Purpose

This procedure provides guidance on the appropriate application of Defibrillation during retrieval missions

Procedure

Defibrillation

For Review

Nov 2015

1. Introduction

1.1. Defibrillation is an essential intervention for patients with shockable, pulseless cardiac rhythms.

1.2. Defibrillation as soon as possible provides the best chance of survival in victims with ventricular fibrillation, pulseless ventricular tachycardia in a witnessed arrest [1, 2]. Defibrillation may be safely executed in moving road vehicles and in flight aboard fixed and rotary wing aircraft [3]

2. Objectives

2.1. To outline the safe use of defibrillation in the various vehicles of the NSW Aeromedical & Medical Retrieval Service.

3. Scope

3.1 Clinical crew.

4. Process

4.1. An assessment of need for defibrillation will be made followed by an assessment of safety.

4.2. Assessment of need. A shockable rhythm is confirmed by:

4.2.1. Identification of rhythm by clinical crew member.

4.2.2. Correlation with clinical signs of arrest, including pulselessness and where appropriate invasive arterial and end-tidal CO_2 measurement

4.2.3. Vehicle or patient motion, poor or absent pad/lead contact, turbulence or take-off/landing may all contribute to artefact when assessing rhythm. If in doubt, a road vehicle should be brought to a complete stop, or in the aircraft,

reassessment should await a more stable period of flight.

4.2.4. Automated rhythm analysers should not be used in moving vehicles.

4.3. **Assessment of safety:**

4.3.1. Safety of the clinical crew, the patient and any passengers must be ensured at all times.

4.3.2. Hands free defibrillator pads must be attached.

4.3.3. There must be no direct contact between crew members and the patient or stretcher during defibrillation.

4.4. Ambulances

When a shockable rhythm is confidently identified by the clinical crew and hands free defibrillator pads are correctly applied then defibrillation may be performed in a moving ambulance.

4.5 Helicopter and Fixed Wing

4.5.1 When a shockable rhythm is confidently identified by the clinical crew and hands free defibrillator pads are correctly applied then defibrillation may be performed in the aircraft.

4.5.2 The pilot must be informed of the need to defibrillate the patient and the pilot's permission must be obtained prior to defibrillation.

4.5.3 The pilot must give permission before crew members come off belt at any stage.

4.6 Exceptions

4.6.1 A single precordial thump should be considered within the first 10 seconds of VF or pulseless VT if the defibrillator is not immediately available

4.6.2 As the aircraft will have an excess of water in the cabin no defibrillation is permitted after water rescues until the aircraft is on the ground and all crew members are clear of current leakage. Ventilation of the patient with 100% oxygen should be commenced as soon as possible. Wet clothes should be removed from the chest and the chest dried to aid adherence of the defibrillation pads.

4.6.3 Patients who are otherwise wet (e.g. diaphoretic) should have wet clothes removed from the chest and be dried prior to defibrillation to aid

adherence [4]

4.6.4 Defibrillation may lead to a fire hazard in oxygen rich environments. To reduce the risk ensure self-adhesive pads are well applied, leave ventilator tubing connected for ventilated patients and ensure high-flow oxygen masks are turned so oxygen is not directed across the chest [5]

4.6.5 Defibrillation must not be carried out at any time that efficacy of reading the rhythm is impaired or the safety of the crew is uncertain. Normal Crew Resource Management practices are to be employed in these situations to inform the decision as to when to defibrillate.

5. References

5.1 Guideline 11.5 Electrical Therapy for Adult Advanced Life Support. Australian Resuscitation Council 2006.

5.2 Estimating effectiveness of cardiac arrest interventions: a logistic regression survival model. *Circulation* 1997;96:3308-13

5.3 Dedrick DK, Darga A, Landis D, Burney RE. Defibrillation safety in emergency helicopter transport. .*Ann Emerg Med.* 1989; 18(1):69-71

5.4 Lyster T, Jorgenson D, Morgan C. The safe use of automated external defibrillators in a wet environment. *Prehosp Emerg Care* 2003;7(3):307-11

5.5 American Heart Association. Electrical therapies: automated external defibrillators, defibrillation, cardioversion, and pacing. *Circulation* 2005; 112: IV-35-46