Respiratory therapy in times of Covid 19





COVID 19, in severe cases, generates a inflammatory reaction in lung tissue that alters respiratory dynamics and gas exchange at the alveolar level.

These patients require mechanical respiratory assistance. For this it is necessary to have respirators and endotracheal tubes or appropriate tracheostomy tubes.









MAIN FUNCTIONS OF THE RESPIRATOR

Control of:

Volume of entry and exit of administered gases.

Pressure with which gases enter to the airway.



PRODUCTS FOR RESPIRATORY USE



ENDOTRACHEAL TUBE WITH SUBGLOTTIC ASPIRATION







ENDOTRACHEAL TUBE WITH SUBGLOTTIC ASPIRATION CODE: 9219

1 PVC tube, flexible, transparent, graduated in cm., longitudinal line opaque to X-rays, polished distal orifice, atraumatic.

Low-pressure cuff, pilot balloon and retention valve. Suction channel incorporated, with orifice next to the upper edge of the cuff.

Semi-seated standard connector

STERILE, SINGLE PACK, SINGLE USE. AVAILABLE SIZES

6,0 / 6,5 / 7,0 / 7,5 / 8,0 / 8,5 / 9,0 / 9,5 mm







The Endotracheal Tube with Subglottic Aspiration has a channel, with an orifice above the pneumotaponation cuff, which allows the suction of tracheal secretions that are accumulated in the subglottic space of the patient.





PNEUMONIA PREVENTION ASSOCIATED TO MECHANICAL VENTILATION





INTRODUCTION

Ventilator Associated Pneumonia (VAP) is the main infection acquired in the Intensive Care Units (ICU) (CDC, ENVIN-HELICS 2010)





DISTRIBUTION OF INFECTIONS ACQUIRED IN ICU







PNEUMONIA ASSOCIATED WITH MECHANICAL VENTILATION (VAP)

That which occurs in patients with endotracheal intubation (or tracheostomy) and was not present nor in the incubation state, at the moment of intubation. This definition includes pneumonia

- diagnosed within 72 hours after
- extubation or removal of the tracheostomy.





VAP IMPACT

Overall mortality: between 24% and 76% Attributed mortality: between 13.5% and 17.5% Increase in ICU stay: between 7.3 and 9.6 days Average cost increase: US \$ 22,875

> (Chastre & Fagon, 2002; Sadfar et al. 2005; Muscedere et al. 2010;Lambert et al. 2011)





EXTRINSIC FACTORS

Related to MV and accessories

Mechanical ventilation (MV) Duration of MV Tube balloon tamponade pressure <20 cm H2O Re-intubation or self-extubation Change of MV circuits in intervals of less than 48 hours Tracheostomy Absence of subglottic aspiration Instrumentalization of airways Head in supine position (<30^o)





PATHOGENIC PATHWAYS FOR THE DEVELOPMENT OF VAP

ASPIRATION PATH By macro or micro aspiration of secretions from the oropharynx and / or stomach.

DIRECT INOCULATION Through the endotracheal tube, during aspiration of secretions, fiberoptic bronchoscopies or nebulization's.

OTHER WAYS Bacterial translocation. Hematogenous route.







ASPIRATION PATH

Colonized secretions from the oropharynx or gastric content.

It is the main route of origin of the VAP

The placement of the endotracheal tube keeps the vocal cords open and allows the passage of secretions that accumulate in the subglottic space

The loss of pressure from the pneumotaponation cuff allows the passage of these secretions to the lower airway





Control of the pressure of the cuff.

Pressure control and maintenance of the cuff between 20-30 cm H2O.

Cuff pressure less than 20 cm H2O: VAP risk.



Cuff pressure greater than 30 cm H2O: Tracheal mucosa lesions.





Subglottic secretions will be aspirated continuously or intermittently through an aspiration system that conducts the secretions to a reservoir.

Recommended suction pressure it should not exceed 100 mmHg.

Check the permeability of the channel subglottic every 8 hours.



If it is not permeable, it can be injected through the canal

2 cc. of air, after checking the pressure of the cuff.





CANNULA FOR TRACHEOSTOMY WITH SUBGLOTTIC ASPIRATION







Insertion and fixation of tracheostomy tube with low pressure cuff



Dr. Edgardo Ramos





TRACHEOSTOMY CANNULA WITH SUBGLOTTIC ASPIRATION CODE: 9245

- 1 PVC cannula, curved, flexible, transparent, longitudinal line opaque to X-ray, polished distal orifice, atraumatic. Standard connector at proximal end.
 - Low-pressure cuff, pilot balloon and retention valve. Suction channel, with orifice next to the upper edge of the cuff.
- 1 insertion aid
- 1 velcro neck band

STERILE, SINGLE PACK, SINGLE USE

AVAILABLE SIZES

6,0 / 6,5 / 7,0 / 7,5 / 8,0 / 8,5 / 9,0 / 9,5 / 10,0 mm







ADJUSTABLE TRACHEOSTOMY CANNULA WITH SUBGLOTTIC ASPIRATION CODE: 9258

1 PVC cannula, right angle curved, flexible, transparent, longitudinal line opaque to X-rays polished distal orifice, atraumatic. Standard connector at proximal end. Fixation flange with lock ring, repositionable and adjustable. Lowpressure cuff, pilot balloon and retention valve. Suction channel, with orifice next to the upper edge of the cuff. 1 suction catheter. 1 velcro neck band.

STERILE, SINGLE PACK, SINGLE USE.

AVAILABLE SIZES

6,0 / 7,0 / 8,0 / 9,0 / 10,0 mm.







CC TRACHEOSTOMY CANNULA WITH CUFF AND SUBGLOTTIC ASPIRATION CODE: 9259

1 PVC cannula, curved, flexible, transparent, conical, longitudinal line opaque to X-Rays, polished distal orifice, atraumatic. Pivoting fixation flange.

Low-pressure cuff, pilot balloon and retention valve. Suction channel with orifice next to the upper edge of the cuff.

2 inner PVC cannulas, interchangeable,

1 insertion aid.

1 cough cap.

1 standard connector.

1 velcro neck band.

STERILE, SINGLE PACK, SINGLE USE.

AVAILABLE SIZES

5,0 / 5,5 / 6,0 / 6,5 / 7,0 / 8,0 / 8,5 / 9,0 / 9,5 / 10,0 mm.





SUMMARY OF BENEFITS GENERATED BY THE USE OF TUBES WITH SUBGLOTIC ASPIRATION, IN INTENSIVE THERAPY UNITS, IN PATIENTS WITH COVID 19.





A) Advantages for the patient

B) Advantages for health personnel

C) Advantages for the medical institution





A) Advantages for the patient

- Guarantees a timely and effective aspiration of the secretions accumulated above the cuff;
- Avoids repeated trauma to the vocal cords that are produced in each passage of a aspiration and inoculation of germs;
- It reduces the risk of developing respiratory infections in addition to the clinical status caused by COVID 19.





B) Advantages for health personnel

- Reduces the risk of contagion, which is higher during the performing of maneuvers in the airway;
- It allows to optimize the time in procedures more complex than aspiration of secretions.
- It does not complicate the clinical status of the patient, which requires longer attention time;
- Facilitates the aspiration of secretions in patients in prone position.





C) Advantages for the medical institution

It guarantees you a better management of material, human and economic resources:

- Materials: availability of beds, due to faster patient turnover;
- Humans: simplifies aspiration in maneuvers of secretions;
- Economic: decrease in hospitalization period, no use of high-cost antibiotics, no use of supplies for secretions aspiration.





THANK YOU SO MUCH BY YOUR ATTENTION

