# 632FM.2 AMIODARONE FOR USE IN CARDIOLOGY
## Amber Shared Care Prescribing Guideline

**This protocol provides prescribing and monitoring guidance for amiodarone therapy in adults. It should be read in conjunction with the shared care responsibilities document, the Summary of Product Characteristics (SPC) available on www.medicines.org.uk/emc and the BNF.**

## 1. BACKGROUND FOR USE

Amiodarone has a limited but established place in the treatment of severe cardiac rhythm disorders where other treatments either cannot be used or have failed. It is a class III antiarrhythmic drug that reduces the incidence of arrhythmias by increasing the duration and refractory period of the cardiac action potential prolonging the QT interval. It also slows heart rate and cardiac action potential conduction through inhibition of beta receptors and ion channels in a similar manner to antiarrhythmic drugs from classes IA, II and IV.

**Amiodarone is now no longer recommended for use in permanent atrial fibrillation (AF) – GPs should stop treatment and follow Bucks AF rate control pathway guidelines.** Historically it was also widely used as a treatment for acute AF when it may have been started intravenously to treat an acute episode and then continued as long-term oral therapy.

## 2. CLINICAL INDICATIONS FOR USE

Amiodarone is used in the treatment of resistant cardiac rhythm disorders. Established indications for use are:

- Ventricular tachycardias when other drugs cannot be used – usually lifelong treatment.
- Paroxysmal atrial flutter and paroxysmal atrial fibrillation (PAF) when other drugs cannot be used.
- Post cardioversion/cardiac ablation for persistent AF. Amiodarone is usually recommended for 6 weeks but may be extended to up to 12 months following cardioversion. It may also be used for selected patients as pre-treatment if undergoing cardioversion or ablation.

Only a cardiologist/specialist should initiate treatment with oral amiodarone and duration of treatment should be clearly specified. Primary care is responsible for the ongoing monitoring of patients prescribed amiodarone.

## 3. DOSING INFORMATION

The standard oral loading dose for amiodarone is 200 mg 3 times daily for 1 week, reduced to 200 mg twice daily for a further week then 200 mg daily or the minimum dose required to control the arrhythmia.

Patients are sometimes ‘fast-loaded’ with amiodarone following ventricular tachycardia (VT) where the usual regimen is 400 mg three times daily for 7 days then 200 mg daily. This is an ‘off-label’ use of the drug.

The usual maintenance dose is 200 mg daily but in some cases 100 mg daily may be adequate. The decision on the most appropriate maintenance dose is the responsibility of the specialist.

## 4. TIME TO RESPONSE

Patients may demonstrate a response following initiation of amiodarone as this may result in chemical cardioversion. Alternatively, response may be observed following restoration of sinus rhythm after cardiac ablation or electrical cardioversion. The drug has a very long plasma half-life of 20 - 100 days, mean 50 days. For this reason, the medication must be initiated with a loading regimen. When stopped or doses are omitted drug levels fall slowly. This is an advantage if patients forget occasional doses but a disadvantage if side effects occur as it takes between 3 and 12 months for the drug to be completely excreted. As a result, clinical problems may occur up to a year following stopping amiodarone.

## 5. RESPONSIBILITIES

### 5.1 SECONDARY CARE CARDIOLOGY SPECIALIST RESPONSIBILITIES

- Only a cardiologist/specialist is to initiate treatment with oral amiodarone.
- Please ensure it is stated on ICE that the patient is due to initiate amiodarone. It is important that the laboratory is aware the patient is taking the medication in order that the correct tests can be completed.
- Amiodarone can cause serious and often delayed adverse reactions affecting the eyes, heart, lung, liver, thyroid gland, skin and peripheral nervous system. For this reason, it is good practice, where practicable, to ascertain that before treatment all these functions are normal.
- Complete pre-treatment baseline assessment below. Notify GP of the results along with the indication or reason for amiodarone use and duration of therapy.
  - ECG, BP (blood pressure) and pulse
  - U&Es (especially potassium and renal function)
  - Liver profile (liver function tests (LFTs))
  - Thyroid functions tests (TFTs) - Free T4 (fT4), free T3 (fT3) and thyroid stimulating hormone (TSH)
  - Assessment of normal lung capacity, which may be done by one of the following: Chest X-ray (CXR) **OR** forced expiratory volume in 1 second (FEV1) and forced vital capacity (FVC) **OR** chest examination - checking for crackles
- Review other medications prior to initiation and make the necessary adjustments to existing drug treatment as appropriate.

  If the patient is taking warfarin, reduce dose by at least 25% and ensure arrangements are in place for the international normalised ratio (INR) to be checked at least weekly during the first 7 weeks of treatment. Caution should be exercised in patients co–prescribed direct oral anticoagulants (DOACs) as there is potential for decreased clearance and therefore increased risk of bleeding reported with edoxaban and dabigatran.

  Review use if on concomitant digoxin and if necessary check digoxin levels 6 weeks after initiation of amiodarone in any patient at increased risk of toxicity e.g. if patient has co-existing significant renal impairment chronic kidney disease (CKD) stage 4/5 or taking other drugs associated with an increased risk hypokalaemia.
- Monitor the patient during initiation and for the first 8 weeks of treatment as clinically appropriate along with supplying the first 8 weeks of amiodarone from secondary care. As the frequency of most adverse effects is related to the total amiodarone exposure, the lowest effective dose should be prescribed.
- Provide the patient with an amiodarone patient information leaflet regarding their treatment with amiodarone and inform them of the risks of potential adverse effects and need to use regular sunscreen. Patient information leaflets can be found on the link above or the Buckinghamshire Healthcare NHS Trust website.
- Discuss any queries the GP may have regarding amiodarone therapy and review the patient promptly if the GP requests either a review regarding the ongoing treatment or requires advice regarding interpretation and management following electrocardiogram (ECG) report.
- Report any serious adverse effects to the Medicines and Healthcare Products Regulatory Agency (MHRA).

**Pacemakers:** Amiodarone is commonly used in patients with a pacemaker. It may increase the defibrillation threshold and/or pacing threshold in patients with an implantable cardioverter defibrillator or a pacemaker, which may adversely affect the efficacy of the device. The manufacturers recommend that regular tests are undertaken to ensure the proper function of these devices. These checks will be performed by the specialist.

## PRIMARY CARE RESPONSIBILITIES

- To ensure a clear diagnosis or indication for use of amiodarone is recorded and read coded in the patient's clinical records. Add a stop date to prescribing notes if appropriate.
- Check TSH and if abnormal fT4/fT3, LFTs as alanine aminotransferase (ALT) and/or aminotransferase (AST), urea and electrolytes (U&E) 6 monthly. (See algorithms 6.1 and 6.2 for the management of abnormal results under section 6 Drug Monitoring Requirements). Due to the long half-life of amiodarone, clinical problems (e.g. hyperthyroidism, photosensitivity) may occur/persist for up to a year after stopping the medication. TSH should be monitored for up to 12 months after discontinuation.
- Complete 6 monthly medication reviews of patients on amiodarone including screening for adverse effects, particularly pulmonary toxicity or arrhythmias and for potential interacting drugs (see sections 7 and 8). Patients should be counselled to report side effects from amiodarone treatment (refer to appendix 1 for suggested drug monitoring checklist).

  **It is the responsibility of the healthcare professional co-prescribing medication for a patient taking amiodarone to check for potential drug interactions.**
- Arrange for an annual ECG to check for QT prolongation, bradycardia and AF. Any concerns regarding interpretation of the ECG should be discussed with cardiology.
- In all cases refer for prompt follow up of side effects if:
  - the patient has symptoms of pulmonary toxicity (new/worsened cough or shortness of breath), arrange for a prompt ECG and CXR to exclude alternative diagnoses. Healthcare professionals should have a low threshold for suspecting amiodarone induced pulmonary toxicity (new/worsened cough or shortness of breath).
  - the patient reports new onset/worsening visual disturbances perform eye examination, if optic neuropathy/neuritis is suspected, refer urgently to ophthalmologist and discuss with patient's cardiologist.
  - the patient presents with a pro-arrhythmia, arrange urgent specialist appointment. Acute admission may be required.
  - bradycardia is detected. Bradycardia and heart block occur in 1 to 3% of patients receiving amiodarone. Amiodarone-induced pro-arrhythmia occurs in less than 1% of patients annually. Although almost all patients treated with the medication have prolongation of the QT interval, torsades de pointes is rare. Amiodarone therapy is contraindicated in patients with second- or third-degree heart block who do not have a pacemaker. Arrange for an ECG if bradycardia is detected and/or seek further cardiology advice.

## 6. DRUG MONITORING REQUIREMENTS

Monitoring at baseline and during initiation is the responsibility of secondary care. Further monitoring is the responsibility of primary care. See table 1 for monitoring details.

- Please ensure it is stated on ICE that the patient is prescribed amiodarone. It is important that the laboratory is aware the patient is taking the medication in order that the correct tests can be completed and to avoid erroneous interpretation.

**TABLE 1 SUMMARY OF DRUG MONITORING REQUIREMENTS FOR AMIODARONE***

| | Baseline | Ongoing Monitoring Frequency |
|---|---|---|
| History and examination | ♦ | Annually |
| Adverse effects[1] | ♦ | Every 6 months |
| Heart rate and ECG[2] | ♦ | Heart rate check annually. Arrange annual ECG. |
| TFTs[3] | ♦ | Check TSH every 6 months and for up to 12 months after discontinuation[3]. If TSH borderline abnormal, in 4 - 6 weeks repeat TSH and check fT4 and fT3. |
| U&Es | ♦ | Every 6 months |
| LFTs (ALT and/or AST) | ♦ | Every 6 months |
| Digoxin level (if applicable) | ♦ | Assess drug levels only if dose increased and/or toxicity is suspected. |
| INR (if applicable) | ♦ | More frequent monitoring of INR both during initiation (first 7 weeks) and following discontinuation of treatment. |
| CXR | ♦ | Only if any suspected pulmonary toxicity. |
| Eye examination | ♦ | Assess if new or worsening visual symptoms occur. |

*Adapted from UKMI. Suggestions for Drug Monitoring in Adults in Primary Care. https://www.sps.nhs.uk [6/11/2018]*

1. At each review visit ask about breathlessness and non-productive cough, related to possible pulmonary toxicity.
2. An ECG is useful for confirming transition from PAF to permanent AF which may occur 'silently' and for screening for heart block in the bradycardic patient. See also appendix 1.
3. Typically a TSH level is adequate for routine monitoring and, if normal, testing is complete. Follow-up for an abnormal TSH varies depending upon the direction of the TSH abnormality.

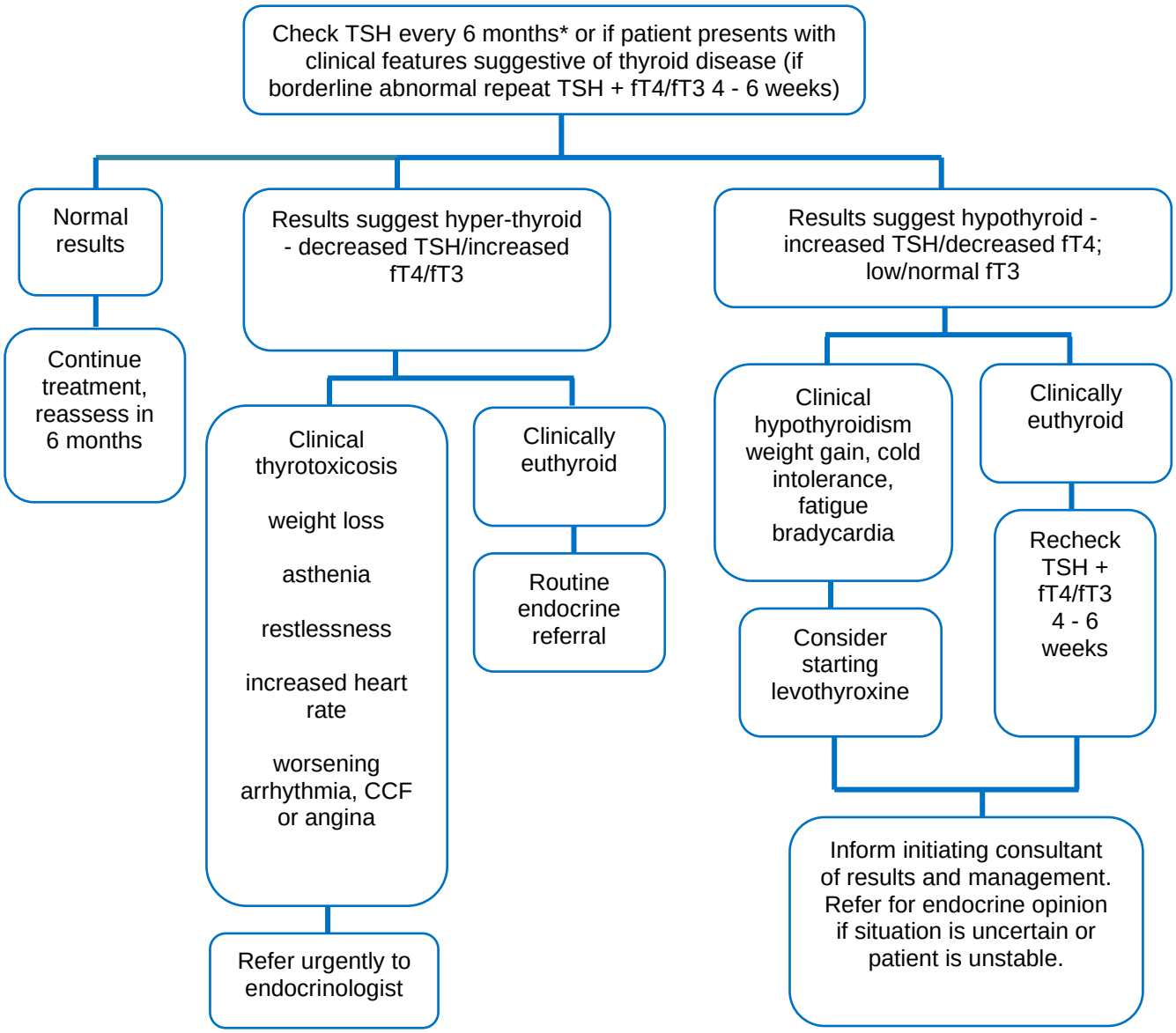
   Repeat test in 4 - 6 weeks if TFTs are borderline. If TSH is abnormal measure free T4 and free T3. NB. Measurement of free T3 is required for interpreting results when free T4 or TSH values are outside reference limits – please indicate on ICE blood test request patient is on amiodarone.

   - Hyperthyroidism - diagnosed if high free T4 associated with high or high/normal free T3 and undetectable TSH - prompt withdrawal of amiodarone and specialist referral.
   - Hypothyroidism - diagnosed by increase in TSH. Free T3 and T4 levels may also be low.

   An increase of up to 40% above the baseline T4 is a normal effect of amiodarone. This occurs approximately 1 month after initiation and does not require discontinuation if there is no clinical or further biological evidence (TSH) of thyroid disease. If TSH borderline repeat TSH plus fT4/fT3 in 4 - 6 weeks.

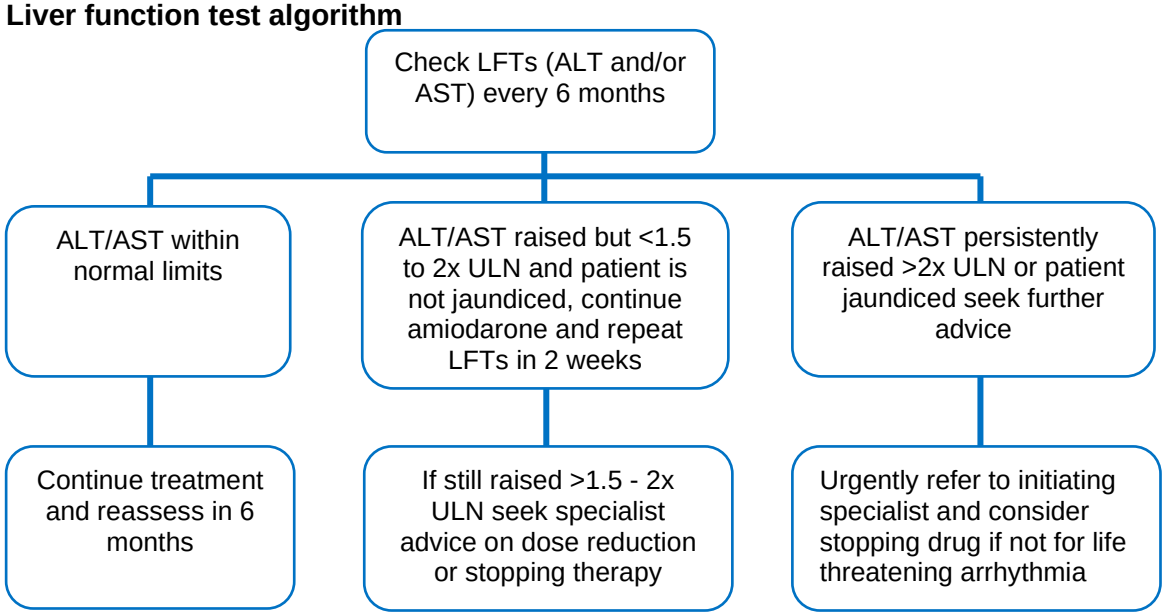
   After three to six months of amiodarone therapy, a steady state is usually reached in most patients who were euthyroid at baseline with serum TSH levels normalising and serum T4 levels remaining slightly elevated or at upper limits of normal (ULN).

### 6.1 Thyroid function test algorithm




* and for up to 12 months after discontinuation of amiodarone as hyperthyroidism may occur up to several month after discontinuation.

### 6.2 Liver function test algorithm



## 7. DRUG INTERACTIONS

Amiodarone inhibits metabolism through several cytochrome P450 pathways, causing interactions with many commonly used drugs leading to increased plasma levels. Due to the long half-life of amiodarone, the onset of drug interactions may be slow after initiating amiodarone, and interactions may be observed for several months after discontinuation of drug.

| **Concomitant use with amiodarone *contraindicated*** | |
|---|---|
| Anti-arrhythmics | Class Ia anti-arrhythmic drugs e.g. **disopyramide** and class III anti-arrhythmic drugs e.g. **Sotalol,** prolong the QT interval thus increasing the risk of torsades de pointes. |
| Antibacterial drugs | **Erythromycin** and **moxifloxacin** prolong the QT interval. Avoid combination. |
| Antidepressants | **Lithium** and most tricyclics e.g. **doxepin** and **amitriptyline** prolong the QT interval. Manufacturer of **citalopram** and **escitalopram** states concomitant use of class III antiarrhythmics (amiodarone) that prolong the QT interval is contraindicated. |
| Anti-psychotics | **Chlorpromazine, fluphenazine, pimozide, haloperidol, amisulpiride** and prolong the QT interval. |
| Antihistamines | **Astemizole** and **mizolastine** prolong the QT interval. |
| Antimalarials | **Quinine, mefloquine, chloroquine and hydroxychloroquine** prolong the QT interval. |
| **Concomitant use with amiodarone *not recommended* or should be *avoided*** | |
| Antivirals | *Avoid* combination therapy containing simeprevir and sofosbuvir due to risk of severe bradycardia and heart block, unless other antiarrhythmics cannot be given. |
| Beta-blocker | Potentiation of negative chronotropic properties and conduction slowing effects may occur. Concomitant therapy with amiodarone should only be started under the initiation of a cardiologist. |
| Calcium channel inhibitors | Rate lowering calcium channel inhibitors e.g. **diltiazem and verapamil** potentiate negative chronotropic properties and conduction slowing effects may occur. Concomitant therapy should only be started under the initiation of a cardiologist. |
| Antibacterial drugs | **Ciprofloxacin, levofloxacin, azithromycin and clarithromycin** may prolong QT interval. Concomitant use of amiodarone should be *avoided.* |
| Grapefruit juice | Grapefruit juice inhibits cytochrome P450 CYP3A and may significantly increase the plasma concentration of amiodarone. Advise regular consumption best avoided. |
| Laxatives (stimulant) | Stimulant laxatives e.g. **bisacodyl, senna** may cause hypokalaemia and increase the risk of torsades de pointes. Concomitant administration is *not recommended. Consider use of other laxatives.* |
| **Concomitant use with amiodarone are *cautioned*** | |
| Anticoagulants | **Warfarin** clearance is reduced. This can lead to sudden and pronounced increase in INR. Interaction reaches its peak in 7 weeks. Decrease warfarin dose by at least 25% and monitor the INR weekly, tailoring the warfarin dose to the INR target.<br>Amiodarone increases the exposure to **dabigatran** thus increase the risk of bleeding. Potential increase in exposure also reported with edoxaban (no dose adjustment required). No data for apixaban (possible interaction). No clinically significant interaction reported with rivaroxaban. |
| Anti-arrhythmics | Increased plasma levels of flecainide requiring at least 50% reduction flecainide dose. |
| Cardiac glycosides | Plasma level of **digoxin** approximately doubles over weeks after commencement of amiodarone. Halve digoxin dose and monitor digoxin level if clinically appropriate. |
| Ciclosporin and tacrolimus | Plasma levels of both ciclosporin and tacrolimus can be increased when amiodarone is used with either drug. Monitor plasma levels in all cases and adjust doses as clinically appropriate. |
| Drugs may cause hypokalaemia/ hypomagnesaemia | Caution should be exercised over combined therapy with drugs which may cause hypokalaemia and/or hypomagnesaemia e.g. **diuretics**, **corticosteroids**, **proton pump inhibitors, IV amphotericin, aminophylline, theophylline.** |
| Statins | Increased incidence of myopathy with **simvastatin** (maximum dose 20 mg a day) and atorvastatin (consider reduced dose). Pravastatin and rosuvastatin not associated with cytochrome P450 interactions. |
| Phenytoin | Plasma level of phenytoin increased with amiodarone. Monitor phenytoin levels and for neurological signs of overdose and reduce dose as required. |

This list is not exhaustive; refer to BNF and individual drugs SPC monographs at https://www.medicines.org.uk/emc for full list and details of interactions. Refer to the UK Meds Info (UKMI) Q&A factsheet for further information on drug induced prolongation of QT interval.

## 8. ADVERSE EFFECTS

The long half-life of amiodarone (25 to 100 days) and the potential severity of some of the adverse effects make early recognition important. As a result, careful monitoring of patients taking amiodarone is essential. **The minimum effective maintenance dose should be given because undesirable effects are usually dose related**. Because of long half-life of amiodarone, clinical problems may occur up to a year (e.g. photosensitivity) after stopping the drug (hyperthyroidism may occur up to several months after discontinuation).

| Adverse effect | Frequency | Management |
|---|---|---|
| Suspected pulmonary toxicity (suggested by new/worsening cough and/or shortness of breath (SOB)) | 2 to 17% (common) | **The diagnosis of amiodarone pulmonary toxicity is one of exclusion.** A non-productive cough and dyspnoea are present in 50 - 75% of cases at presentation. Pleuritic pain, weight loss, fever and malaise can also occur. Physical examination often reveals bilateral inspiratory crackles, while clubbing is not seen. Organise a CXR. If no clear cause for cough/SOB found, or if pulmonary toxicity is still a possibility, refer urgently to specialist for further advice. |
| Hyperthyroidism | 2% (common) | See algorithm. Ideally amiodarone should be withdrawn but discuss with cardiologist if for life threatening arrhythmia. Clinical recovery usually occurs within a few months of withdrawal and faster than normalisation of thyroid function tests. |
| Hypothyroidism | 6% (common) | See algorithm. Usually amiodarone therapy can continue in combination with levothyroxine. |
| Liver toxicity | 1% (common) | See algorithm. A transient rise in serum LFTs occurs in 15 to 50% of patients soon after starting treatment. Risk of liver injury occurs more likely with higher doses and prolonged therapy. Patients may be asymptomatic but typically develop symptoms of fatigue, nausea and weight loss without jaundice and are found to have hepatomegaly and mild-to-moderate elevations in ALT/AST. Symptomatic hepatitis occurs in less than 3% of cases; other potential complications include cirrhosis and hepatic failure. If LFTs are deranged amiodarone should be reviewed as per the algorithm above (see section 6.2). |
| Optic neuropathy | 0.13% (very rare) | If optic neuropathy/neuritis suspected, refer urgently to ophthalmologist and for further specialist cardiology advice. Appearance of optic neuropathy and/or optic neuritis usually requires prompt amiodarone withdrawal unless patient has a life-threatening arrhythmia, due to potential progression to blindness. |
| Corneal micro-deposits | >90% (very common) | Most patients on amiodarone develop this (reversible on withdrawal of treatment) which rarely interfere with vision but the driver may be dazzled by headlights at night. |
| Neurological symptoms (e.g. tremor, ataxia) | Common | Reduce dose. Rarely (in 0.3%) peripheral neuropathy may occur in people on long-term amiodarone. |
| Pro-arrhythmia | <1% (uncommon) | Stop amiodarone and seek further cardiology advice.<br>Incidence of pro-arrhythmia is very low and <1% for torsades de pointes. Torsades de pointes associated with amiodarone is more likely to occur in women and much more likely to occur with other factors that can cause QT prolongation such as hypokalemia, hypomagnesemia and other drugs known to prolong QT interval. |
| Bradycardia | 2 - 4% (common) | If symptomatic, severe (<50 bpm) or evidence heart block, seek urgent further cardiology advice. |
| Nausea, anorexia | 30% (very common) | Usually occurs with initial loading doses - consider reducing dosage. |
| Skin reactions | 10% (very common) | Skin reactions common with long-term therapy. Photo-sensitivity reactions can be treated with avoidance of sun exposure and use of sunscreen whilst on treatment and for up to one year after stopping therapy. Also a bluish-slate grey discoloration of the skin (so-called "blue man syndrome") usually most prominent on the face. |

## BACK-UP INFORMATION/ADVICE

| Contact Details | Telephone no | Email |
|---|---|---|
| BHT Cardiology Advice | Cardiologist advice service via ERS Advice and Guidance<br><br>Dr Piers Clifford<br>Tel: 01494 425004 | bht.cardiologysecswgh@nhs.net |
| Medicines Resource Centre | 01494 425355 | bucks.medicinesresourcecentre@nhs.net |

## SHARED CARE AGREEMENT FORM

Available on DocGen. When not available, use the Word version linked here.

## PATIENT INFORMATION LEAFLET

Amiodarone patient information leaflet found at the link here.

## REFERENCES


- EMC. Amiodarone Hydrochloride 200mg Tablets - Summary of Product Characteristics. Accessed via https://www.medicines.org.uk/emc/product/6018/smpc
- NICE CG180 Atrial Fibrillation: Management 2014. Accessed via https://www.nice.org.uk/guidance/cg180
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- ESC Practical Guide on Use of Non Vitamin K Antagonists in patients with AF March 2018 *European Heart Journal*, Volume 39, Issue 16, 21 April 2018, Pages 1330–1393, https://doi.org/10.1093/eurheartj/ehy136
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- Siddoway LA. Amiodarone: guidelines for use and monitoring. American family physician. 2003 Dec 1;68(11):2189–96.
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| Current Authors | Dr Piers Clifford, Consultant Cardiologist BHT<br>Ben Purkiss, Lead Pharmacist - Cardiovascular Services BHT<br>*For Buckinghamshire CCG:*<br>Jane Butterworth, Associate Director Medicines Optimisation<br>Andrea Hollister, Medicines Optimisation Lead<br>Roshni Kotecha, Medicines Optimisation Pharmacist<br>Dr Shona Lockie, Clinical Director MMT |
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**APPENDIX 1: SUGGESTED CHECKLIST TEMPLATE FOR AMIODARONE DRUG MONITORING**

Patient details:

| |
|---|
| Name<br>DOB<br>Emis / NHS No |

Indication:

Date amiodarone started:

Current dose and frequency of amiodarone:

| Tick | Health Checklist |
|---|---|
| | Regular prescription ordering pattern confirmed |
| | 6 monthly U&Es, LFTs and TFTs (TSH +/- T3/T4) taken and results checked within normal limits |
| | Check for any co-prescribed drugs increasing risk hypokalaemia e.g. stimulant laxatives, thiazide and loop diuretics (ideally aim for plasma potassium (K+) to be in top half of range) |
| | Screen for any drugs contra-indicated or best avoided with amiodarone. Check patient counselled not to take antibiotic erythromycin. |
| | Check patient aware of the potential side effects and when to seek further medical advice. Check use appropriate sunscreen. |
| | Has patient reported any new/worsened cough or shortness of breath since last review? |
| | Annual heart rate and rhythm check and arrange ECG.<br>If evidence of symptomatic bradycardia, prolongation of QT interval or permanent AF - Refer to Cardiology. |
| | Outcome of six monthly/annual review recorded in patient notes including confirmation ongoing need for amiodarone therapy |

Clinicians monitoring amiodarone may wish to consider the following:

Do you have a register?

Do you have a safe recall system?

How do you identify non-attenders?

How do you ensure that abnormal results are always followed-up?

Have all patients had a face to face annual medication review documenting details relating to amiodarone and confirmed continued need for drug?

## APPENDIX 2: GUIDELINES FOR REVIEWING LONG-TERM AMIODARONE TREATMENT

Although amiodarone is a very effective antiarrhythmic drug and safe in heart failure, its use is however limited by side-effects, some of them life-threatening. The risk of adverse effects associated with amiodarone increases with time and with dose. For this reason, it is recommended to periodically check the continued indications for use and, in particular, whether the drug is still appropriate and/or if there is scope for the dose to be reduced.

For existing patients being prescribed amiodarone, the following steps are recommended:

**Step 1: Establish the original indication for amiodarone therapy**

- paroxysmal atrial fibrillation (PAF)
- persistent/permanent AF
- ventricular tachycardia (VT)
- palpitations of uncertain cause

In all cases the clinician should determine the indication for amiodarone. GPs should check the coding of each patient prescribed amiodarone to determine the indication. Searches for amiodarone have been created on EMIS Enterprise under the medicines management folder section in order to facilitate review of patients.

**Step 2: Review diagnosis and ongoing need for amiodarone in light of current status. This may require asking for specialist cardiology review and advice.**

- For patients with non-AF coding, GPs should check coding and clarify indication.

**Ventricular arrhythmias**

- Patients with known ventricular arrhythmias should continue on amiodarone and do not require referral to the cardiologists. Patients with symptomatic ventricular tachycardia should remain on amiodarone long term unless experiencing development of significant side-effects. Patients with internal cardiac defibrillators (ICDs) may be on amiodarone to reduce the frequency of shocks.

**Atrial fibrillation**

- **Persistent and permanent AF** - Amiodarone is no longer recommended for rate control in AF. Patients with known persistent or permanent AF should be referred to the cardiologists for consideration of stopping.
- **Paroxysmal AF (PAF)** - Patients prescribed amiodarone for PAF should be reviewed to confirm that this has not developed into permanent AF. If the patient has developed permanent AF, refer to cardiology for consideration of alternative rate control strategies or ablation.

  The natural history of PAF is for the condition to become chronic at some stage (25% in 5 years). This may happen 'silently'. AF can be considered permanent when the patient has been shown to be in AF on two consecutive occasions and no longer reports symptoms of cardiac rhythm change. When a patient develops permanent AF the amiodarone can be stopped and heart rate controlled with beta blockers, calcium channel blockers or digoxin. The usual amiodarone dose in PAF is 200 mg daily. If a patient has been very stable for a year or more this may be reduced to 100 mg – confirm with specialist. If originally PAF and an ECG shows persistent AF, refer for a 24 hour tape and if confirmed AF, discuss with cardiology on stopping treatment.
- **Post cardioversion or ablation** - Check that the patient remains in sinus rhythm and ascertain a stop date with cardiology. In selected patients it may be necessary to prescribe amiodarone to maintain sinus rhythm in persistent AF following cardioversion or ablation. The cardiologist should specify the intended stop date following the procedure which may be between 6 weeks or 12 months. In patients who have been stable for a year, stopping amiodarone should be considered following advice from a cardiologist. Please note, the long terminal half-life of amiodarone means that it will take months before its effect on atrioventricular (AV) node conduction has gone completely.

- In patients where the indication is unknown and the GP is unable to find out following investigating from the clinical records, patients should be discussed with cardiology and if necessary the cardiologists will review electronic notes to clarify indication where possible or review the patient as appropriate.

**Step 3: Stopping amiodarone**

- Amiodarone can be stopped abruptly - plasma concentration falls by 50% in the first two weeks but it may then take a further 6 months before it is eliminated completely.
- Ventricular rate control and AF - if resting heart rate is <75 bpm review in 2 weeks to consider increasing dose of other rate slowing drugs (NB. the plasma level of digoxin will decrease upon withdrawal of amiodarone). If resting heart rate is >80 bpm add in or increase beta blocker, digoxin, rate-limiting calcium channel blocker as appropriate. A further review of heart rate at 3 months following discontinuation of amiodarone is recommended.
- Due to the long half-life of amiodarone, clinical problems (e.g. hyperthyroidism, photosensitivity) may occur/persist for up to a year after stopping the medication. TSH should be monitored for up to 12 months after discontinuation.
- Warfarin - INR will decrease upon stopping amiodarone. In most cases it is sufficient to repeat the INR after 10 - 14 days and to adjust the dose. A further but less clinically significant drop in INR is usually seen 3 - 6 months following discontinuation of amiodarone.