

BACKGROUND

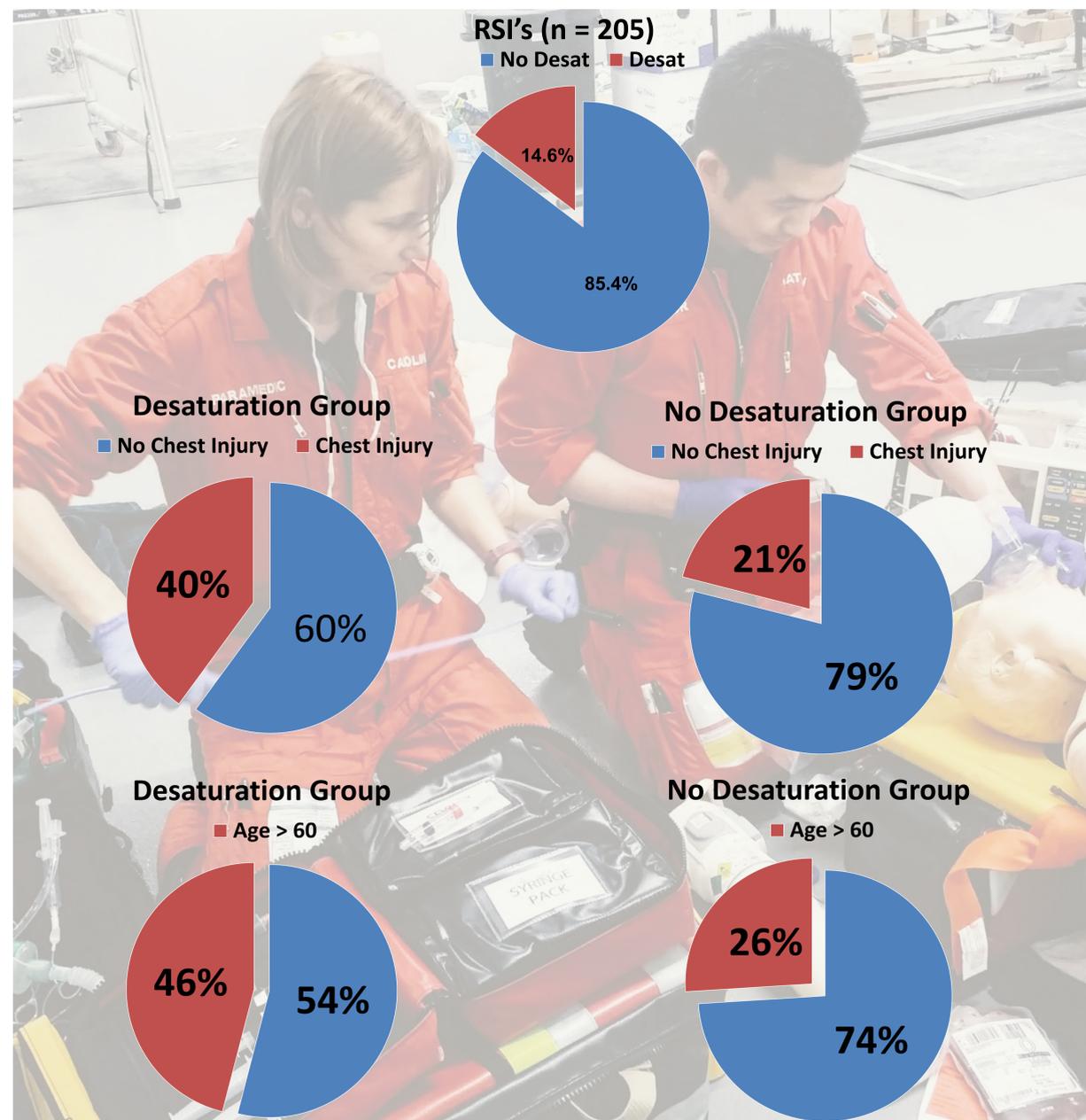
- Pre-hospital Rapid Sequence Intubation (RSI) is well established in the UK
- Our service performs between 250 to 300 RSI's a year
- Hypoxia is a known complication of RSI
- Hypoxia is a cause of increased morbidity amongst the critically ill, especially amongst head injured patients
- The incidence of pre-hospital peri-RSI desaturation has been quoted by several single centre studies to be between 10.9% and 22.6%
- Inadequate pre-oxygenation prior to RSI is likely to be a risk factor for desaturation
- A recent survey of UK HEMS services found pre-oxygenation strategies to be widely variable
- We undertook a retrospective review of our data in order to establish the incidence of peri-RSI desaturation and identify any high risk groups

METHOD

- Retrospective review of RSI's performed between December 2016 to 2017
- Data was collected from our HEMSBase (Medic One Systems) electronic patient record
- An episode of desaturation was classified as:
 1. SpO₂ fall below 92% up to 5 mins post Rocuronium
 2. SpO₂ fall >10% if maximum preoxygenation SpO₂ <92%
- Data excluded if:
 1. SpO₂ plethysmograph trace poor
 2. Record unclear Re: time of induction and administration of Rocuronium

RSI IN OUR SERVICE

- Delivered by HEMS Doctor/Paramedic team
- Specific indications within standard operating procedures
- 15L/min pre-oxygenation via non-rebreathe reservoir mask
- Nasal cannulae for apnoeic oxygenation in certain groups
- Standardised drug and dosing regimens
- Continual review in clinical governance process



CONCLUSIONS

- Hypoxia is a complication of pre-hospital anaesthesia that we should try to mitigate wherever possible
- There is a remit to investigate methods that increase the inspired FiO₂ delivered during preoxygenation as a potential strategy to address this

RESULTS

- 205 out of 269 RSI's were amenable to analysis
- 185 Adult and 20 Paediatric RSI's
- 133 Traumatic, 52 Medical
- 15% of patients desaturated during RSI
- 7% of non-chest injured patients desaturated during RSI
- 3% had recorded weight of 100Kg + (not a risk factor in this data)
- Chest injury and advanced age appear to be risk factors
- 50% of desaturation cohort had documented airway soiling at laryngoscopy vs 21% on the cohort with no desaturation
- 1st Pass intubation rate >92% in both groups

Table 1. Data Collected

Age	SpO ₂ at time of Rocuronium administration
Injury Mechanism	Lowest recorded SpO ₂ in 5 mins post Rocuronium
Indication for RSI	Number of attempts
Documented estimated weight	Presence of airway soiling

DISCUSSION

- The incidence of peri-RSI desaturation in our service compares with published data
- Certain patient groups have a higher risk of desaturation during prehospital RSI (eg Elderly and those with chest injuries)
- Patients who received RSI in the absence of a chest injury had a very low incidence of desaturation
- The '1st pass' intubation rate in this service is high and was similar between the two groups
- Increasing the inspired Oxygen fraction during preoxygenation may reduce the incidence of peri-RSI desaturation, particularly in 'at risk' patient groups

REFERENCES

1. A Nakstad et al. *Incidence of desaturation during prehospital rapid sequence intubation in a physician-based helicopter emergency service* American Journal of Emergency Medicine (2011) 29, 639–644
2. A. Newton et al. *Incidence of adverse events during prehospital rapid sequence intubation: A review of one year on the london helicopter emergency medical service* J Trauma. 2008;64:487–492.