

Paramedic - Evidence Based Medicine (P-EBP) Program

Paramedic CAT (Critically Appraised Topic) Worksheet

Title: *The comparison of bag valve mask ventilation device vs Tracheal Intubation in out of hospital cardiorespiratory arrest.*

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Clinical Scenario: *911 was called for a 64 y/o male found by his wife unresponsive on the couch. According to the wife the patient hadn't been feeling well for the past week with complaints of shortness of breath and chest discomfort. On arrival the paramedic crew found an unresponsive male with no pulse or respiratory effort and began resuscitation with Bag-Valve-Mask ventilation and CPR. The patient went code one to the local hospital. While on route the attending paramedic was unsuccessful with intubation due to the difficulty of the airway.*

PICO (Population – Intervention – Comparison – Outcome) Question:

Tracheal intubation during out of hospital cardiac arrest (P) Airway management with Bag-Valve-Mask (I) Tracheal Intubation (C) Functional/Neurological outcome 28 days (O).

Search Strategy:

((bag-valve mask ventilation vs endotracheal intubation OR supraglottic airway device vs tracheal intubation)) AND (out of hospital cardiac arrest OR functional outcome OR neurological outcome)



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Search Outcome:

This search yielded 13 hits. Two trials were able to answer the PICO questions.

Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN (LOE)	OUTCOMES	RESULTS	STRENGTHS/ WEAKNESSES
Jabre, 2018	2043 patients with out of hospital cardiac arrest.	Multicenter randomized clinical trial. LOE: 1	2043 patients with a favorable neurological fution at 28 days was present in 4.3% in the bag-mask group vs 4.2% in the endotracheal intubation group.	4.3% vs 4.2% with a P value .90 with survival at 28 d.	Strengths – Randomized trial. Patient's characteristics and the process of resuscitation were well balanced between the two groups. Weakness – Difference between age and history of psychiatric disorder.
Banger, 2018	9296 patients with out of hospital cardiac arrest.	Multicenter, cluster randomized clinical trial. LOE: 1	Primary outcome was available for 9289 of 9296 patients. In the supraglottic airway device group 311 of 4882 (6.4%) had a good outcome vs 300 of 4407 (6.8%) of tracheal intubation group adjusted risk difference.	6.4% vs 6.8% with a P value .33 with good outcome.	Strengths - Randomized trial. Meaningful outcome. Weakness – Paramedics were volunteers. Two groups weren't balanced. Some crossover between both groups



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Comments: Based on the information in both trials continued focus on high quality bag valve mask ventilations and the use of supraglottic airway devices should be encouraged in out of hospital cardiac arrest.

Clinical Bottom Line: With patients in out of hospital cardiac arrest. The use of BMV and supraglottic airway has shown to be as favorable as endotracheal intubation.

References:

Jabre, P., Penaloza, A., Pintero, D., Duchateau, F.-X., Borron, S. W., Javaudin, F., ... Adnet, F. (2018, February 27). Effect of Bag-Mask Ventilation vs Endotracheal Intubation During Cardiopulmonary Resuscitation on Neurological Outcome After Out-of-Hospital Cardiorespiratory Arrest: A Randomized Clinical Trial. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5838565/>

Benger, J. R., Kirby, K., Black, S., Brett, S. J., Clout, M., Lazaroo, M. J., ... Rogers, C. A. (2018, August 28). Effect of a Strategy of a Supraglottic Airway Device vs Tracheal Intubation During Out-of-Hospital Cardiac Arrest on Functional Outcome: The AIRWAYS-2 Randomized Clinical Trial. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6142999/#!po=1.42857>

