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Efficacy of Current Preoxygenation Strategies During RSI in the Emergency Department

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INTRODUCTION

Complications during RSI are common in ED

12% desaturation

1% cardiac arrest[1]

Preoxygenation prior to RSI increases safe apnoea time

Preoxygenation = denitrogenation of the lungs

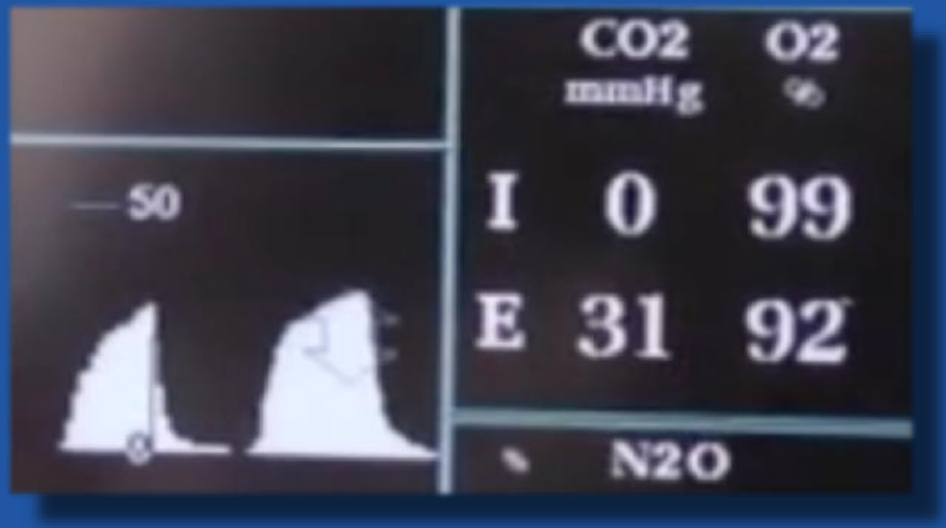
No reliable measurement of this in ED

[1]Alkhouri et al. EMA 2017

Only ‘gauges’ of preox are

- O2 sats
- ABG
- Time

In OT denitrogenation is measured by End-tidal Oxygen (ETO_2)



Guidelines recommend an ETO_2 of 85-90% prior to RSI[2]

[2]Frerk C et al. BJA 2015

AIM:

To determine whether current preox methods are effective during RSI in the ED

Outcome = ETO_2 > 87% prior to induction medications

METHODS

Prospective observational cohort study: 2 sites

Inclusion: All adult patients requiring RSI in the ED

Exclusion: NIV, Peri-arrest, cardiac arrest, unable to perform preoxygenation, physician discretion

<u>Non-rebreather (NRB)</u>
@ 15 LPM
@ 15 LPM +NC
@ FR +NC
@ FR

<u>Bag valve mask (BVM)</u>
@ 15 LPM
@ FR
@ 15 LPM +PEEP
@ FR +PEEP

Physicians blinded to ETO_2
Independent observer recording data

RESULTS

Demographics	LMC/RPA (n=100)
Age (median)	53
Gender (% Male)	56
% Predicted Difficult Airway	44

Indication	%
Pulmonary	37
Neuro	25
Trauma	19
Infection (not pulm)	7
Other	12

Pre-Ox Method	%
BVM	
@ 15 LPM	13
@ FR	17
@ 15 LPM + PEEP	12
@ FR+ PEEP	13
NRB	
@ 15 LPM	12
@ FR NRB	17
@ 15 LPM + NC	12
@ FR + NC	4

Mean ETO_2= 74% (95% CI 70%-78%)

24% ETO_2 >87%

44% ETO_2 70 - 87%

21% ETO_2 50-70%

11% ETO_2 <50%

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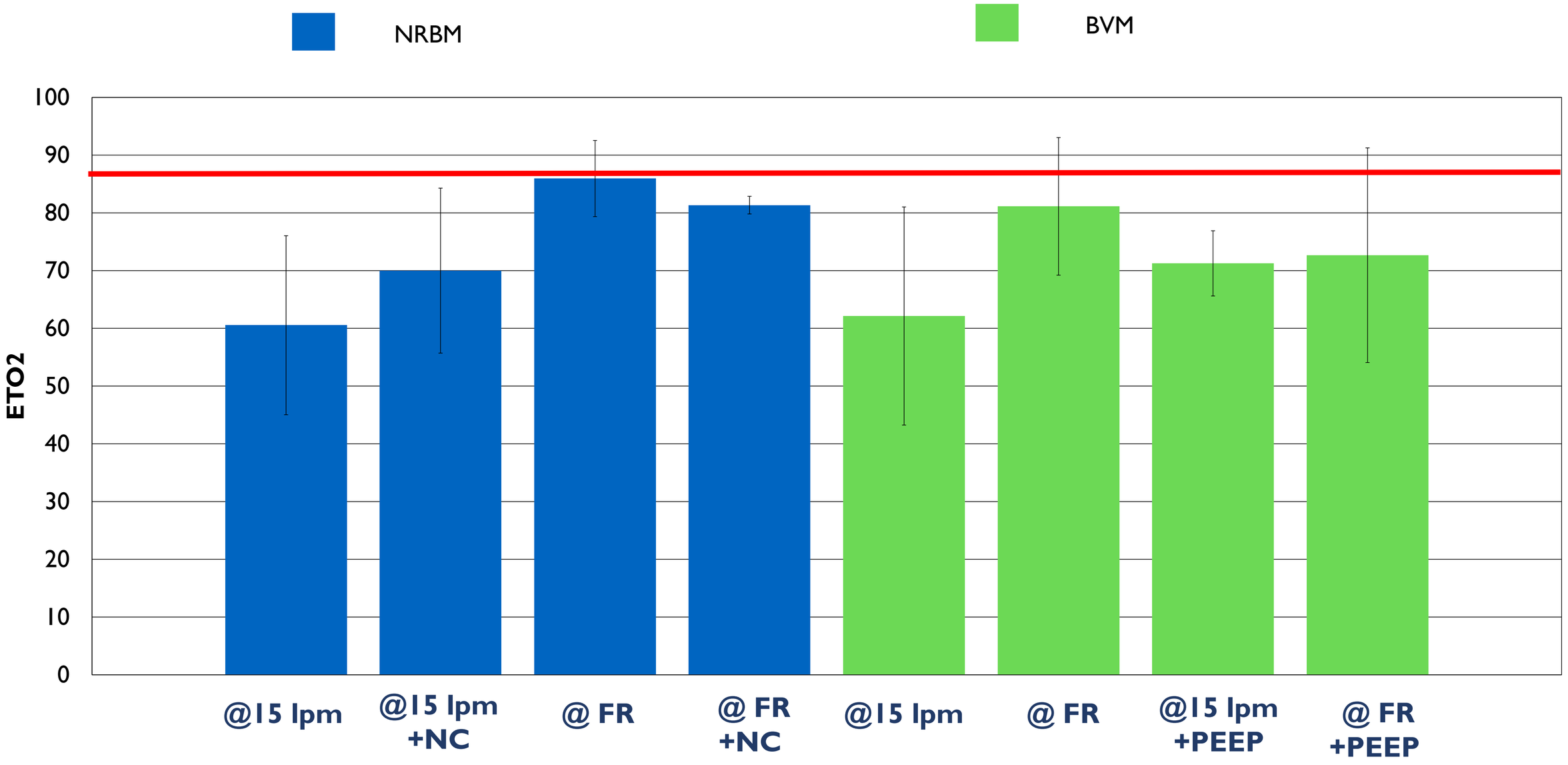
ETO2 at Induction by Preoxygenation Method



CONCLUSIONS

- Current preoxygenation strategies are inadequate to achieve ETO_2 >85-90%
- Flush rate oxygen may help improve preoxygenation strategies
- ETO_2 levels are not routinely used and may be beneficial to Emergency Physician's to optimise patients before RSI

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THE END
Questions?

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