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Letter to the Editor

Is there any reason for prone cardiopulmonary resuscitation in avalanche victims?



To the Editor

A recently published scoping review summarised the current literature on resuscitation in prone position, as the issue of patients in prone position has become especially important during the coronavirus disease 19 (COVID-19) pandemic.¹ Twenty of the 25 cases (80%) analysed were associated with post-resuscitation survival, although only seven cases reported full neurological recovery. Most of them were neurosurgical patients with cardiac arrest during spine-surgery. The American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care recommend that 'when patients cannot be placed in the supine position, it may be reasonable for rescuers to provide cardiopulmonary resuscitation (CPR) in the prone position, particularly in hospitalized patients with an advanced airway'.

Currently there is a lack of moderate to high-level evidence and paucity of studies on out-of-hospital cardiac arrest (OHCA) related to prone resuscitation. It will not always be possible to place a trapped patient from a prone into a supine position and it might be necessary to immediately start CPR in the prone position. Cardiac arrest in avalanche patients is one of these situations. Unlike in the majority of other forms of OHCA, in avalanche patients asphyxia is the main cause of death.² In asphyctic cardiac arrest ventilation and oxygenation are the causal treatment of the cardiac arrest and therefore, rescue breaths are recommended before starting basic life support (BLS) and compression-only-CPR cannot be advocated in avalanche victims.³ After complete avalanche burial the majority of victims will be extricated with their heads in a downhill position and almost half (45%) of victims will be found prone.⁴ This has significant impact on the immediate medical management and providers must anticipate victims in non-supine positions. It takes an average of 10 minutes to completely extricate a patient from avalanche debris, to free the airway, to bring him into a supine position and to initiate CPR.⁵ Simultaneous prone CPR and ventilation would be beneficial and shorten the asphyctic no-flow time. Almost all cases of prone CPR described in literature were in patients with secured airway. Only one study showed in ten healthy volunteers that resuscitation in prone position with no secured airway generated a mean tidal volumes of 399 ± 110 mL.¹ Ventilation in the prone position without an advanced airway during CPR is a difficult task even in standard rescuer position. The obvious solution in the out-of-hospital setting for cardiac arrest patients is to free the airway, and turn them into the supine position immediately, and commence ventilation and CPR, followed

by establishing an advanced airway. Overall, the current lack of evidence and the impossibility of an efficient ventilation discourage CPR of avalanche patients in prone position without securing the airway. Further studies are warranted to evaluate the possibility of securing the airway and ventilating these patients, i.e. by inserting a supraglottic airway device or chest-compression with apnoeic oxygenation.

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Conflicts of interest

None.

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