

[gw22-e0954]

THE HEMODYNAMIC INFLUENCE OF RHYTHMIC ABDOMINAL LIFTING AND COMPRESSION DURING CARDIOPULMONARY RESUSCITATION IN A SWINE MODEL OF VENTRICULAR FIBRILLATION

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10.1136/heartjnl-2011-300867.24

Objective This study was designed to compare the hemodynamic influences of standard external cardiopulmonary resuscitation (STD-CPR) and rhythmic abdominal lifting and compression during cardiopulmonary resuscitation (CPR) in a swine model of ventricular fibrillation, and evaluate the effectiveness of rhythmic abdominal lifting and compression.

Method Ventricular fibrillation was induced in sixteen anaesthetised, incubated pigs. The pigs were equally divided into two groups. One group used STD-CPR to perform CPR, and the other one used rhythmic abdominal lifting and compression. Monitor electrocardiogram, aortic and right atrial pressure continuously. Then, calculate the mean arterial pressure (MAP), coronary perfusion pressure (CPP) and the ROSC.

Result In the 10 min after the CPR started, the MAP of STD-CPR is 54.56 ± 5.24 mm Hg and CPP is 33.70 ± 2.99 mm Hg, the MAP of rhythmic abdominal lifting and compression is 42.85 ± 3.41 mm Hg and CPP is 25.91 ± 3.98 mm Hg. The MAP and CPP of rhythmic abdominal lifting and compression are significantly lower than STD-CPR. But the CPP of both groups is significantly higher than 15 mm Hg. The ROSC is 50% in STD-CPR, and 37.5% in rhythmic abdominal lifting and compression, there is no significant difference between the two groups.

Conclusion In the incipient stage of cardiopulmonary resuscitation in the swine model of ventricular fibrillation, rhythmic abdominal lifting and compression can perform effective CPP, and it can be used in CPR.