The aims of this study were to compare the intraosseous (IO), arterial and central venous POC values during CA and CPR and to see how the CPR values reflect the pre-arrest state” Jousi et al 92019).

Abstract:

INTRODUCTION: Screening and correcting reversible causes of cardiac arrest (CA) are an essential part of cardiopulmonary resuscitation (CPR). Point-of-care (POC) laboratory analyses are used for screening pre-arrest pathologies, such as electrolyte disorders and acid-base balance disturbances. The aims of this study were to compare the intraosseous (IO), arterial and central venous POC values during CA and CPR and to see how the CPR values reflect the pre-arrest state.

METHODS: We performed an experimental study on 23 anaesthetised pigs. After induction of ventricular fibrillation (VF), we obtained POC samples from the IO space, artery and central vein simultaneously at three consecutive time points. We observed the development of the values during CA and CPR and compared the CPR values to the pre-arrest values.

RESULTS: The IO, arterial and venous values changed differently from one another during the course of CA and CPR. Base excess and pH decreased in the venous and IO samples during untreated VF, but in the arterial samples, this only occurred after the onset of CPR. The IO, arterial and venous potassium values were higher during CPR compared to the pre-arrest
arterial values (mean elevations 4.4 mmol/l (SD 0.72), 3.3 mmol/l (0.78) and 2.8 mmol/l (0.94), respectively).

CONCLUSIONS: A dynamic change occurs in the common laboratory values during CA and CPR. POC analyses of lactate, pH, sodium and calcium within IO samples are not different from analyses of arterial or venous blood. Potassium values in IO, arterial and venous samples during CPR are higher than the pre-arrest arterial values.

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