### Digoxin – Loading Dose Guide (Adults)

- Digoxin is indicated in the management of chronic cardiac failure. The therapeutic benefit of digoxin is greater in patients with ventricular dilatation.
- Digoxin is specifically indicated where cardiac failure is accompanied by atrial fibrillation.
- Digoxin is indicated in the management of certain supraventricular arrhythmias, particularly atrial fibrillation and flutter, where its major beneficial effect is to reduce the ventricular rate.

<table>
<thead>
<tr>
<th>Check the drug history</th>
<th>Digoxin-induced cardiac toxicity may resemble the presenting cardiac abnormality. If toxicity is suspected, a plasma level is required prior to giving additional digoxin.</th>
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<tbody>
<tr>
<td>When to use IV loading</td>
<td>The intravenous route should be reserved for use in patients requiring urgent digitalisation, or if patients are nil by mouth or vomiting. The intramuscular route is painful, results in unreliable absorption and is associated with muscle necrosis and is therefore not recommended.</td>
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| IV loading dose         | 500 to 1000 micrograms IV Reduce dose in elderly or weight < 50 kg, or cardiac failure, or renal impairment  
Prescribe and administer the loading dose in 2 portions with half of the total dose given as the first portion and the second portion 6 hours later. Write “LOADING Dose” on the prescription  
Add dose to 50 - 100mL of Sodium chloride 0.9% or glucose 5%  
Administer using a rate controlled infusion pump over 2 hours  
Do NOT give as a bolus |
| Oral loading dose       | 500 micrograms PO then a further 500 micrograms 6 hours later  
Write “LOADING DOSE” on the prescription  
Then assess clinically and prescribe maintenance dose if indicated |
| Warning                 | The loading doses may need to be reduced if digoxin or another cardiac glycoside has been given in the preceding two weeks.  
The elderly are more susceptible to toxicity |
| Oral Maintenance dose   | Revert to oral therapy as soon as possible  
Usual range is 125 to 250 micrograms OM (atrial fibrillation or flutter)  
62.5 to 125 micrograms OM (heart failure for patients in sinus rhythm)  
Reduce dose in renal impairment |
| Bioavailability         | 125 microgram tablet is bioequivalent to 125 microgram elixir (50 micrograms/mL) and to 100 microgram injection |
| Ideal sampling time     | At least 6 hours post IV dose  
At least 6 hours post PO dose, or pre-dose |
| Routine levels are NOT recommended. Reasons to check level: | Renal impairment, lack of response, interacting medication started or stopped, symptoms of toxicity |
| Therapeutic drug monitoring | Accepted therapeutic range = 0.9 to 2.0 micrograms per litre |
| Toxic effects           | Nausea, vomiting, diarrhoea, visual disturbances, arrhythmias – typically ventricular extrasystoles and atrial tachycardia with varying AV block, sinus bradycardia |
| Monitoring              | Monitor ECG, heart rate and blood pressure  
Cardiac side-effects of digoxin are increased by acidosis, hypokalaemia, hypomagnesaemia, hypercalcaemia, hypoxia and hypothyroidism |
| Major factors influencing serum levels | Renal impairment, congestive heart failure, hyperthyroidism, hypothyroidism.  
Interacting medicines e.g. amiodarone, amphotericin, ciclosporin, dronedarone, diltiazem, diuretics, hydroxychloroquine, lercanidipine, nicardipine, nifedipine, verapamil, quinine, St John’s wort.  
This is not an exhaustive list. Refer to the BNF or Ward Pharmacist |