

GDL15

DIGOXIN PRESCRIBING REGIMEN

1.0 Procedure Statement (Purpose / Objectives of the Procedure)

Digoxin is a cardiac glycoside that increases the force of myocardial contraction and reduces conductivity within the atrioventricular node. Digoxin is used to manage atrial flutter/fibrillation and heart failure. It has a narrow therapeutic index, thus careful dosing and sometimes monitoring is necessary.

Aim

To assist with the prescribing and monitoring of digoxin. This guideline is intended for use in adult patients only.

2.0 Accountabilities

This document will be managed by the cardiology directorate.

3.0 Procedure/Guidelines Detail / Actions

<p>DIGOXIN PREPARATIONS 62.5mcg/ 125mcg/ 250mcg tablets 250mcg/5ml elixir 500mcg in 2mL ampoule</p>
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Atrial fibrillation

<p>Loading dose (rapid digitalisation)</p>	<p>Oral – 750-1500 micrograms in divided doses over 24 hours, (<i>Usual practice is to give 500 micrograms followed by 500 micrograms 6 hours later. A further 500 microgram dose can be given 6 hours later if necessary</i>),</p> <p>Elderly/in renal impairment – reduce dose i.e. 750 micrograms in divided doses over 24 hours</p> <p><i>The intravenous route should be reserved for use in patients requiring urgent digitalisation, or in patients who are nil by mouth.</i></p> <p><i>All IV doses require ECG monitoring.</i></p> <p>IV – 750-1000 micrograms given in divided doses by intravenous infusion (Usual practice is to give 500 micrograms followed by 500micrograms 6 hours later).</p>
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	Elderly/in renal impairment – reduce dose i.e. 750 micrograms in divided doses over 24 hours
Maintenance dose	<i>Oral</i> – 125-250 micrograms ONCE a day , exercise caution and reduce dose in the elderly/in renal impairment.

Heart Failure

A loading dose is not required for heart failure.

Heart failure dose	<i>Oral</i> – 62.5- 250 micrograms ONCE a day . exercise caution and reduce dose in the elderly/in renal impairment.
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Bioavailability

If switching between formulations, the table below can be used for equivalent doses:

EQUIVALENCE		
62.5mcg tablet	50mcg elixir (liquid)	42mcg injection

Monitoring

<p>Therapeutic Drug Monitoring</p> <p>Serum digoxin concentration should be taken no less than 6 hours (ideally 8-12 hours) after last dose.</p> <p><i>AF – Target serum levels: 0.7 nanograms/mL - 2.0 nanograms/mL</i></p> <p><i>HF - Target serum levels: < 1.2ng/mL</i></p>	<p>Routine levels are not recommended.</p> <p>However, consider checking serum digoxin levels in cases of:</p> <ul style="list-style-type: none"> - Deteriorating renal function - Signs of toxicity (such as confusion, nausea, anorexia, severe dysrhythmias, or disturbance of colour vision). - Concomitant use of interacting medicines (for example amiodarone, diltiazem, or verapamil) - Poor adherence is suspected. - Thyroid disease (initial and maintenance doses of digoxin should be amended when thyroid function is abnormal) - Advancing age - Recent use of cardiac glycosides (preceding 2 weeks)
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<p>Toxicity</p>	<p>Digoxin toxicity can occur even when the serum digoxin concentration is within the therapeutic range always interpret results in the clinical context.</p> <p>The likelihood of toxicity depends on the serum concentration of digoxin.</p> <ul style="list-style-type: none"> -Levels less than 1.5ng/mL in the absence of hypokalaemia indicate that digoxin toxicity is unlikely. -Levels greater than 3.0 ng/mL indicate that digoxin toxicity is likely. - With levels between 1.5 ng/mL and 3.0 ng/mL, digoxin toxicity should be considered a possibility.
<p>Managing toxicity</p>	<p>If toxicity occurs, digoxin should be withdrawn. Serious manifestations require urgent specialist management. Digoxin-specific antibody fragments are available for reversal of life-threatening overdose.</p>
<p>Other monitoring</p>	<p>Heart rate, blood pressure, serum electrolytes (hypokalemia, hypomagnesaemia, and hypercalcemia can predispose patients to digoxin toxicity), renal function and thyroid function (hypothyroid patients are at increased risk of toxicity). ECG during IV administration.</p>

Contraindications

- intermittent complete heart block or second-degree atrioventricular block, especially if there is a history of Stokes-Adams attacks.
- arrhythmias caused by cardiac glycoside intoxication.
- supraventricular arrhythmias associated with an accessory atrioventricular pathway, as in the Wolff-Parkinson-White syndrome, unless the electrophysiological characteristics of the accessory pathway and any possible deleterious effect of digoxin on these characteristics have been evaluated. If an accessory pathway is known or suspected to be present and there is no history of previous supraventricular arrhythmias, digoxin is similarly contraindicated.
- ventricular tachycardia or ventricular fibrillation.
- hypertrophic obstructive cardiomyopathy, unless there is concomitant atrial fibrillation and heart failure but even then caution should be exercised if digoxin is to be used.
- hypersensitivity to the active substance or other digitalis glycosides.

4.0 Equipment Required

None required.

5.0 Training

This guideline is available on the intranet.

ECG training.

6.0 Financial Risk Assessment

1	Does the implementation of this document require any additional Capital resources	No
2	Does the implementation of this document require additional revenue resources	No
3	Does the implementation of this document require additional manpower	No
4	Does the implementation of this document release any manpower costs through a change in practice	No
5	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programs or allocated training times for staff.	No
	Other comments	

7.0 Equality Impact Assessment

Not applicable.

8.0 Maintenance

The cardiology directorate will ensure the document is reviewed at least every 3 years.

9.0 Communication and Training

This information will be disseminated to all relevant departments.

10.0 Audit Process

Criterion	Lead	Monitoring method	Frequency	Evaluation
Compliance with guideline	Cardiology governance	Datix	As incidents happen	Cardiology governance

11.0 References

NICE CKS – Digoxin prescribing information [Digoxin | Prescribing information | Atrial fibrillation | CKS | NICE](#)

ESC guideline – Heart Failure

ESC guideline – Atrial fibrillation

BNF

SPS Digoxin Monitoring [Digoxin monitoring – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice](#)

University Hospital Dorset Digoxin Guideline [Pharmaceutical Interventions \(nhsdorset.nhs.uk\)](#)

SPC Digoxin

Part A - Document Control

Procedure/ Guidelines number and version GDL15 Version 1.0	Title of Procedure/Guidelines Digoxin Prescribing Regimen	Status: Final		Author: Senior Pharmacist - Cardiac Services For Trust-wide Procedures and Guidelines Chief Officer Sponsor: Chief Medical Officer
Version / Amendment History	Version	Date	Author	Reason
	1.0	Nov 2024	Senior Pharmacist - Cardiac Services	Implementation
Intended Recipients: Nurses, doctors, allied health professionals				
Consultation Group / Role Titles and Date: Cardiology Governance				
Name and date of group where reviewed		Trust Policy Group – November 2024		
Name and date of final approval committee (if trust-wide document)/ Directorate or other locally approved committee (if local document)		Trust Management Committee – November 2024		
Date of Procedure/Guidelines issue		December 2024		
Review Date and Frequency (standard review frequency is 3 yearly unless otherwise indicated – see section 3.8.1 of Attachment 1)		November 2027 (every 3 years)		

Training and Dissemination: Email/will be available on the intranet.	
Publishing Requirements: Can this document be published on the Trust's public page:	
Yes	
If yes you must ensure that you have read and have fully considered it meets the requirements outlined in sections 1.9, 3.7 and 3.9 of OP01, Governance of Trust-wide Strategy/Policy/Procedure/Guidelines and Local Procedure and Guidelines , as well as considering any redactions that will be required prior to publication.	
To be read in conjunction with:	
Initial Equality Impact Assessment: Yes Full Equality Impact assessment (as required): /NA If you require this document in an alternative format e.g., larger print please contact Policy Management Officer 85887 for Trust- wide documents or your line manager or Divisional Management office for Local documents.	
Contact for Review	Senior Cardiac Pharmacist
Monitoring arrangements	Datix
Document summary/key issues covered. A guideline to assist with the prescribing and monitoring of digoxin.	
Key words for intranet searching purposes	Digoxin