2024 RESUSCITATION
31 OCTOBER — 2 NOVEMBER
ATHENS

EUROPEAN RESUSCITATION COUNCIL

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

F LEMOINE[1], D.JOST[1,2], B TASSART [1], A PETERMANN [1], S LEMOINE [1] , M SALOME [1] , B FRATTINI [1] , and S TRAVERS[1]

1. Paris Fire Brigade Emergency Med Dept, PARIS – FRANCE
2. Sudden Death Expertise Center, INSERM U-970, PARIS – FRANCE

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-maneuvers 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

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).

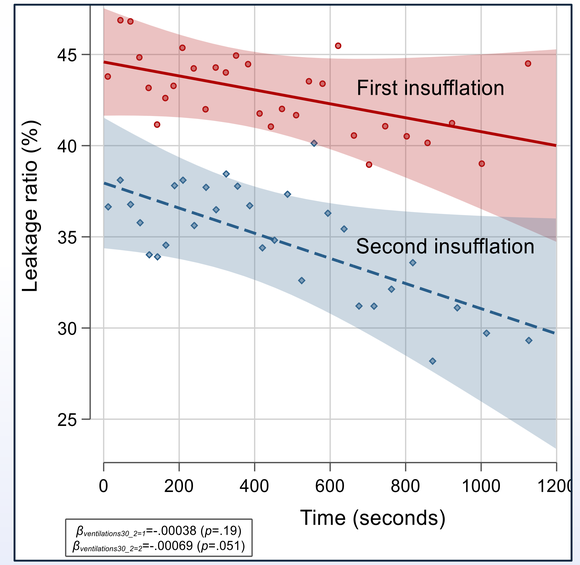
This study is among the first to evaluate the quality of ventilations during OHCA in real-life conditions and underscores the importance of improving the quality of ventilation in OHCA interventions.

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 manoeuvers during 20 min BLS 30-2 CPR

CONTACT INFORMATION

frederic.lemoine@pompiersparis.fr
daniel.jost@pompiersparis.fr

REFERENCE

1. Khoury A, De Luca A, Sall FS, Pazart L, Capellier G. Ventilation feedback device for manual ventilation in simulated respiratory arrest: a crossover manikin study. Scand J Trauma Resusc Emerg Med. 2019 Dec;27(1):93.

Poster Session Online

Basic Life Support and AED

Daniel Jost

P-464

ERC2024