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ECMO transport: The role of Critical Care Paramedics

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Background: Transport of patients on ECMO has been demonstrated to be safe, if undertaken by well-trained teams.¹⁻³ Incorporating an Ambulance Service Critical Care Paramedic (CCP) into the team provides a seamless team dynamic during retrieval improving safety.⁴ The CCP helps to co-ordinate logistics, monitors patient and team safety and provides an additional resource for advanced life support during ECMO patient transport. In addition, they provide a link to decision-making and execution of patient movement systems and help access any additional resources within the Ambulance Service.

Seamless team dynamics: The success of each retrieval depends as much on team dynamics as on the technical skills of the individual specialties represented in the team.⁵ In recognition of the central role of the Ambulance Service in ECMO transport, CCPs were included in the working group, training and development process for ECMO at Hamad Medical Corporation in Doha, Qatar. Based on their experience, they led the design of the retrieval service Mobile Intensive Care Vehicle and High-Acuity Patient Transport Trolley, helping to develop a platform and system that provides redundancy and limits the requirement for the ECMO team to carry additional backup equipment. In addition, they are part of activities like developing and participating in ECMO transport multidisciplinary simulations.

Patient and team safety: Multitasking is a potential source of medical error.⁴ To allow each member of the team to focus on their specific tasks, the CCP takes a patient and team safety role, oversees the various aspects of the process, and ensures the timing of each process and completion of all tasks before movement. Each step in the patient preparation and movement is confirmed as per the safety checklist to ensure nothing is overlooked, and the risk of accidental snagging of lines, trip hazards and subsequent

dislodgment of invasive lines or ET tubes is assessed at each step and thus minimised.

Logistics: Successful cannulation by the ECMO team requires them to be self-sufficient and independent of the referral hospital for supplies. Prior to the ECMO team activation, the CCP is responsible to ensure that all equipment boxes, required for cannulation and patient care, are loaded into the transport vehicles, and the subsequent delivery of these boxes to the appropriate venue at the referral hospital. The CCP, being familiar with ambulance service equipment (oxygen, power sources, and electronic equipment placement within the ambulance), is there to ensure appropriate connection, trip hazard and snag risk reduction, and troubleshooting on route.

ALS and clinical support: Critical Care or Intensive Care Paramedics have received additional training in Critical Care Transport and Aeromedical Medicine.

CCPs within the Ambulance Service are able to provide advanced airway interventions (rapid sequence induction intubation), use multimodal mechanical ventilation and provide advanced cardiovascular life support – including infusion devices, inotropes, external pacing and mechanical chest compression devices. The CCP also plays a support role for the ECMO nurse specialist in preparing the patient for transfer to theatre (infusions, monitoring and ventilation), and becomes lead for the safe movement of the patient from the unit to the theatre, and later to the ambulance.

Keywords: ECMO, Critical Care Paramedics, seamless team dynamics, patient safety, clinical support

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