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The New ERC Guidelines on Resuscitation

In October 2010, the European Resuscitation Council (ERC) launched the new European Guidelines for cardiopulmonary resuscitation, based on new scientific evidence published since the last revision five years ago.

"Numerous studies on the effectiveness of resuscitation procedures have been reviewed for the new ERC Guidelines 2010, paying particular attention to convincing scientific evidence and simplification", said Dr. Jerry Nolan, ERC Board member. Besides chest compression, another main focus today is automated external defibrillators (AEDs), which can now be widely found in public places. The new ERC Guidelines clearly recommend the use of these devices: AEDs are simple to use as voice prompts guide the user through the defibrillation process safely. Early defibrillation may, in addition to chest compressions, be a life saving procedure many cardiac arrest victims.

Furthermore, the ERC Guidelines 2010 confirm the importance of therapeutic hypothermia following cardiac arrest. Cooling the post arrest victim to 32-34°C for 12- 24 hours significantly increases the chance of good neurological survival. However, surprisingly this simple method is still not used by many emergency medical services and hospitals in Europe. The 2010 ERC Guidelines now also recommend extending therapeutic hypothermia therapy to newborns suffering from lack of oxygen during birth. Immediate and hard chest compressions, early defibrillation, and cooling are the key factors of resuscitation in the new 2010 ERC Guidelines.

The following excerpt highlights a few of the recent changes, adapted with permission from the executive summary provided by the ERC.

Adult Advanced Life Support

The most important changes in the 2010 ERC Advanced Life Support (ALS) Guidelines include:

- Increased emphasis on the importance of minimally interrupted high-quality chest compressions throughout any

ALS intervention: Chest compressions are paused briefly only to enable specific interventions.

- Increased emphasis on the use of 'track and trigger systems' to detect the deteriorating patient and enable treatment to prevent in-hospital cardiac arrest.
- Increased awareness of the warning signs associated with the potential risk of sudden cardiac death out of hospital.
- Removal of the recommendation for a pre-specified period of cardiopulmonary resuscitation (CPR) before out-of-hospital defibrillation following cardiac arrest unwitnessed by the EMS.
- Continuation of chest compressions while a defibrillator is charged –this will minimise the pre-shock pause.
- The role of the precordial thump is de-emphasised.
- The use of up to three quick successive (stacked) shocks for ventricular fibrillation/pulseless ventricular tachycardia (VF/VT) occurring in the cardiac catheterisation laboratory or in the immediate post-operative period following cardiac surgery.
- Delivery of drugs via a tracheal tube is no longer recommended – if intravenous access cannot be achieved, drugs should be given by the intraosseous (IO) route.
- When treating VF/VT cardiac arrest, adrenaline 1 mg is given after the third shock once chest compressions have restarted and then every 3-5 minutes (during alternate cycles of CPR). Amiodarone 300 mg is also given after the third shock.
- Atropine is no longer recommended for routine use in asystole or pulseless electrical activity (PEA).
- Reduced emphasis on early tracheal intubation unless achieved by highly skilled individuals with minimal interruption to chest compressions.
- Increased emphasis on the use of capnography to confirm and continually monitor tracheal tube placement, quality of CPR and to provide an early indication of return of spontaneous circulation (ROSC).
- The potential role of ultrasound imaging during ALS is recognised.
- Recognition of the potential harm caused by hyperoxaemia after ROSC is achieved: once ROSC has been established and the oxygen saturation of arterial blood (SaO₂) can be monitored reliably (by pulse oximetry and/or arterial blood gas analysis), inspired oxygen is titrated to achieve a SaO₂ of 94 – 98 percent.

- Much greater detail and emphasis on the treatment of the post-cardiac arrest syndrome.
- Recognition that implementation of a comprehensive, structured post resuscitation treatment protocol may improve survival in cardiac arrest victims after ROSC.
- Increased emphasis on the use of primary percutaneous coronary intervention in appropriate (including comatose) patients with sustained ROSC after cardiac arrest.
- Revision of the recommendation for glucose control: in adults with sustained ROSC after cardiac arrest, blood glucose values $>10 \text{ mmol l}^{-1}$ ($>180 \text{ mg dl}^{-1}$) should be treated but hypoglycaemia must be avoided.
- Use of therapeutic hypothermia to include comatose survivors of cardiac arrest associated initially with nonshockable rhythms as well shockable rhythms. The lower level of evidence for use after cardiac arrest from nonshockable rhythms is acknowledged.
- Recognition that many of the accepted predictors of poor outcome in comatose survivors of cardiac arrest are unreliable, especially if the patient has been treated with therapeutic hypothermia.

Further information, full guidelines and posters for the public and healthcare professionals are available for free at

www.erc.edu.

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