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Short Communication

Role and responsibility of Intensive Care Nurses in Intubation Procedure

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Abstract - *Endotracheal intubation (EI) is often an emergency procedure that's performed on people who are unconscious or who can't breathe on their own.*

A. Indications- *Airway problems, Respiratory deficiencies, Inadequate Circulation, Central Nervous system Problems, Muscle Weakness, Patients with Risk for aspiration of stomach contents blood mucus aspiration.* ***Complications-*** *Paralysis of the tongue, Ulceration of the mouth, Paralysis of the vocal cord, and Tissue stenosis and necrosis of the trachea.*

B. Routes of intubation - *Orotracheal, Nasotracheal, and Tracheotomies*

C. Preparation for intubation at critical care area: *Remove the dentures, if any, to prevent dislodging and obstructing the airway. Arrange all equipment needed for intubation and Get ready with all emergency drugs and equipment. Select Appropriate size of Endotracheal tubes cuffed or uncuffed. Laryngoscope to visualize the larynx and to depress the tongue during the insertion. Flexible copper stylet- to be used as a guide during the insertion and to give the tubes greater rigidity. Oro tracheal intubation is best performed by direct laryngoscopy with the patient in a supine position. Video laryngoscopy, i.e., the transmission of the view from the laryngoscope blade tip to a video display, provides another possibility to display the intubation procedure for multiple viewers on a monitor. To obtain maximum laryngeal exposure, the head and neck are tilted to bring mouth, larynx, and trachea in line. Immediately after passing the tube, its location is observed by observing the patient breathing or artificially inflating the lungs, and by auscultation of the lungs; finally, the cuff is inflated, and the tube is fixed to the patient's face.*

D. Nursing care of a patient with intubated patients - *Never leave the patient alone, Check the ventilator settings, Watch and maintain an open airway., Prevent the displacement of the tube, watch for complications such as laryngeal edema, tracheal stenosis, hemorrhage, etc.; observe the patient's tachypnoea tachycardia diaphoresis hypoxia, Maintain patient head end elevation 30 to 45 degrees for prevention of aspiration. Keep emergency tracheostomy tray with tracheostomy tubes of correct sizes at the bedside for emergency patient care purposes. Document patients and procedure details in the patient's record.*

Keywords – *Endotracheal tube, Intubation, ET tube insertion.*

I. INTRODUCTION

Airway management is a commonly performed procedure in the intensive care unit (ICU) (1). Endotracheal intubation (EI) is often an emergency procedure that's performed on people who are unconscious or who can't breathe on their own (2). Intubation's a procedure is performed in a patient with critical condition (Respiratory Arrest, cardiac arrest, trauma patients. Mainly need doctor can have performed passing of an endotracheal tube into the trachea through the nose or mouth.

II. INDICATIONS

- Airway problems: External pressure on the airway. Vocal cord paralysis tumor, infection, and largo spasm.
- Respiratory deficiencies: Patient with the poor general condition. Hypoxemic conditions hypercapnic (Respiratory Rate lees than 8 or more than 30 beats per

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minute, po2 less than 55 mmHg, pco2 more than 55mmhg.

- ❖ Inadequate Circulation: cardiac arrest in hypothermic and hypotensive cases.
- ❖ Central Nervous system Problems: Head injury, stroke, unconscious patients. Altered sensorium raised intracranial pressure.
- ❖ Muscle Weakness:(Gillian barre, myotropic lateral sclerosis, myasthenia gravis, muscular dystrophy phrenic nerve injury, botulism, polymyositis, spinal cord injury, brain infarction, etc.
- ❖ Patients with Risk for aspiration of stomach contents blood mucus aspiration.

III. COMPLICATIONS

- ❖ Paralysis of the tongue
- ❖ Ulceration of the mouth
- ❖ Paralysis of vocal cord
- ❖ Tissue stenosis and necrosis of the trachea

IV. ROUTES OF INTUBATION

1. Orotracheal
2. Nasotracheal
3. Tracheotomies

It will be a fearful experience for the patients if the patients are conscious. Explain the procedures to the patient and his relatives with their confidence and co-operation.

A. Preparation for intubation at critical care area

Pre-intubation:

- ❖ Remove the dentures, if any, to prevent dislodging and obstructing airway .an anesthetic may administer if the patient is conscious.
- ❖ Two healthcare professionals should always be present during the procedure.
- ❖ Arrange equipment's needed for intubation

- ❖ Monitors (ECG cable with leads, spo2 probe, NIBP, temperature probe. Etco2 probe)
- ❖ AMBU bag with mask
- ❖ Reservoir with tubing's
- ❖ Stylet
- ❖ Bougie
- ❖ Magill's forceps (adults &pediatric)
- ❖ LMA (2 2 ½ 3 4) – Laryngeal Mask Airway has the advantages of a lack of direct contact with the trachea, no requirement for direct laryngoscopy, and a lower incidence of coughing (3) (4).
- ❖ Oral airways (00 0 1 2 3 4 5 6)
- ❖ Nasal airways (20 fr 22 fr 24 fr 26 fr 28 fr 30 fr 32 fr 34 fr 36 fr)
- ❖ The crash cart should be available
- ❖ Pressure bag prepare for iv cannulation
- ❖ Fluids for bolus: Ringer Lactate or Sodium Chloride 0.9% (isotonic solution) in the absence of pulmonary Edema
- ❖ Ultrasound machine for assessment LV function
- ❖ Syringe pump, infusion pump for drugs administration
- ❖ Prepare for long term sedation (Injection- fentanyl, Injection - morphine) as per the patient weight and prescribed dose
- ❖ Preparation for High Flow Nasal Cannula or Nivv as per physician order in case of acute respiratory failure Fio2 100 % pressure support ventilation level between 5 and 15 cm of H2o to obtain an expiratory tidal volume between 6 and 8 ml/kg peep 5 cm of H2O

V. INTUBATION PROCESS

- ❖ Get ready with all emergency drugs and equipment.
- ❖ Injection- adrenaline 1mg in 10 ml of normal saline 0.1 mg cc.
- ❖ Injection. - Atropine 0.6 mg in 2 ml syringe for adults pediatric 0.1 mg cc
- ❖ Injection. - Midazolam 1mg cc for pediatric 0.1 mg cc doses as advised by the physician
- ❖ Injection - Vecuronium 1 mg cc for pediatric 0.1 mg cc according to body weight
- ❖ Injection - Succinylcholine 0.3 to 1.1 mg kg for adults' short procedures for pediatric 2mg kg
- ❖ Injection- Mephentermine 6mg cc for pediatric 1 mg cc as advised by the physician
- ❖ Injection - Calcium gluconate undiluted 10 ml
- ❖ Injection- Sodium bicarbonate 10 ml undiluted
- ❖ Injection - Ketamine 10 mg cc for adults for pediatric 1 mg cc as per body weight
- ❖ Injection - Fentanyl 10 mcg per cc for pediatric 1 mcg cc as per body weight
- ❖ Injection - Magnesium sulfate for adults 2ml (1grm) pediatrics 2ml in 10 ml ns 100 mg cc
- ❖ Appropriate Endotracheal tubes cuffed and uncuffed.
  1. Newborns infants- 2.5 mm to 4 mm. to 1 year- 4 mm to 4.5 mm

2. Children up to 10 years-5mm to 7 mm
3. Children above 10 years – 7 mm to 8 mm
4. Adults – 8mm to 9.5 mm

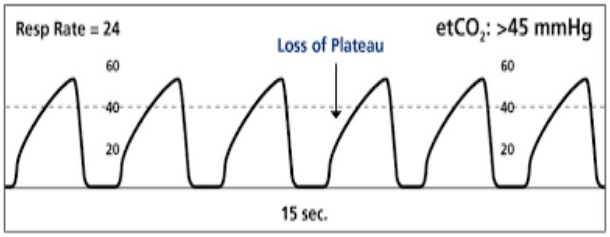
- Laryngoscope to visualize the larynx and to depress the tongue during the insertion.
- Flexible copper stylet- to be used as a guide during the insertion and to give the tubes greater rigidity.
- Extra syringes for medications administration
- Lubricant to lubricate the tube
- AMBU bag with mask and Reservoir connecting tubing's to ventilate the lungs
- Oral airway to keep in the mouth of the patient after the intubation to prevent the patient biting on to and occluding an endotracheal tube.
- Gauze pieces to clean the secretion.
- Gloves to maintain asepsis
- Adhesive plaster to fix the endotracheal tube in place
- Magill's intubating forceps – to directing endotracheal tube into the trachea
- Oxygen supply
- Suction operator with a suction catheter
- Anesthetics
- Etco2 for capnography

VI. PROCEDURE

- Oro tracheal intubation is best performed by direct laryngoscopy with the patient in a supine position.
- Video laryngoscopy, i.e., the transmission of the view from the laryngoscope blade tip to a video display, provides another possibility to display the intubation procedure for multiple viewers on a monitor (3).
- To obtain maximum laryngeal exposure, the head and neck are tilted to bring mouth, larynx, and trachea in line.
- The doctor passes the tube after visualizing the larynx.
- Immediately after passing the tube, its location is observed by observing the patient breathing or artificially inflating the lungs, and by auscultation of the lungs; finally, the cuff is inflated, and the tube is fixed to the patient's face.
- An airway is passed into the mouth to prevent the patient from biting on the endotracheal tube. Oxygen may supply, or it may be connected to the ventilator.

VII. POST INTUBATION

- Immediately confirmation of tube placement by capnography.



- Assess the blood pressure level if diastolic blood pressure less than < 35 mmHg start noradrenaline infusion as advised by physician single strength 6 mg in 44 ml NS or 5% dextrose
- Initiate long-term sedation Injection - fentanyl as per advises dose for adults 500 mcg in 50 ml of Ns for pediatrics 250 mcg in 50 ml Ns according to body weight as advised by the intensivist.
- Check the ventilation process tidal volume 6-8 ml kg of ideal body weight.
- Peep <5 cm of H2o Respiratory Rate between 10 to 20 cycles per minute with fio2 100% plateau pressure,30cm H2o
- For tube, confirmation check the bilateral air entry
- Get one portable bedside x-ray

VIII. NURSING CARE OF A PATIENT WITH INTUBATED PATIENTS

- Never leave the patient alone.
- Check the ventilator settings.
- Watch and maintain an open airway.
- Start sedation infusion as advised by the physician Injection- fentanyl.
- Remove the secretion by effective and routinely suctioning.
- Prevent the displacement of the tube.
- Watch for complications such as laryngeal edema, tracheal stenosis, hemorrhage, etc.
- Provide humidification of air by using humidifier chamber
- Prevent infection introduced into the lungs.
- Prevent contamination of inhaled air
- Maintain adequate nutrition of the patient by nasogastric feeding or giving intravenous fluids. they

should never be feed on oral feeds as long as the tube is in the mouth

- ❖ Maintain oral hygiene by providing mouth care 2nd hourly
- ❖ Monitor vital signs.
- ❖ Observe the patient's tachypnoea tachycardia diaphoresis hypoxia.
- ❖ Maintain patient head end elevation 30 to 45 degrees for prevention of aspiration.
- ❖ Apply suction there is more secretion (closed suction)
- ❖ Provide 100% oxygenation if the patient is cyanosed.
- ❖ Maintain VAP bundle documentation.
- ❖ Keep emergency tracheostomy tray with tracheostomy tubes of correct sizes at the bedside for emergency patient care purposes.
- ❖ Document patients and procedure details in the patient's record.

IX. CONCLUSIONS

Nurses play a key role in any healthcare institution. Airway management is a commonly performed procedure in the intensive care unit (ICU). Endotracheal intubation (EI) is often an emergency procedure that's performed on people who are unconscious or who can't breathe on their own. The skill and competency of nurses is a vital aspect for performing duties in ICU for nurses. This article gives knowledge to nurses about Intubation's procedure.

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