The effects of spontaneous gasping on hemodynamics during chest compression in a rat model of cardiac arrest

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Background
We have previously demonstrated that spontaneous gasping during cardiopulmonary resuscitation (CPR) improves the success of resuscitation in both pig and rat models of CPR[1]. However, whether gasping is an indicator of better cerebral perfusion or gasping itself improves hemodynamics during CPR remains to be investigated. In the present study, we investigate the changes of coronary perfusion pressure (CPP) and end-tidal carbon dioxide (ETCO2) before and after gasping in a rat model of CPR. We hypothesized that spontaneous gasping during CPR improves both CPP and ETCO2.

Methods
Ventricular fibrillation (VF) was electrically induced in 12 Sprague Dawley rats. Precordial compression (PC) was initiated after 6 min of untreated VF.

Results

Figure 1. Arterial and right atrial blood pressure and ETCO2 waveforms during CPR.

Figure 2. Both CPP (p=0.02) and ETCO2 (p=0.03) were significantly increased after gasping.

Defibrillation was attempted after 8 min of PC. CPP and ETCO2 were measured immediately prior to and after each gasp during PC5 and PC8[2] (Figure 1).

Conclusions
Spontaneous gasping increased CPP and ETCO2 during CPR in a rat model of cardiac arrest.

References


Disclosure
None