Resuscitation skills – part five

Precordial thump

Phil Jevon, PGCE, BSc, RN, is resuscitation officer/clinical skills lead, Manor Hospital, Walsall.

The precordial thump is a blow to the lower half of the patient’s sternum using the lateral aspect of a closed fist. It can successfully resuscitate the patient when given promptly following a cardiac arrest caused by ventricular fibrillation (VF) or ventricular tachycardia (VT) (Resuscitation Council (UK), 2006).

This article describes the procedure for delivering a precordial thump.

Mechanism of action

The rationale for delivering a precordial thump is that it generates a mechanical energy, which is converted to electrical energy, which then may be sufficient to achieve successful cardioversion (Kohl et al, 2005). Following the onset of VF, the threshold for successful defibrillation rises steeply after a few seconds. In all reported cases of successful use of the precordial thump for VF, it was delivered within 10 seconds (Resuscitation Council (UK), 2006). This demonstrates the importance of witnessing the collapse.

Indications

A precordial thump should be considered if cardiac arrest is confirmed rapidly following a witnessed and monitored (ECG) sudden collapse (VF or VT) if the defibrillator is not immediately at hand (Resuscitation Council (UK), 2006).

Efficacy

A research study (American Heart Association, 2006) looked at 187 episodes of VF, VT, supraventricular tachycardia, asystole and complete heart block where a precordial thump was delivered. The results were as follows:

- Ninety-one (49%) reverted to normal sinus rhythm;
- Seventy-seven (41%) had no change in rhythm;
- Nineteen (10%) were worse;
- Overall, 90% of patients were either better or no change and 10% were worse.

Procedure

On discovering a collapsed unconscious patient:

- Call out for help and activate the emergency buzzer;
- Lie the patient flat;
- Look, listen and feel for no longer than 10 seconds to determine if the patient is breathing normally (an occasional gasp, slow, laboured or noisy breathing is abnormal) or has other signs of life (Resuscitation Council (UK), 2006). If trained and experienced in assessing ill patients, a simultaneous carotid pulse check is also recommended (Resuscitation Council (UK), 2006) (Fig 1);
- If cardiac arrest is confirmed, that is no signs of life (no breathing, coughing, movement and no palpable carotid pulse), send colleagues to alert the cardiac arrest team and bring the resuscitation equipment, including the defibrillator (Resuscitation Council (UK), 2006);
- Interpret the ECG rhythm on the monitor (Fig 2);
- If VF or VT is confirmed, consider delivering a precordial thump immediately if cardiac arrest was witnessed but the defibrillator is not immediately at hand (Resuscitation Council (UK), 2006);
- Tightly clench your fist (the
dominant hand is usually used); Position your fist approximately 20 cm directly above the patient’s sternum (Fig 3); Using the ulnar edge of the fist, deliver a sharp blow to the lower half of the sternum (Resuscitation Council (UK), 2006) (Fig 4). An effective but not excessive force can be generated by swinging the fist from the elbow (Adam and Osborne, 2005); Immediately retract your fist to create an impulse-like stimulus (Nolan et al, 2005) (Fig 5); Prepare to start cardiopulmonary resuscitation (30 compressions: two ventilations) (Resuscitation Council (UK), 2006) (Fig 6). If the precordial thump successfully terminates VF or VT, it is probable that the patient will regain consciousness very quickly, sometimes almost spontaneously; therefore, cardiopulmonary resuscitation will not be required.

Complications
There are isolated cases reported in the literature of a precordial thump converting a pulse producing rhythm to a non-pulse producing rhythm (Krijne, 1984), although this is a very rare phenomenon (Resuscitation Council (UK), 2006). There is also a risk of damaging the ribcage, particularly if the precordial thump is incorrectly delivered. Nevertheless, the potential benefit of the precordial thump greatly outweighs its risks (Caldwell et al, 1985).

Training
Precordial thump should only be delivered by healthcare practitioners trained in its use (Resuscitation Council (UK), 2006). It is also necessary to have some ECG interpretation skills as confirmation of VF or VT is now a prerequisite for delivering a precordial thump (previous guidelines have recommended considering it in either a witnessed or monitored cardiac arrest). The local resuscitation policy should be followed.

REFERENCES


PROFESSIONAL RESPONSIBILITIES
All nurses who carry out clinical procedures must have received approved training, undertaken supervised practice and demonstrated competence in the clinical area. The onus is also on the individual to ensure that knowledge and skills are maintained from both a theoretical and a practical perspective. Nurses should also undertake this role in accordance with an organisation’s protocols, policies and guidelines.