SwedishAmerican EMS
STANDING MEDICAL ORDERS
EMT – PARAMEDIC

SMO: RSI – Rapid Sequence Intubation

Overview: This advanced airway technique involves the use of rapidly inducing anesthesia to gain immediate control of the airway and aid in stabilizing and securing the patient. It includes administration of sedation medications and neuromuscular blocking agents to induce unconsciousness and motor paralysis for the purpose of facilitating endotracheal intubation. RSI is indicated in patients who require an airway with endotracheal intubation due to potential or actual airway compromise when nasal intubation is hazardous or impossible and the patient cannot be safely intubated orally without paralysis.
*****RSI to be used only by approved Provider*****

Objectives

__ To achieve immediate airway control necessitating induction of anesthesia and muscle relaxation
__ To facilitate orotracheal intubation in the following difficult situations:
  __ Combative / agitated / uncooperative patients
  __ Patients with altered mental status with clenched jaws
  __ Patients with significant airway burns / inhalation injury who need prophylactic airway protection
__ To establish a patent, secure airway
__ To provide adequate oxygenation and ventilation
__ To prevent aspiration
__ To minimize the adverse effects of intubation, including systemic and intracranial hypertension

INFORMATION NEEDED

__Initial Assessment
__History of present event

OBJECTIVE FINDINGS

Observe the patient's respiratory rate, depth of respirations, skin color and auscultate lung, fields, Assess LOC and GCS. Intubation may be indicated if assessment reveals one or more of the following:
__ Respiratory rate < 10 or > 30
__ GCS of 8 or less (depressed sensorium or head injury)
__ Burns that involve face or neck, or suspected inhalation injury with airway damage and swelling / compromise
__ Acute or impending airway loss or inability to protect the airway (facial trauma with bleeding)
__ Assess patient combativeness and spinal cord stability

Contraindication

__ Due to the fact that RSI may result in a patient who is difficult to ventilate using a BVM or intubate after complete paralysis, in order to obtain an airway after unsuccessful RSI, the operator may be required to attempt an airway using one of the following: Combitube, digital intubation, or a needle cricothyrotomy. Therefore, if endotracheal intubation would be difficult to obtain (neck expanding hematoma, neck swelling, congenital anomalies, epiglottis, etc.) then caution should be used when deciding to paralyze these patients.

__ Hyperkalemia

__ Penetrating eye injuries

__ Known hypersensitivity to the drugs being considered

__ Unstable fractures that maybe displaced by fasciculations

__ Known pseudocholineresterase deficiency.

__ In addition to above **succinylcholine**, has several contraindications, and should not be used in patients with the following conditions:

- __ 5 days or more post-burn
- __ 5 days or more post major trauma
- __ Any patient with chronic paralysis (dennervation)
- __ History of malignant hyperthennia, known pseudocholinesterase deficiency, or neuromuscular disorder.

Equipment

__ RSI Yellow Drug Bag

- __ Syringes and needles
- __ Calculator
- __ RSI drug dosages / indications list
- __ Drugs
  - __ Sedation Medication: Midazolam (VERSED)
  - __ Paralytic Medications: Succinylcholine (Anectine)

__ Bag-Valve-Mask (with reservoir bag and oxygen inlet)

__ Oxygen Delivery System

__ Suction equipment (with connecting tubing and tips)

__ Laryngoscope handle with functioning batteries

__ Various curved and straight laryngoscope blades

__ Cuffed and uncuffed ET tubes (of various sizes)

__ Lubricant

__ 10cc syringe

__ Tape

__ Benzoin

__ Stylets

__ McGill Forceps

__ End Tidal CO2 Detector

__ Pulse Ox

__ Oral and Nasal Airways (of various sizes)

__ Combitube and Cricothyrotomy Kit for back-up airway

Procedure

STEP 1: PREOXYGENATE:

__ Position the patient and pre-oxygenate with high flow oxygen by mask for 2 – 5 minutes.

__ Do not manually ventilate the patient unless ventilatory assistance is needed, if needed, use BVM to provide respiratory support.

__ Apply cricoid pressure / Sellick's maneuver.

STEP 2: PREPARE:

__ Assemble the required equipment and draw up the medications, including labeling the contents of the syringes.

__ Ensure that the IV functions well.

__ Continuously monitor the cardiac rhythm and pulse oximetry if conditions allow.

__ Have immediately available a combitube and the emergency cricothyrotomy kit.

STEP 3: PREMEDICATION: Sedation: *Midazolam 0.1 mg/kg IV Note:*

__ Continue pre-oxygenation for 2-3 minutes (allow medications to work) prior to step 4 if time allows and the patient has effective respiratory support.

__ Continue Sellick's maneuver (cricoid pressure) until ET tube placement is confirmed and cuff is inflated.

__ Consider removing the c-collar (if present) while providing in-line manual immobilization of the head and neck to aid in applying cricoid pressure and intubation.

STEP 4: PARALYSIS, then INTUBATE: Succinylcholine (Anectine) 1 mg/kg IV for an adult patient (2 mg/kg for pediatric)

__ If fasciculations occur, wait for them to stop then assess for apnea, jaw relaxation, and decreased resistance to bag / mask ventilations indicating that the patient is sufficiently relaxed to proceed with intubation.

__ Intubate, check tube placement, secure tube and continue to assist respirations.

__ Reapply the c-collar and complete spinal precautions for transport

__ If an extended transport time is probable a second dose of succinylcholine 2 mg/kg IV may be given.

IF UNSUCCESSFUL:

__ If unable to intubate during the first 20 seconds attempt, or if the oxygen saturation drops below 80%, stop and ventilate the patient with the BVM for 30-60 seconds.

__ If inadequate relaxation is present, give a second dose if additional attempts fail, ventilate the patient with the BVM until spontaneous ventilations return (usually 10-60 minutes). Re-evaluate the patient. If intubation fails and you are unable to ventilate the patient with BVM or Combitube perform digital intubation or cricothyroid airway maneuver.

Documentation of adherence to protocol:

__ Verify ET secure, in proper location and how confirmed, including absence of breath sounds over the epigastric region.
__ Document medications used and dosages.
__ Document indication for intubation and outcome successful vs. unsuccessful – include any difficulty with procedure, condition of airway, number of attempts, and who performed procedure.
__ Document cricoid pressure and immobilization / in-line stabilzation of C-spine for trauma patients.
__ Document ease of ventilation and the continued bagging of patient.
__ Monitor end tidal CO2 and pulse oximeter
__ Document size of ET tube, #cm, at lips, end tidal CO2 detector color change, pulse oximeter, lung sounds, chest expansion, and any complication.
__ Document cardiac rhythm and vital signs.
__ Document status of tube at receiving faculty: breath sounds, oxygen saturation and clinical improvement / stability.
__ Document MD who confirms tube placement on patient record if possible.
__ An RSI QI form will be completed on each run that RSI is utilized and will be submitted to Swedish American EMS.

Medical Control Contact Criteria
__ *contact Medical Control if any questions regarding the best treatment options for the patient

PRECAUTIONS AND COMMENTS

__ Do not release cricoid pressure until the airway is definitely secured and working.
__ Treat bradycardia occurring during intubation by halting intubation attempt and hyperventilating the patient with the BVM and 100% oxygen. If the patient remains bradycardic, consider Atropine 0.5 mg IV for adults.
__ Ensure adequate continued sedation in all paralyzed patients.
__ Ensure that the BVM remains immediately accessible in the event of accidental extubation.
__ If ETT position is ever in doubt, confirm position with direct inspection with laryngoscope.
__ Patients may need intervention to treat tension pneumothoraces by needle decompression if the following occur: increased difficulty bagging patient, tracheal shift, decreased breath sounds, tachycardia and hypotension.

Complications

__ May cause increased gastric pressure and vomiting with fasciculations
__ Cardiac dysrhythmias: bradycardia, PVC's, V-fib
__ Aspiration
__ Injury to airway / pneumothorax / broken teeth
__ Hypotension
__ Increase intraocular, intracerebral and introgastric pressure
__ Malignant hyperthermia is an extremely rare complication.
__ False passage / esophageal intubation, right mainstem intubation

MIDOZOLAM
(VERSED)

ACTION: Anxiolytic, hypnotic, anticonvulsant, muscle relaxant and amnesic effects (1 – 1.5 times as strong as valium).

USES: Sedation for procedures, prolonged seizures, muscle relaxation and reduction of anxiety.

SIDE EFFECTS: Respiratory depression, reduction in systolic and diastolic blood pressure, increased heart rate, confusion, combativeness or agitation, headache, nausea and vomiting.

CONTRAINDICATIONS: History of allergy to benzodiazepines, narrow angle glaucoma. Use with caution in patients with alcohol intoxication.

DOSE: 0.1 mg/kg in 1 mg increments every 30 seconds until desired effects. May repeat if inadequate sedation.

SUPPLIED: 2 cc ampules containing 1 mg Midazolam per cc = 2 mg per ampule.

ONSET OF ACTION: 3 –5 minutes typical.

DURATION OF ACTION: 15 minutes to 2 hours depending on dose, patient weight and hepatic function.

SUCCINYLCHOLINE
(ANECTINE)

ACTION: Depolarizing muscle relaxant.

USES: Muscle relaxation during intubation and maintenance of relaxation during transport of the intubated patient.

SIDE EFFECTS: Post procedure muscle pain, increased heart rate, increased blood pressure, elevated serum potassium levels, increased intraocular pressure, increased gastric pressure, increased intracranial pressure (most effects short lived), apnea.

CONTRAINDICATIONS: Malignant hyperthermia, history of atypical pseudocholinesterase, open eye injuries, massive burns, renal failure patients, patients who have been at prolonged bed rest.

DOSE: 1 mg/kg IV adults; 2 mg/kg children (may repeat once if inadequate relaxation).

SUPPLIED: 10 cc ampules with 20 mg/cc = 200 mg per ampule.

ONSET OF ACTION: Seconds to one minute (begins with fasciculations then relaxation and apnea).

DURATION OF ACTION: 5 – 10 minutes with single dose is time to recovery in 25% of patients.

SwedishAmerican Hospital
Emergency Medical Services System

RSI - QI Form

This Form will be completed whenever RSI is utilized by an approved provider and submitted to the Swedish American Hospital EMS System with a copy of the run sheet attached within 48 hours of drug utilization.

Patient Name: _____

Date: _____

Ambulance / Rescue Agency: _____ Run #: _____

Midozolan (Versed) Dosage: _____ Number of Times: _____

Succinylcholine (Anectine) Dosage: _____ Number of Times: _____

Indications: _____

Allergies: _____

Contraindications: _____

Any complications encountered: _____

_____

Outcome of Patient: _____

Additional Comments: _____

Additional Comments: _____

_____

_____

_____

Name of Paramedic administering medication: _____

Send this completed form to EMS Coordinator, SwedishAmerican EMS, 1401 East State Street, Rockford, IL 61104