

Ajmaline for the Diagnosis of Brugada Syndrome

Brugada syndrome is a congenital disorder affecting myocardial sodium channels and may be associated with sudden cardiac death. Ajmaline is a class 1a antiarrhythmic that blocks the sodium channel and is used in the diagnosis of Brugada syndrome. Ajmaline has a short half life allowing it to be used for daycase. **It is unlicensed in the UK and must therefore only be used under the direction of an Electrophysiology consultant.**

The test must be undertaken with continuous ECG monitoring and blood pressure control. Resuscitative equipment must be immediately available.

Contraindications	Cautions
<ul style="list-style-type: none"> • Resting type I Brugada pattern on ECG • Myocardial infarction in last 3/12 • Liver disease • Myasthenia gravis • Hypertrophic Cardiomyopathy • Tachycardia due to cardiac decompensation • Digitalis toxicity • Hypersensitivity to ajmaline • Pre-existing ventricular conduction disorders (unless life threatening as determined by consultant) • Bradycardia, 2nd or 3rd degree AV block • LVEF < 35% • Significant widening of QRS duration or QT interval • Pregnancy/ Breast Feeding 	<ul style="list-style-type: none"> • Bundle branch block • Sick sinus syndrome • AV nodal block • Non-rhythmogenic hypotension (<90mmHg) • Paediatric patients • Cholestatic jaundice

Before the test record baseline ECG and blood pressure

Review the rhythm, measure QRS duration, the Q-T interval and ST elevation in leads V1 – V3.

Ensure patient fasted (6 hours food, 2 hours clear fluids).

Weigh the patient.

In case of emergency the following drugs must be available:

- isoprenaline (from cath lab), atropine, magnesium

Start continuous 12 lead ECG monitoring

Dosing and Administration of Ajmaline:

Administration via a cardiology consultant or registrar only

Ajmaline is presented as a 50mg / 10ml ampoule.

Dose: 10mg every 2 minutes until target dose of 1mg/kg (with a maximum total dose of 80mg) has been given.

Administration: Each 10mg dose should be administered as a slow bolus over one minute.

Check ECG and observations after each bolus.

Drug administration should stop as soon as diagnostic criteria for Brugada syndrome have been met (to minimise adverse effects) or if patient develops accentuated RBBB, prolonged P-Q > 50% of baseline or second or third degree AV block, prolonged QRS duration > 30% from baseline, hyper-elevation of ST segment or if develops premature ventricular beats or VT / VF occur.

Following drug administration check the ECG 10 minutes post procedure. Cardiac monitoring for a further 50 minutes.

Adverse Events of Ajmaline

- Possible to precipitate VT or spontaneous VF
- Ventricular premature complexes have been observed where marked ST elevation has developed early – limit dose administered
- Pro-arrhythmic in non-Brugada patients
- Administration can make VT / VF more difficult to treat
- Lengthening QRS duration, QT interval, PQ interval and hyper-elevation of ST segment
- Development of HF
- If in atrial fibrillation or flutter – ajmaline can increase ventricular rate
- Sinus bradycardia, SA block, inhibition of intraventricular conduction
- Hypotension
- Seizures
- Respiratory arrest/depression
- Flushing
- Parasthesia
- Nausea and vomiting / appetite loss post-procedure
- Diarrhoea post-procedure
- Hepatotoxicity and agranulocytosis
- Eye twitching
- Decreased urine output
- Cyanosis and skin mottling can develop in cardiogenic shock

Management of Ventricular arrhythmias - Isoprenaline

Add 200 micrograms of isoprenaline to a 100ml bag of dextrose 5%.
 Start infusion at 0.5 micrograms/minute and titrate up as required.

**PLEASE NOTE THERE ARE TWO ISOPRENALINE PREPARATIONS AVAILABLE
 HYDROCHLORIDE AND SULPHATE.**

Isoprenaline sulfate 1.125mg = isoprenaline hydrochloride 1mg.

Refer to the medusa monograph for specific information on each salt

Dose (micrograms/minute)	Infusion rate (ml/hour) ISOPRENALINE 200 micrograms in 100mls
0.5 micrograms/minute	15
1 microgram/minute	30
2 microgram/minute	60

3 microgram/minute	90
4 microgram/minute	120

Infusion bag is stable for 24 hours once made up

Isoprenaline has a low pH and may cause venous irritation and tissue damage in cases of extravasation.

Flush line with sodium chloride 0.9% or glucose 5%

Adverse effects of isoprenaline:

- Tachycardia,
- Cardiac arrhythmias,
- Palpitations,
- Hypotension,
- Tremor,
- Headache,
- Sweating and facial flushing.

Monitoring for isoprenaline:

- ECG,
- Heart rate,
- Cardiac output.

References:

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Medusa is available via pharmacy page on the intranet