CPER digest April 2016

You are dispatched for a female patient who is in cardiac arrest. Upon your arrival, Firefighters are doing chest compressions and ventilations and have an oral airway in place. They report, according to the husband, that the patient was complaining of feeling dizzy just prior to collapsing. The husband called 911 and had initiated CPR. The Fire Department (FD) arrived just before you and had one "no shock advised". Your partner initiates cardiac monitoring as the current cycle of CPR finishes. You interpret the rhythm to be pulseless electrical activity (PEA) and have the FD resume CPR. You elect to establish an intravenous (IV) as compliance with the BVM continues to be good and there are no other airway concerns that require immediate endotracheal intubation. Once an IV is established, you proceed with epinephrine 1:10,000 (1mg/10mL) IV. Following two cycles of CPR, the patient's rhythm has changed into a ventricular fibrillation (VF). You defibrillate and continue with CPR. You are due for another epinephrine administration but also consider whether an anti-arrhythmic would be appropriate given the rhythm change from PEA to VF.

The anti-arrhythmic medications lidocaine or amiodarone block the initiation and/or conduction of ventricular arrhythmias. The ACP Medical Cardiac Arrest algorithm (page 59, red section) indicates lidocaine/amiodarone administration after the second defibrillation of a VF/VT. This confirms that the VF or pulseless VT is refractory and has not responded to other treatment (ie. defibrillation and high quality CPR) thus administration of an anti-arrhythmic is utilized to attempt to convert the VF/VT and regain a perfusing rhythm.

Taking this into consideration, would you administer lidocaine or amiodarone to this patient with one defibrillation? If you said no, you are correct.

As per the Companion Document to the ALS PCS – September 2015 Version 3.3 (available on our website at www.cper.ca), page 17, bullet seven – "anti-arrhythmic therapy is indicated (if not previously maxed out) following the shock if the patient had been previously defibrillated or following a second defibrillation if none delivered previously", thus the patient must have refractory VF/VT to receive lidocaine or amiodarone.

Research note: Very timely to this month's digest, the New England Journal of Medicine has published the results of the Resuscitation Outcomes Consortium (ROC) Amiodarone, Lidocaine or Placebo Study (ALPS) study which included the local participation of Niagara EMS Paramedics. The study was a large multisite comparison trial that looked at amiodarone, lidocaine and placebo (saline) in the presence of recurrent VF and VT in out of hospital cardiac arrest. There were many subgroup findings in regards to witnessed arrests that will need further study with primary outcome showing no significant difference between amiodarone and lidocaine compared with placebo. For more details and an interesting read, please click on the link here to read the full article https://www.nejm.org/doi/full/10.1056/NEJMoa1514204. (Click on "Commentary" for the editorial). Please see the CPER website for CME Credit information.

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