

**CONTROLLED DOCUMENT**

## Physiologist protocol for Internal Cardioversion for Atrial Fibrillation or Flutter

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## ABBREVIATIONS:

AF – Atrial Fibrillation

DCCV – Direct Current Cardioversion

## EVIDENCE FOR PRACTICE:

Direct current cardioversion, DCCV is described as one of the most effective methods of converting atrial fibrillation, AF into Sinus Rhythm (Gorenek, 2012), alternatively medical cardioversion can achieve sinus rhythm but DCCV gives the highest overall success rate (Morris, Peter, & McIntosh, 1966). DCCV is more routinely used than pharmacologic conversion due to the higher success rate and the lower risk of being pro arrhythmic (Camm, et al., 2010).

DCCV is indicated in patients who are haemodynamically unstable or stable but on correction of underlying pathology would be unlikely to allow spontaneous reversion to Sinus Rhythm. (Camm, et al., 2010)

Internal Cardioversion is indicated for patients who have had failed external cardioversion (Gasparini, Bonso, Themistoclakis, Giada, & Raviele, 2011) and those with a high transthoracic impedance as the procedure is more effective and as safe as external DCCV (Levy, et al., 1992) and can be performed under either conscious sedation or general anaesthetic.

## CONSENT:

Consent for the interventional procedure will be the operator, usually the consultant or the cardiology SpR/ Clinical Fellow.

Written consent is required and is obtained and recorded as per trust policy

<http://uhbpolicies/assets/ConsentToExaminationOrTreatmentPolicy.pdf>

For further information please refer to the following documents:

- Department of Health Reference Guide to Consent for Examination of Treatment (2009)
- The Trust's Policy and Procedural document for the consent to examination for treatment (current version)

*Mental Capacity act 2005*

**Consent is taken with the below possible complications:**

- Thromboembolic event
  - 1-2% in anticoagulated patients
  - 5-6% in non-anticoagulated patients
- Need for permanent pacemaker 0.5%
- Groin haematoma and false aneurysm 1% cases rarely 0.1% requiring further intervention
- Pericardial effusion with a drain required in 1%

In the event of suspected or impending cardiac arrest call 2222 start resuscitation procedures as appropriate.

In case of major haemorrhage please follow trust major haemorrhage protocol found in the folder next to the defibrillator and on intranet. Consider reversing anticoagulation in discussion with Cardiologist and Haematologist in charge. Transfer patient to Coronary Care unit for monitoring.

In case of cardiac tamponade follow policy for cardiac tamponade in trust policies folder. Echo machine in catheter lab to confirm effusion. Consider reversing anticoagulation in discussion with cardiologist and haematologist. Transfer patient to Coronary Care unit for monitoring.

#### INDICATIONS:

- AF with previous failed external cardioversion
- A patient who is haemodynamically unstable in AF
- AF which is unlikely to revert on correction of the underlying pathology
- Electively to initiate a long term rhythm control strategy, symptomatic benefit of sinus rhythm to assess for ablation.

#### CONTRAINDICATIONS:

- Peripheral embolism or stroke within 3 months of the proposed date of cardioversion
- Sub therapeutic INR (INR<2) risk of clot
- Digitalis toxicity (Camm, et al., 2010)
- Prosthetic mechanical tricuspid or pulmonary valve
- Latex allergy

#### LIMITATIONS TO PRACTICE:

- Peripheral vascular disease effecting groin access.

#### CRITERIA FOR COMPETENCE:

- Physiologist must have ILS and procedure is performed under supervision of a doctor possessing ALS

#### PROTOCOL AND SKILLS AUDIT:

### **Protocol for Internal Cardioversions**

- As to the console for performing this procedure is supplied along with representatives from the company ensure that they are present and have the ALERT Companion III machine.
- Enter details of patient onto MacLab or Cardiolab GE system.

- Attach the patient to the ECG, SpO2 and NIBP monitoring
- Attach the 'hands off' pads to defibrillator cable into the front of the defibrillator.
- WHO checklist performed
- Sedation given
- An 8F sheath is inserted into the right/left femoral vein.
- The sterile catheter ALERT Internal Cardioversion catheter REF: AL-SP75149 is handed to the operator
- The sterile catheter is inserted into the Pulmonary Artery using X-Ray guidance, it has a balloon similar to a swan ganz catheter to aid placement in the PA.
- The catheter is connected to the ALERT Companion III via the ALERT system interface cable REF: AL-C110
- The ALERT Companion III displays the internal EGM and a mid catheter electrode senses a Right Ventricular EGM on which the device can synchronise its shock.
- Switch on SYNC for synchronisation on the R wave for cardioversion.
- Internal cardioversion needs lower energy than external cardioversion. We routinely use 30 Joules for internal cardioversion.
- The company representative will assist the operator in confirming ideal placement and resolve any sensing issues encountered.
- The catheter can provide pacing if the patient were to require it immediately post cardioversion
- The Physiologist will record the ECG, SpO2 and NIBP throughout and assist in the system set up.
- If the internal cardioversion is unsuccessful an attempt may be made using the external hands off pads with either 150 -200J.

Team required – Nurse, Radiographer, Consultant or Registrar scrubbed, supervision by Consultant unscrubbed is acceptable, company representative and physiologist.

#### CLINICAL INCIDENT REPORTING AND MANAGEMENT:

All incidents will be reported in line with trust policy with on line incident forms:

Link:

<http://uhbhome/online-incident-reporting.htm>

#### REFERENCES:

Camm, A. J., Kirchhof, P., Lip, G., Schotten, U., Savelieva, I., Ernst, S., et al. (2010). Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology. *European Heart Journal*, 31, 2369-2429.

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- Morris, J. J., Peter, H. R., & McIntosh, H. D. (1966). Electrical Conversion of Atrial Fibrillation: Immediate and Long-term results and Selection of Patients. *Annals of Internal Medicine*, 65(2), 216-231.