RSI

RAPID SEQUENCE INTUBATION

RAPID SEQUENCE INTUBATION (RSI)

I. Overview

RSI is a method of intubating patients who have a gag reflex who would otherwise be difficult to intubate. Intubation is accomplished by sedating and paralyzing the patient, allowing for easier intubation. No new skills are necessary, but decision making is crucial.

RSI utilizes a sedative, a short term paralytic, and a long term paralytic when necessary. In addition, atropine is used for bradycardic patients, and lidocaine is used for patients with increased intracranial pressure (ICP).

Because of the nature of RSI, not all paramedics are eligible and close scrutiny is required. The Medical Control Physician (MCP) must play a key role in the training and evaluation of the effectiveness of the program.

Training places a heavy emphasis on skills and decision making (who should and should not receive RSI). The single most critical factor is application of the Sellick's maneuver from the time the paralytic is administered until the time the patient is either intubated or the paralytic wears off.

QA/QI is critical to the success of RSI. Cases should be reviewed as soon as possible following an RSI and positive or negative feedback given to the paramedic.Those paramedics making bad decisions or having poor intubation rates should be identified and remediated quickly. If improvement is not seen, they must be removed from the project.

Most RSIs will be performed on patients with head injuries and respiratory exhaustion. Other patients needing RSI are those with burns, certain overdoses, facial injuries, and CVAs. Very careful attention should be paid to the patient in CHF. Performing RSI on these patients should be performed only after meds have failed.

II. Outline of the Initial Training

The Art of RSI 1 hour

a. Indication

b. Medications

* Review of Basic Airway Management, Intubation, 1-4 hours

and Trauma Assessment

* Local Option dependent upon completion of prerequisite courses such as ACLS or BTLS/PHTLS

Decision Making 2 hours

III. Evaluation

A copy of all RSI's will be sent to the MCP and Training Coordinator immediately following the call.

The MCP will review each call for appropriate and inappropriate treatment, decision to use RSI, and scene times.

All RSI cases should also be reviewed through the normal QA/QI mechanism.

IV. Inappropriate Treatment

In the instance that RSI is performed inappropriately, the MCP will make written recommendations as to whether remediation is necessary or if the participant should be removed from the program.

V. Qualifications to Participate in RSI

A. Minimum one year experience as an EMT-P

B. Minimum two years experience with endotracheal intubation.

C. Score at least 90% on test of drugs associated with RSI.

D. Be able to state the indications for RSI.

E. Show proficiency with RSI skills

VI. Responsibilities of the MCP

A. Approve RSI

B. Monitor training

C. Evaluate the skills of participants

D. Review all RSI attempts

E. Initiate retraining/remediation as needed.

RAPID SEQUENCE INTUBATION

Indications:

1. Trauma patients with Glasgow Coma Scale of nine or less with gag reflex.
2. Trauma patients with significant facial trauma and poor airway control.
3. Closed head injury or major stroke with unconsciousness.
4. Burn patients with airway involvement and inevitable airway loss.
5. Respiratory exhaustion such as severe asthma, CHF or COPD with hypoxia.
6. Overdoses with altered mental status where loss of airway is inevitable.

Preparation:

1. Assess oropharynx and neck anatomy to anticipate difficult intubation. "Can I bag this patient if I cannot intubate him?"
2. Administer 100% oxygen. Have bag-valve-mask at hand.
3. Apply three lead cardiac monitor, BP monitor, pulse oximeter.
4. Secure intravenous access.
5. Test ET tube and all equipment necessary for intubation.
6. Estimate patient's weight, calculate drug dosages, and draw up into syringes.

Procedure:

1. Preoxygenate with 100% oxygen by non-rebreather mask for at least 3 full, deep breaths. If ventilation is required, bag gently while cricoid pressue is applied. Preoxygenate four minutes if situation allows.
2. Administer either midazolam **OR** etomidate.
    a. Midazolam dose is 2 mg for the average size adult.
    b. Etomidate dose is 0.3 mg/kg, about 20 mg for the average size adult.
    c. If systolic pressure is 80-100 mmHg, utilize etomidate or decrease midazolam dose.
3. Administer lidocaine 1.5 mg/kg to patients with head trauma or stroke.
4. Apply cricoid pressure and hold until patient has been intubated, balloon of ETT has been inflated, position of tube tip has been assured, and ETT has been secured in place.
5. Administer <u>succinylcholine</u> 1.5 mg/kg IVP (100 mg for average 70kg patient) and wait for paralysis to occur.
6. Intubate. Discontinue attempt and ventilate with 100% O_2 if:
    a. Thirty seconds has passed, and PO_2 falls below 91% or
    b. Heart rate falls below 60.

7. When successfully intubated, confirm placement by
    a. Bilateral breath sounds, and
    b. Chest wall rise, and
    c. Absense of gastric sounds, and
    d. End tidal CO_2 measurement, and
    e. Continued PO_2 readings in the high 90's (if this is consistent with the patient's baseline)
8. A second qualified person will then confirm correct tube placement.
9. Secure tube in place to a stable facial structure.
10. If intubation is unsuccessful, maintain cricoid pressure and provide BVM ventilation until the paralytic wears off, or consider use of the LMA or combitube.
11. If patient becomes agitated, administer midazolam 1 mg every 1 – 2 min. until patient is calm, BP drops, or max. 10 mg is utilized. Further doses may be given by direct medical control.

If a long transport is anticipated, consider administering vecuronium (0.1 mg/kg). Remember sedation is still required when vecuronium is utilized.

Anectine

Succinylcholine Chloride

Main Indications:	- Skeletal muscle relaxant during surgery or mechanical ventilation - Facilitate tracheal intubation - Adjunct to general anesthesia
Contraindications:	- Hypersensitivity to succinylcholine - History of malignant hyperthermia - Skeletal muscle myopathies
Major Side Effects:	- Apnea - Cardiac arrythmias - Increased intraocular pressure - Muscular fasciculations
Therapeutic Effects:	- Combines with the cholinergic receptors of the motor end plate to produce depolarization. - Onset of flaccid paralysis is rapid (less than 1 minute) after administration. - Last approximately 4 - 6 minutes.
Adult Dosage:	- 1.5 mg/kg (Maximum of 150 mg)
Approved Drug Route:	- IV
Special Information:	- Succinylcholine has no effect on consciousness, pain threshold, or cerebration. Must be use with adequate sedation. - In elderly patients, time of onset may be delayed due to slower circulation time.

Versed

Midazolam

Main Indications:	- Amnesia prior to or during diagnostic procedures. - Conscious sedation
Contraindications:	- Hypersensitivity to versed - Shock (relative) - Pregnancy (relative)
Major Side Effects:	- Apnea - Cardiac arrythmias - Hypotension
Therapeutic Effects:	- Short-acting benzodiazepine CNS depressant
Adult Dosage:	- .02 mg/kg - .05 mg/kg up to 5 mg initial dose - For initial administration of Versed, consider decreased dose if systolic BP is 80 – 100 mm. **REPEAT DOSES OF VERSED MAY BE ADMINISTERED ONLY WITH DIRECT ONLINE MEDICAL ORDER** - After successful intubation, airway control and additional IV, Versed may be administered based on patient effect up to a total of 10 MG IV.
Approved Drug Route:	- Slow IV
Special Information:	- Impairs memory in 90% of patients - Flumazenil will reverse sedative effects

Norcuron

Vecuronium Bromide

Main Indications:	- Facilitates ET intubation by paralyzing skeletal muscle - Provides skeletal muscle relaxation during mechanical ventilation
Contraindications:	- Hypersensitivity to vecuronium
Major Side Effects:	- No side effects except with overdoses
Therapeutic Effects:	- Prevents neuromuscular transmission by blocking the effect of acetylcholine at the myoneural junction. - Skeletal muscle paralysis
Adult Dosage:	- 0.1 mg/kg over 30-60seconds - Onset of 2-3 minutes, duration of 25-30 minutes
Approved Drug Route:	- IV
Special Information:	- Paralysis may be prolonged by succinylcholine, quinidine, and beta blockers

ETOMIDATE
Amidate

Rs

INDICATIONS:	❑ For use in RSI protocol – for anesthesia induction.
ADMINISTRATION:	❑ IV
DOSAGE:	
ADULT:	◊ .3mg/kg
PEDIATRIC:	◊ .3mg/kg
THERAPEUTIC EFFECTS:	Hypnotic drug (no analgesic activity)
RELATIVE CONTRAINDICATIONS:	Known sensitivity to drug
SIDE EFFECTS:	Transient venous pain, skeletal muscle movement
SPECIAL NOTES / RESTRICTIONS:	

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State Medical Director
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Rapid Sequence Intubation

Date: _____ EMS Run Number: _____

Indications For RSI
(Before Intubation)

CGS= _____ Pupil Status: _____ Respiratory Rate: _____

SpO2: _____ Heart Rate: _____ B/P: _____/_____

Post Intubation

CGS= _____ Pupil Status: _____ Ventilation Rate: _____

SpO2: _____ Heart Rate: _____ B/P: _____/_____

Number of Attempts: _____ Successful: Yes No Tube Depth: _____
Tube Size: _____

To Be Filled Out by Paramedic Performing RSI:
Physical Findings or Justification for Need:

Estimated Patient Weight in KG - _____

Patient Transported To: _____

via: _____

If there were any complications contact MCP Immediately. Regardless of outcome attaché copy of ARR and fax to MCP and the Training Coordinator on return to EMS Station.

Dosage of Drugs Used		
Drug	**Dosage**	**Time**
Succinylcholine		
Lidocaine		
Atropine		
Norcuron		
Versed		

Is ET tube properly placed with bilateral breath sounds, acceptable SpO2 and end tidal CO2 detector in place with positive reading?

Receiving RN Signature: _____

Paramedic Signature: _____