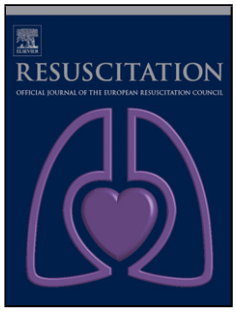

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PII: S0300-9572(18)30235-1
DOI: https://doi.org/10.1016/j.resuscitation.2018.05.024
Reference: RESUS 7622

To appear in: *Resuscitation*

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To appear in: *Resuscitation*

Please cite this article as: Ornato JP, Louka A, Grodman SW, Ferguson JD, How to determine whether to perform chest compressions on an unconscious patient with an implanted left ventricular assist device, *Resuscitation* (2018), https://doi.org/10.1016/j.resuscitation.2018.05.024

How to determine whether to perform chest compressions on an unconscious patient with an implanted left ventricular assist device

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Patients with a functioning left ventricular assist device (LVAD) are typically fully conscious but pulseless because the devices provide continuous, non-pulsatile flow. Opinions differ as to whether rescuers should start chest compressions if the patient becomes unconscious (due to device malfunction or any other cause). Device manufacturers advise against doing so out of concern for device dislodgement, although a small case series[1] has not documented this complication. A new American Heart Association Scientific Statement[2] advises emergency rescuers to perform chest compressions if the end-tidal carbon dioxide ($P_{et}CO_2$) level is <20mmHg after intubation based on the relationship between $P_{et}CO_2$ and cardiac output. Resuscitation of this unconscious, pulseless 58M LVAD patient documents that the recommendation works. The patient had no detectable $P_{et}CO_2$ (A) after paramedic endotracheal tube (ET) intubation despite direct observation of the tube traversing the vocal cords plus good rise and fall of the chest with ventilation and “frosting on the ET tube” (ECG shows asystole with LVAD noise). Chest compressions immediately resulted in a normal capnographic waveform with 23mmHg $P_{et}CO_2$ (B) and, following epinephrine administration, the patient was resuscitated successfully. No device dislodgement occurred.