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ECG lead II



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problems

- **atrial flutter / fibrillation**

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treatment?

- **identify and remove cause**
- **establish goals of treatment**
- **decide on best treatment**

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treatment?

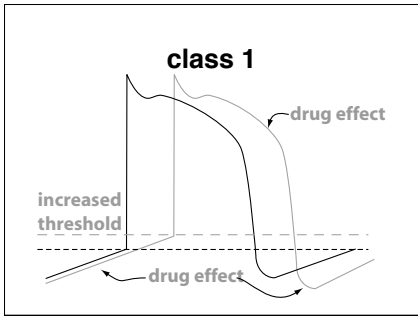
- **antiarrhythmics**
 - quinidine

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Vaughan Williams

- **1 sodium channel blockers**
- **2 β blockers**
- **3 potassium channel blockers**
- **4 calcium channel blockers**
- **others**

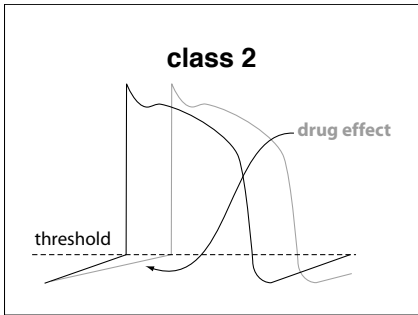
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- class 1**
- 1a - quinidine
 - 1b - lignocaine
 - 1c - flecainide

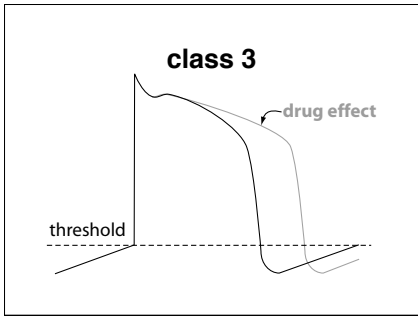
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- class 2**
- propranolol
 - labetalol
 - atenolol
 - esmolol
 - etc,etc

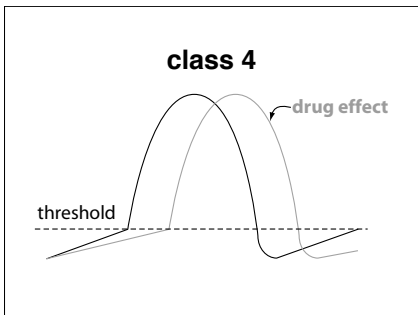
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- class 3**
- amiodarone
 - bretylium
 - sotalol

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- class 4**
- verapamil - iv
 - diltiazem - po

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others

- muscarinic antagonists
- digoxin
- isoprenaline
- adenosine
- calcium
- magnesium

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antimuscarinics

- atropine
- glycopyrrolate
- bradyarrhythmias

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digoxin

- AF with tachycardia

27

isoprenaline

- bradyarrhythmias
- last resort when pacemaker not available

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adenosine

- supraventricular tachycardias

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calcium

- hyperkalaemia only
- sort out K⁺ as well!

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magnesium

- blocks Ca⁺⁺ channels
- use proper channel blocker instead

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non drug methods

- pacing
- dc cardioversion
- CPR

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dog under anaesthesia



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history

- 2 yr old, no obvious problems
- submandibular lymph node biopsy

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routine monitoring

- irregular pulse, 35 bpm
- saturation 97%
- ET CO₂ 4.1kPa
- depth - light

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ECG lead II



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problems

- **sinus bradycardia**
 - vagal stimulation?

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treatment

- **do nothing**
- **atropine**

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antiarrhythmics

- class 1 sodium channel blockers - 1a atrial fibrillation
 - quinidine, 1b ventricular ectopic beats - lignocaine
- class 2 β blockers - tachyarrhythmias
- class 3 potassium channel blockers - resistant ventricular tachyarrhythmias
- class 4 calcium channel blockers - supraventricular tachyarrhythmias
- digoxin - atrial fibrillation in dogs
- adenosine - supraventricular tachyarrhythmias
- calcium - V tach from hyperkalaemia
- **all antiarrhythmics can make things worse!**

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