



Evaluation of ventilation quality of BLS Firefighter teams during OHCA: The VECARS-1 study

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INTRODUCTION

Previous studies have evaluated the quality of ventilation maneuvers during simulated cardiac arrest in mannequins, but **there is a lack of high-quality studies on real-time CPR feedback.**

AIM

This study aimed to measure ventilation parameters during OHCA in real-life **conditions to assess the quality of ventilation-manuevers by professional BLS teams.**

ACKNOWLEDGEMENT

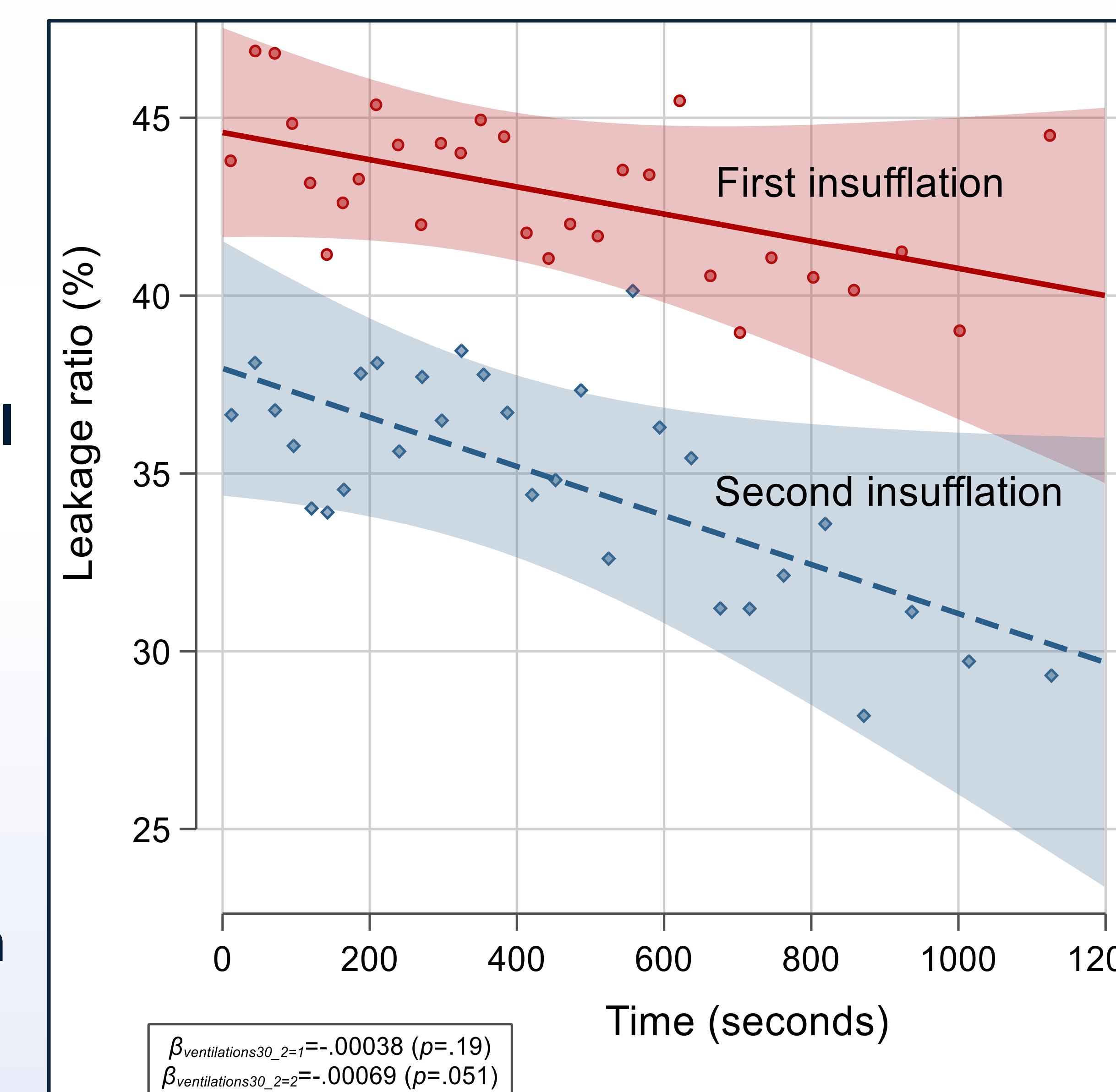
We thank the many first responders, Fire fighters nurses and emergency physicians who took care of the patients, and without whom survival from OHCA would not be possible

RESULTS

From **May 2023 to October 2023**, we analyzed **104 consecutive patients** aged 74 years[60-86], 60% male, who received a median of 44[30-67] ventilation maneuvers.

- **Median Insufflated volume was 538 [412-645] ml**
- **Tidal volume, 291[219-405] ml**
- **Mask-leakage, 199 [119-287] ml**
- **Leakage ratio, 41% [26-54]**

Longitudinal observation during intervention-time showed a slight improvement in leakage, notably for the second insufflation of each 30:2 cycle compared to the first one.



Evolution of the Leakage ratio for the first and second insufflation manoeuvres during 20 min BLS 30-2 CPR

METHOD

- **Prospective observational study**
- We included adult OHCA patients cared for by professional BLS Firefighter teams.
- During 30/2 CPR, the bag-valve mask was equipped with a **medical device (EOLife®- ARCHEON)** to record ventilation parameters.
- Ventilation real-time feedback was blinded to the user.
- We collected for each ventilation:
Insufflated volume (Vi)
Tidal volume (Vt)
Leakage volume
Leakage ratio = 1- (Vt / (Vi-Vt))
- We used a GLM model to account for repeated measures for each patient.
- ClinicalTrials.gov (NCT05992454)



CONCLUSIONS

The leakage-ratio remained high all over the BLS interventions, attributable to both the patient (regurgitation, individual facial anatomy) and the rescuer (delearning of the technique, cognitive saturation).

This study is among the first to evaluate the quality of ventilations during OHCA in real-life conditions and underscores the importance of improving the quality of ventilation in OHCA interventions.

CONTACT INFORMATION

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REFERENCE

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