

Title: Advanced care paramedic intubation with the use of neuromuscular blockers (RSI) vs intubation without the use of neuromuscular blockers and associated success rates.

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Clinical Scenario:

Any situation in which pharmacological assistance is required to facilitate endotracheal intubation to secure a definitive airway.

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

In pre-hospital patients requiring intubation by Advanced care paramedics with pharmacology, does the use of a neuromuscular blocker (RSI) compared to standard practice (Facilitated intubation), lead to an increase in successful endotracheal tube placement.

Search Strategy:

Various search strategies were employed by myself, and the staff of the PEP course with underwhelming success. Ultimately, it was determined that the use of articles on the PEP website under "[Medication for Airway Management](#)" was appropriate. References in the primary article utilized led to additional relevant articles.

Relevant Papers:

Author, Date	Population	Design	Outcomes	Results	Strengths/Weaknesses
OJ, 1998	348	Retrospective (LOE II)	Improvement in intubation success rates	Improvement in intubation success rates	+Adequately sized control group (216) +Non-physician flight teams +Similar MOI's among trauma patients +Lengthy review period (5 years) -Predominantly trauma patients -Small test group (63 RSI) -No details as to whether additional skill/competency training was provided to either AMT group.
Vike, 1994	580	Retrospective (LOE II)	-Successful intubation	75% of 315 patients	+Consistent airway management training

			route -Complications	<p>successfully intubated nasally. (55 complications)</p> <p>84% of 170 patients successfully intubated with NRSI orotracheal. (126 complications)</p> <p>90% of 156 patients successfully intubated with RSI orotracheal. (12 complications)</p>	<p>regime involving cadavers and regular ETI performance monitoring.</p> <p>+Similarly sized test groups (143NRSI, 140RSI)</p> <p>-No medical patients.</p> <p>-No paramedic intubations.</p> <p>-Substantially lower initial mean GCS among NRSI intubation attempts.</p> <p>-Single agency</p>
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Comments:

Searches for data regarding the initial PICO question yielded no results. The data found regarding use by critical care paramedics, nurses, and physicians indicates that there is an improvement in intubation success rates and an associated reduction in complications with the use of RSI. This data, however, is over twenty years old.

Consider:

To be utilized by paramedics in Nova Scotia, we should first look at our own advanced care paramedics proficiency at endotracheal intubation without the use of paralytics.

- With what frequency are we performing ETI?
- Are we appropriately identifying patients requiring ETI?
- What is our current success rate?
- Would improving continuing education improve success rates?
- With what patient populations/conditions are we encountering the most difficulty?

Given the rapid evolution of paramedicine and changes in education over the last 20 years, there may be knowledge gaps that need to be identified and “filled” before the implementation of RSI.

A study of our own paramedics followed by comparison to a service that already widely employs the use of RSI, such as one in Alberta, may be beneficial in identifying the practicality of implementing neuromuscular blockers here in Nova Scotia.

Clinical Bottom Line:

There does not appear to be data directly linked to the use of neuromuscular blockers by advanced care paramedics, however, studies done with other emergency medical providers point to an improvement in ETI success rates and reduction in complications with its use.

References:

Ma, O., Atchley, R., Hatley, T., Green, M., Young, J., & Brady, W. (1998). Intubation success rates improve for an air medical program after implementing the use of neuromuscular blocking agents. *The American Journal of Emergency Medicine*, 16(2), 125–127. doi: 10.1016/s0735-6757(98)90027-4

Vilke, G. M., Hoyt, D. B., Epperson, M., Fortlage, D., Hutton, K. C., & Rosen, P. (1994). Intubation techniques in the helicopter. *The Journal of Emergency Medicine*, 12(2), 217–224. doi: 10.1016/0736-4679(94)90702-1