

Limited Ventilation Efficacy of Prehospital I-Gel Insertion in Out-of-Hospital Cardiac Arrest Patients

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Abstract : Introduction: I-gel is a commonly used supraglottic advanced airway device in prehospital out-of-hospital cardiac arrest (OHCA) allowing for minimal interruption of continuous chest compression. However, previous studies have shown that prehospital supraglottic airway had inferior neurologic outcomes and survival compared to no advanced prehospital airway with conventional bag mask ventilation. We hypothesize that continuous compression with i-gel as an advanced airway may cause insufficient ventilation compared to 30:2 chest compression with conventional BVM. Therefore, we investigated the ventilation efficacy of i-gel with the initial arterial blood gas analysis in OHCA patients visiting our ER. Material and Method: Demographics, arrest parameters including i-gel insertion, initial arterial blood gas analysis was retrospectively analysed for 119 transported OHCA patients that visited our ER. Linear regression was done to investigate the association with i-gel insertion and initial pCO₂ as a surrogate of prehospital ventilation. Result: A total of 52 patients were analysed for the study. Of the patients who visited the ER during OHCA, 24 patients had i-gel insertion and 28 patients had BVM as airway management in the prehospital phase. Prehospital i-gel insertion was associated with the initial pCO₂ level (B coefficient 29.9, SE 10.1, p<0.01) after adjusting for bystander CPR, cardiogenic cause of arrest, EMS call to arrival. Conclusion: Despite many limitations to the study, prehospital insertion of i-gel was associated with high initial pCO₂ values in OHCA patients visiting our ER, possibly indicating insufficient ventilation with prehospital i-gel as an advanced airway and continuous chest compressions.

Keywords : arrest, I-gel, prehospital, ventilation

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