



Advanced Paramedic Delivered Finger Thoracostomy

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Introduction & Aims

Tension pneumothorax is a potentially fatal but reversible injury encountered in major trauma and traumatic cardiac arrest. Needle decompression has been the standard treatment approach pre hospital in Ireland and internationally. However, concerns exist regarding the effectiveness of this approach due to anatomy and body habitus. We aim to describe the training, introduction and experience of finger thoracostomy by advanced paramedics within a pre hospital service in Ireland.

Methods

Finger thoracostomy has been advocated as an alternative pre hospital treatment which is both diagnostic and therapeutic. Paramedic delivered thoracostomy is commonplace in pre hospital critical care services internationally.

The MCI Medical Team (as part of Motorsport Rescue Services) is a PHECC-registered multidisciplinary team which provides medical cover at motorcycle road racing events in Ireland. The MCI Medical Team has significant experience of major trauma and routinely performs pre hospital anaesthesia for trauma patients.

We introduced a training module on finger thoracostomy, comprising: theory, practical instruction and assessment for advanced paramedic members of the team.

Indications

- Adult patient
- Traumatic cardiac arrest (bilateral thoracostomies empirically)
- Clinical signs of tension pneumothorax
- Persisting hypoxia or hypotension post rapid sequence intubation

Theory

- Pre reading: anatomy, technique, SOP
- Indications & contraindications
- Didactic lecture with Q&A session
- Surface anatomy
- PPE & infection control precautions

Practical

- Equipment
- Landmarking techniques
- Porcine cadaver model
- Commercial pneumothorax trainer model
- Troubleshooting & complications

Assessment

- Theory assessment
- Landmark identification
- Completion on porcine model

Privileging & Practice

- Individual licenced APs
- Training and assessment completed satisfactorily
- As part of physician led team
- Maintain currency

Cases

1. Hypotension & hypoxia post RSI - bilateral
 2. Traumatic Cardiac Arrest - bilateral
 3. Clinical signs of unilateral tension post RSI - unilateral
- Two of the three patients have made a full neurological recovery

Results & Conclusions

Advanced paramedic members of the team we trained to deliver finger thoracostomy in predefined circumstances when operating as part of the MCI medical team. To date, advanced paramedic delivered finger thoracostomy has been utilised on three occasions.

Introduction of advanced paramedic delivered thoracostomy is a feasible and effective technique for the treatment of tension pneumothorax within a closely governed system.

References

1. London HEMS SOPs
2. PHECC Clinical Practice Guidelines, 2017
3. ATACC manual, 2014
4. MCI Medical Team SOPs, 2018
5. Dickson RL et al. EMS Simple Thoracostomy for a Traumatic Cardiac Arrest. J Emergency med 2018. Jun 26.