Evolution of Arterial Pressure and Brain SrO_2 during Basic Life Support Resuscitation in a Translational Model of Cardiac Arrest

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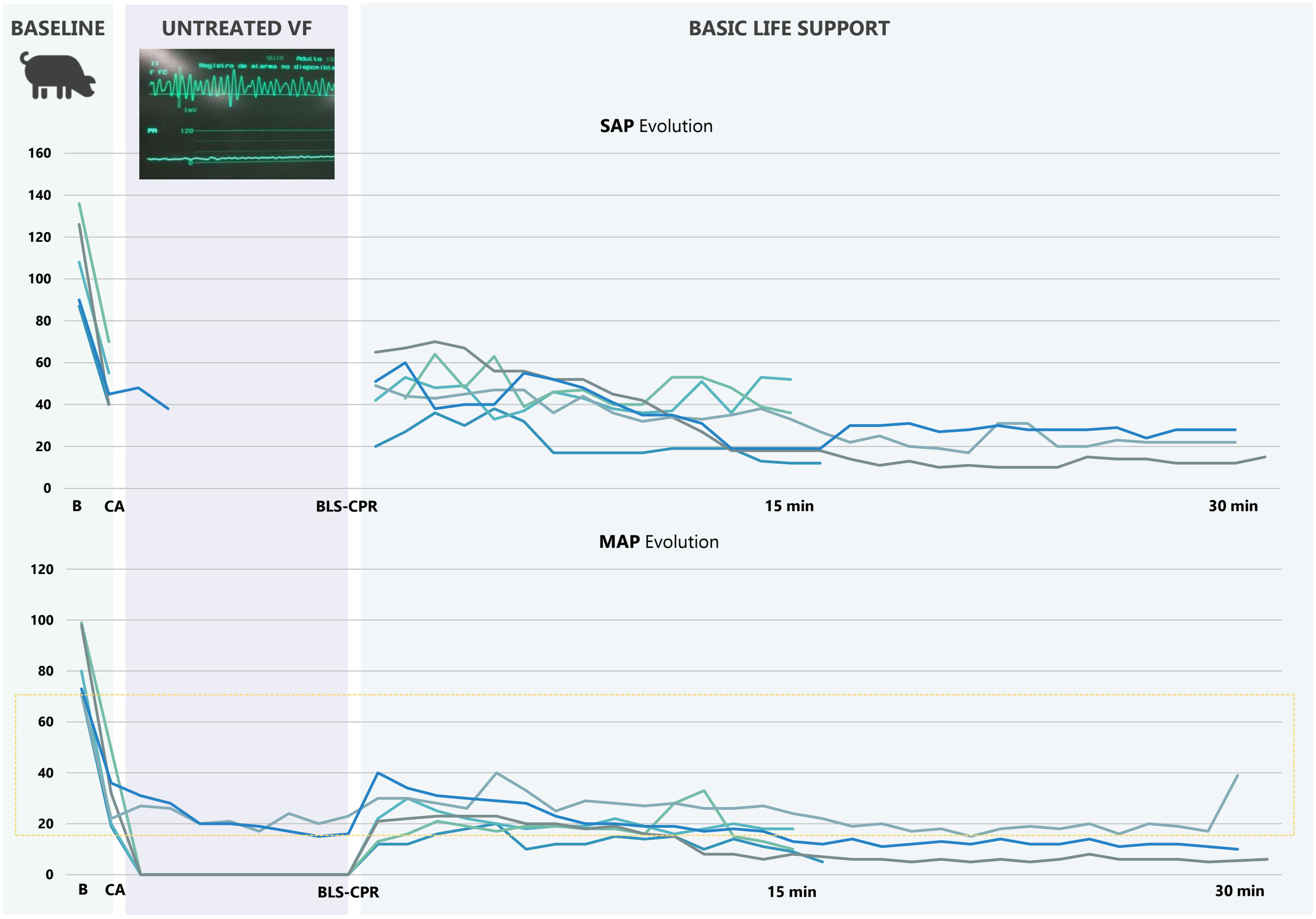
BACKGROUND and PURPOSE

Tissue perfusion during Basic Life Support (BLS) resuscitation depends on hemodynamic support provided by chest compressions. However, it remains unclear how the ischaemia/reperfusion phenomena influences hemodynamic stability during prolonged BLS. We aimed to study the arterial pressures and brain tissue perfusion in a porcine model of cardiac arrest (CA) and BLS.

METHODS and RESULTS

Six female pigs underwent an 8-minute non-treated ventricular fibrillation followed by BLS resuscitation for 15 (n=3) and 30 minutes (n=3). Invasive systolic, mean and diastolic arterial pressures (SAP, MAP and DAP) and brain SrO2 were recorded every minute: arterial pressures rapidly dropped during 8-minutes untreated cardiac arrest and rapidly increased when BLS manoeuvres began. SAP reached its peak at 3 minutes and then gradually drop over-time. MAP and DAP were maintained low during BLS with also tendency to drop. Brain SrO2 during BLS did not correlate with the evolution of SAP, not showing any improvement once BLS manoeuvres began.



B: Baseline; CA: cardíac arrest ; BLS-CPR: Basic Life Support - Cardiopulmonary Resuscitation; 15 min: 15 minutes of Basic Life Support; 30 min: 30 minutes of Basic Life Support

CONCLUSION

In a large-animal model of CA, arterial pressures drop over-time during the BLS despite mechanical chest compressions. Brain tissue perfusion does not follow arterial pressure pattern during BLS.

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