POSITION STATEMENT

Pre-hospital rapid sequence intubation

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The Professional Board for Emergency Care at the Health Professions Council of South Africa (HPCSA) has approved pre-hospital rapid sequence intubation (RSI) as part of the scope of practice for registered emergency care practitioners (ECPs).

RSI is an advanced airway management process that facilitates endotracheal intubation in adults and children. Features of this technique include pre-oxygenation, rapid pharmacological induction of unconsciousness, and neuromuscular blockade to enable the placement of an endotracheal tube.

RSI has become widespread as the procedure of choice for definitive airway management by pre- and in-hospital emergency care personnel worldwide. In the emergency department setting, RSI is superior to intubation with deep sedation, a technique not incorporating pharmacological paralysis as part of the intubation sequence. For this reason, the implementation of RSI in the pre-hospital environment is supported, provided that it is practised within an appropriate framework of clinical governance.

Position statement

This statement is endorsed by the Emergency Medicine Society of South Africa (EMSSA) and the Resuscitation Council of Southern Africa, and reflects pre-hospital RSI teaching and practice by the Department of Emergency Medical Care at the University of Johannesburg and the Division of Emergency Medicine at the University of the Witwatersrand.

Pre-hospital RSI provides improved intubating conditions compared with intubation with deep sedation only, takes less time for intubation, and uses a safer combination and dosage of drugs. RSI also has risks; using neuromuscular blocking agents has potential complications because of the removal of spontaneous respiratory effort and possibly the loss of airway patency under certain circumstances. Nonetheless, the overall benefits of this technique outweigh the risks.

Although the HPCSA has communicated some minimum standards about training and system and clinical governance requirements for pre-hospital RSI, these lack the necessary detail to allow adequate preparation for its implementation. To provide pre-hospital RSI safely and effectively, the following three aspects require consideration.

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1. Training

Pre-hospital RSI demands the application of knowledge, understanding and skill, and it requires the practitioner to reason logically, make sound clinical decisions and solve problems. The endpoint of each component of training should be demonstrated proficiency. Training and assessment should incorporate the following:

Theoretical knowledge, focusing on the understanding of RSI procedures including indications, contraindications, and clinical decision-making and its influencing factors, particularly under emergency conditions.

Simulated practice of RSI and related skills, including scenarios involving application of the abovementioned theoretical outcomes. These should be assessed by simulation exercises to ensure the safe application of a staged approach to airway difficulty.

Clinical practice of RSI and related skills that should involve RSI performed initially in a controlled environment, under the supervision of a medical practitioner experienced in RSI, and subsequently in the pre-hospital environment. Experience should also be obtained using rescue oxygenation devices.

Continuing education for RSI should be encouraged.

2. System requirements

Emergency medical services incorporating RSI as a standard of care must incorporate the following features:

Adequate equipment for RSI, i. e. standard airway equipment (with airway bougie) and other mandatory devices including endotracheal confirmation devices (CO_2 detection devices and others), alternative intubation equipment, rescue oxygenation devices and surgical airway kits. This equipment must be available for every practitioner and every attempted RSI.

Adequate personnel to perform the procedure safely. Advanced life support personnel capable of RSI should be partnered with an assistant capable of assisting in advanced airway management.

3. Comprehensive clinical governance system

Clinical governance should use aspects of quality assurance and quality control and benefits from multi-disciplinary input. Quality assurance measures must include a clinical protocol, appropriate equipment and system requirements (above). Quality control measures must include (*i*) real-time overseeing and advice by experienced senior personnel who must be available at all times; (*ii*) clinical record review involving every RSI case in a given emergency medical service; and (*iii*) routine collection and review of statistics on pre-hospital RSI performance, complications and outcomes.

Conclusion

Pre-hospital RSI may not be implementable in all emergency medical services in South Africa because of lack of resources. Apart from personnel requirements, services wishing to implement pre-hospital RSI must be properly prepared, including providing ECPs with the prescribed minimum training, systems requirements and robust clinical governance.

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