

# Comparison of electrocardiogram parameters in chest compression only resuscitation and interposed abdominal compression resuscitation in dogs with experimentally induced hemorrhagic shock

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## Abstract

Intermittent chest compression is still routinely used in resuscitation for hemorrhagic shock patients. There is a possibility that by using a different resuscitation method with interposed abdominal compressions, through forcing the blood from abdominal organs into the circulation and increasing intraperitoneal pressure, more blood pumps to heart. Therefore, in this study, chest compression resuscitation and interposed abdominal compressions resuscitation were compared in dogs with induced experimental hemorrhagic shock and electrocardiographic changes evaluated as an important diagnostic and monitoring tool in heart conduction and rhythm disorders. Thus hemorrhagic shock was induced by drawing blood from femoral artery in 15 dogs under anesthesia and continued until pulseless electrical activity achieved. The dogs were kept pulseless for 20 minutes, then were randomized to three treatment groups - fluid resuscitation alone with Ringer's lactate solution, chest compressions with fluid resuscitation, and interposed abdominal compression with fluid resuscitation. Resuscitation was conducted until reaching the point of return of spontaneous circulation. Electrocardiograms were recorded before the induction of hemorrhage, at the time that the pulse was lost, after 20 minutes of pulseless state and at the point of return of spontaneous circulation. Changes in P and QRS waves amplitudes, QT interval, heart rate, and electrical axis and morphology of ST segment was significant in different times within groups. but there were no significant changes in P and QRS durations and PR interval and heart rhythm. There were no significant changes in any parameter with different type of resuscitation method. Finally mixed effect of time and groups were also statistically insignificant in all parameters. In conclusion, it seems that there is no positive impact in electrocardiographic parameters using either of chest compression only or interposed abdominal compression resuscitation methods in dogs with induced hemorrhagic shock.

**Key words:** Hemorrhagic shock, Resuscitation, Interposed abdominal compression, Chest compression, Dogs

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