

## WEEK 3 – CARDIAC MEDICATIONS

Cardiac Glycosides	<p>Cardiac glycosides usually provide effective treatment for heart failure by exerting a positive inotropic action on the heart. In so doing, they <u>increase the force of myocardial contraction</u> and thereby improve the mechanical efficiency of the heart as a blood- pumping organ. This ultimately results in a reduction in heart size and increased blood flow to the kidneys.</p> <p>Cardiac glycosides also tend to exert negative heart rate and force actions on the heart, thereby making them potentially useful agents in the treatment of various cardiac arrhythmias/dysrhythmias.</p> <p><u>Cause the release of free calcium within the cardiac muscle cell, thereby potentiating the action of actin and myosin, the major myocardial proteins responsible for muscle contraction.</u></p>
Care of a patient on a cardiac Glycoside	<p>Cardiac glycosides have a low therapeutic index; i.e., the therapeutic dose is very close to the toxic dose. Needing close monitoring.</p> <p>Monitor for:</p> <ul style="list-style-type: none"> <li>- Gastric distress – nausea, vomiting, abdo pain</li> <li>- Neurological effects - restlessness, headache, lethargy, drowsiness and/or confusion and blurring of vision.</li> <li>- Hyperkalaemia</li> <li>- Renal impairment</li> </ul>
Anti-arrhythmic/antidysrhythmic agents	<p>Anti-arrhythmic medications act to diminish or obliterate rhythm disturbances by:</p> <ul style="list-style-type: none"> <li>- decreasing the automaticity of cardiac tissues distant from the SA node (i.e., at ectopic sites)</li> <li>- altering the rate of conduction of electrical impulses through the heart</li> <li>- prolong the refractory period of cardiac muscle between consecutive contractions.</li> </ul> <p><u>Class I - Sodium-channel blockers</u>  <u>Class II - Beta-blockers</u>  <u>Class III - Potassium-channel blockers</u>  <u>Class IV - Calcium-channel blockers</u></p>
Sodium-channel blockers	<p>These drugs bind to and block the fast sodium channels that are responsible for the rapid depolarisation.</p> <p>Slows heart rate by extending the time between depolarisation.</p>
Beta-blockers	<p>Their ability to block sympathetic (adrenergic) stimulation produces a reduction in heart rate, reduces the contractility and slows electrical conduction in the heart.</p> <p>Sympathetic stimulation increases heart rate, beta-blockers block sympathetic signals.</p> <p>Atenolol          Propranolol          Esmolol</p>