Original Article: Education about Patient-Related Risk Factors in Nursing at Hospital

Elizabet Hitachi
Department of Medical Surgery, Charlotte University, United States of America

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ABSTRACT

It is important to talk comfortably with the patient and their family about the risk factors for coronary heart disease. The patient should know that if these factors such as nutrition and exercise are controlled, other factors such as heredity cannot be very effective. Research has shown that a person without ischemia can develop ischemia within a year. Recommendations regarding the risk factors for smoking cessation, maintaining blood pressure, low-fat diet and taking medication as needed, participating in regular aerobic exercise, diabetes control, stress management, BODY FAT less than 18-22% are important. Do not use previous medications, if they have not been prescribed after surgery, do not change or stop medications without a doctor's prescription, use medications at their own time, if you forget to take one dose, take only the next dose and do not use it repeatedly. Daily and weekly use of medicines can be used, consult a doctor to use over-the-counter medicines such as painkillers, syrups, herbal medicines to be aware of their interactions and side effects, along with medicines when traveling, in case of flight by plane. Do not leave medicines in the car or in the sun, contact your doctor to maintain the long-term effectiveness of medicines and prevent possible side effects.

Introduction

Research has shown that many patients have difficulty recognizing and learning after heart surgery [1-5], which is not the case with other surgeries. Disorders such as memory loss, vision loss, writing difficulties [6-8]. As a result, the patient and his family become angry [9-13], and it must be reassured that these problems will eventually resolve within 6-8 weeks [14-19]. If possible, inform the community health nurses about the patient's condition. Introduce support resources to the patient [20].

Oral airway placement

It is used to maintain a proper airway for patients in the following conditions:

- ✓ The patient is unconscious, has no swallowing reflex [21-25], or has obstructed the airways due to a reduction in the submaxillary muscles.

***Corresponding Author: Elizabet Hitachi** (Eli.hitachi.2008@yahoo.com)*

- ✓ When the airway does not open using other maneuvers such as pulling the jaw forward and pulling the head back [26].
- ✓ At the time of suctioning to facilitate the discharge of oral secretions [27].
- ✓ It can be used to ventilate the patient with a wambo bag mask [28].

Contraindications and necessary precautions

Placement of the oral airway in a conscious or subconscious patient whose nausea reflex is stimulated and may cause vomiting or laryngeal spasm. Improper placement of the oral airway may push the tongue into the back and cause more obstruction [29-35]. If foreign matter is not removed manually in the mouth and throat before airway placement, it may lead to aspiration [36-38].

Connect to the ventilator

It is used to create artificial ventilation for patients who are unable to breathe on their own.

A) FiO2: Nitrogen does not participate in exchanges and keeps the alveoli open. When the inhaled oxygen fraction is high, oxygen is transferred from the airbag into the bloodstream, and the pressure inside the airbag decreases, causing the airbag to shrink [39-41].

B) Oxygen poisoning: In cases where FiO2 is high for a long time, it leads to damage to type I cells on the surface of the air sac and type II in the production of surfactant in the lungs. As a result, the remaining practical capacity is lost and the lung volume is reduced [42-45].

Note: FiO2 can be adjusted to more than or equal to 60% until arterial blood gases are measured, and after assessing the patient's oxygenation status, FiO2 may be reduced to an acceptable level [46-50].

Note: The setting of Fi02 is based on ABG. It should be such that with a minimum of FiO2 a suitable level of Pao2 is created [51-55].

Ratio time of inhalation to exhalation:

The inhale-to-exhale ratio is usually adjusted when the inhale phase is shorter than the exhalation phase. In this case, the entire volume of current adjusted at the time of inhalation enters the lungs and ventilation is complete. Prevents pressure in the airways and alveoli [56].

Values of 1: 1 and 1: 2 and above can cause a significant increase in mean airway pressure and air entrapment within the lungs and hemodynamic complications. If a person's lungs are healthy, the ratio is similar to 2: 1 (normal physiology); higher ratios of 4: 1 and 1: 3 are used to ventilate COPD patients with air retention [57-62]. When time is short, the maximum velocity of air flow increases. Sensitivity In most mechanical ventilators today, it is possible to choose to breathe spontaneously. Spontaneous onset of breathing can be easy or difficult for the patient, depending on the sensitivity of the device [63-68]. When the patient begins to breathe, some negative pressure is applied to the chest. This pressure is transmitted to the mechanical ventilator through the breathing tubes. The sensitivity of the device is adjusted based on 20 cm H2o by the medical staff, which is usually between 1 and 20 cmH2 [69].

Note: The lower the numerical value of the sensitivity, the higher the sensitivity of the device. The higher the numerical value of the sensitivity, the lower the sensitivity of the device [70].

Note: The sensitivity of the device should be adjusted so as to prevent both the patient's excessive respiratory activity and unnecessary breathing by the device [71].

Pressure maneuvers on the ventilator

Positive expiratory end pressure (PeeP): Applying positive pressure to the airways at the end of the exhalation is called PeeP, which prevents the exhaled air from being completely

emptied. Peep increases the current volume and thus FRC and lung compliance. As a result, it modifies oxygenation by increasing gas exchange at the level of the pulmonary alveoli while exhaling and rejuvenates the alveoli with atelectasis [72].

Note: We generally prescribe PeeP with a pressure of 3 to 10 cm of water. Higher doses (more than 15 to 20) may be used in patients with low compliance and severe respiratory failure [73].

Types of respiratory modes

Control or forced ventilation mode: all respiratory work is done by a ventilator. Delivers the current volume and preset number to the patient's lungs regardless of the patient's efforts. If the patient has difficulty breathing [74-80], this can be suppressed with neuromuscular drugs such as pancreonium bromide or Pauline, as well as sedatives such as diazepam and narcotics such as morphine, which can be suppressed by the patient [81-86]. Do not interfere with ventilation performance [87].

Purposes of use of this mode: In patients with minimal respiratory effort due to dysfunction of the central nervous system who suffers from apnea, or the possibility of apnea is imminent.

When the patient should not have any respiratory effort [88-90].

In patients whose respiratory muscles are paralyzed with neuromuscular paralysis drugs, values higher than 20 cmH20 are not recommended due to excessive effort and muscle fatigue and fighting due to the negative effects of PeeP on cardiac output [91-93].

Contraindications: COPD, pneumothorax, hypovolemia and intracranial enlargement [94].

Continuous positive pressure on the airways CPAP: Is the application of positive pressure on the airways throughout the respiratory cycle (inhale and exhale) in the client's voluntary breathing? [95-101] CPAP keeps the alveoli open along the tail and prevents the alveolar club from exhaling, increases FRC, improves gas exchange, and improves oxygenation [102].

Note: The usual level is H2o cm (CPAP5-15). CPAP can be applied with artificial ventilation to the extent of voluntary ventilation and in the absence of endotracheal tube or tracheostomy tube with a specially fixed mask on the mouth and nose and its side effects including aspiration, gastric distention, and pressure on the face can cause Discomfort and even tissue necrosis [103].

Note: Masks for CPAP should never be used in sleepy lethargic patients. Because they are unable to remove the CPAP mask if vomiting occurs [104-106].

The difference between PeeP and CPAP:CPAP exerts a positive pressure on the airway of patients who voluntarily breathe throughout the respiratory cycle [107-112]. Peep, on the other hand, exerts positive pressure at the end of exhalation in modes that partially or completely ventilate the patient [113].

Auxiliary ventilation mode: In this mode, a pre-set ventilator is provided to the lungs only by stimulation by the patient's tail efforts. In other words, the negative pressure created in the ventilator caused by the patient's voluntary tail stimulates the device [114-119]. The ventilator puts the preset volume into the lungs under positive pressure at the same time as the patient's tail [120-125]. Therefore, in this mode, the current volume is adjustable, but the number of breaths per minute is equal to the number of breaths created by the patient [126].

Disadvantages of using this mode: If the patient has a lot of respiratory effort, there is a risk of hyperventilation. If there is little effort, there is a risk of hypotension and apnea. On the other hand, in this mode, the device's sensitivity

key can be used [127-132], which allows only the device to respond to deep breathing. Uses of this mode: It is used in patients who have voluntary breathing, but the respiratory muscles are not able to do enough volume for the lungs.

ACMV or ACV Auxiliary Control Ventilation Mode: In this mode, the ventilator is sensitized in such a way that it acts as an auxiliary mode when there is a patient trying to breathe and delivers a preset volume to the lungs and when the patient has no breathing effort [133-138]. Be. It acts like a controlled breathing mode, delivering a preset volume to the lungs. In this fashion, there is a line of hyperventilation, respiratory alkalosis [139].

IMV Mandatory Intermittent Ventilation Mode: This mode is a combination of controlled and voluntary ventilation. When the patient inhales and exhales voluntarily, the device ventilates the lungs and the preset number regardless of the patient's voluntary inhalation and exhalation [140-145]. Therefore, between forced breaths delivered by a ventilator, the patient is able to perform voluntary breathing. In the intervals between forced breaths, the device does not help the patient's voluntary breathing. The main difference between IMV and ACV mode is that in ACV mode, the volume of gas entering the lung with each patient's voluntary breathing effort is equal to the volume of preset on the device, while in IMV the volume of voluntary respiration is variable [146].

Uses of this mode: The presence of voluntary ventilation in the patient while the respiratory muscles are not able to do all the respiratory work. If the patient needs to be separated, the mechanical ventilation of the SIMV coordinated intermittent forced ventilation mode is used.
This mode is a combination of voluntary ventilation and auxiliary ventilation. In this mode, the ventilator is sensitized to the patient's respiratory effort in two preset principles and responds to this effort in the form of auxiliary respiration. Provides only moist gas with a certain Fio2 to the patient. In this mode, the respiratory system aligns with the patient's tail, giving the patient an adjusted volume at the same time as the ventilator's tail [147].

Voluntary ventilation mode: In this mode, the ventilator does not deliver any forced or assisted breathing to the patient. The current volume and number of breaths per minute depends on the patient. This mode is used in patients who are able to breathe properly and only need some support and monitoring. PSV and CPAP can be used in this mode. In this mode, the patient voluntarily breathes with Fio2 adjusted by the device. The device monitors the volume of inhaled and exhaled current, number of breaths, airway pressure, prescribed FiO2, airway resistance, and airway compliance [148].

Ventilation mode with PSV pressure support: PSV mode can be used in modes where voluntary breathing is possible. It is used to strengthen the patient's voluntary respiratory effort. Started by the patient, a stream of gas with a preset positive pressure flows in the ventilator's tailpipe and is constantly maintained throughout the voluntary tail cycle, amplifying the patient's voluntary current volume and causing more gas to flow with each tail. Lungs. This type is specifically designed for use in the separation process, which is well tolerated by the patient [149].

Disadvantages of positive pressure breathing

A) Cardiovascular system Mechanical ventilation by increasing the average airway pressure leads to an increase in intrathoracic pressure, causing compression of the internal thoracic arteries along the tail, which leads to a decrease in venous blood return to the heart, a

decrease in ventricular end-diastolic volume, Cardiac output and lowering blood pressure.

B) Renal system: Progressive fluid retention occurs 48 to 72 hours after the start of mechanical ventilation. Fluid retention leads to heart failure and edema, leading to decreased cardiac output resulting in decreased urinary output and sodium retention. This finding initially reduces renal blood flow and secondarily reduces aldosterone secretion and water and salt retention [150].

C) Respiratory system: Barotrauma, or positive pressure-induced lung injury, causes alveoli to rupture, air to leak into the chest, pneumothorax, pneumomediastinum, pneumoprotein, and retroperitoneum.

D) Nervous system: In patients with traumatic brain injury, positive pressure ventilation can impair cerebral blood flow. As the increase in intrathoracic pressure increases the intracranial pressure. On the other hand, increasing the pressure on the pituitary gland reduces ADH.

E) Gastrointestinal system: Mechanical ventilation is a treatment that increases the risk of gastrointestinal ulcers (oolial stress) and mild to moderate cholestasis due to stress and gastrointestinal bleeding. On the other hand, PEEP can be involved in the development of gastric mucosal ischemia and increased resistance in splenic vessels. Prophylaxis of antacids sometimes in combination with cimetidine and ranitidine to raise gastric pH 5 significantly prevents gastric bleeding. In other words, prevention with H2 receptor antagonists or sucralfate is common in stress-related wounds. Severe cholestasis is related to an early hepatic process rather than mechanical ventilation and nutritional status. The presence of endotracheal tubes disrupts the normal state of nutrition. If the patient does not eat for 3 to 5 days, other feeding methods should be used. Lack of use of respiratory muscles and inadequate nutrition leads to a decrease in the strength of the respiratory muscles. Serum albumin and transferrin levels are also usually reduced, delaying the patient's separation from the ventilator. In the intubated patient, who is fed through the NG tube, the cuff of the endotracheal tube should be full and the head should be high. Discontinue feeding therapy while the patient is draining. If more than half of the given food is re-aspirated from the gastric tube within 1 hour, the returned material should be gently sent back into the stomach and the tube should be clamped for 30 minutes to an hour. If the patient does not tolerate tube feeding, it should be discontinued for several hours and then restarted in very small amounts. Delayed gastric emptying is common in critically ill patients receiving sedatives, but often responds to intestinal motility factors such as cisapride or metoclopromide. Intravenous feeding (TPN) is an alternative to intestinal nutrition in patients with severe gastrointestinal disease. In malnourished patients, nutritional support should begin within 72 hours.

F) Skeletal system: risk of fracture, bed sores, sagging legs, external rotation of the hip and legs due to immobility and exposure to ventilation (for a long time) [151].

G) Psychological effects: The patient who is under mechanical ventilation is always under great physical and psychological pressure. For example, not talking, drinking, and being in a network of wires, tubes, feeling very unwell, and imminent death all cause the ICU to decrease or increase sensory stimuli.

H) DIC without a specific cause in the long run.

I) Electrolyte disorders 47% of ICU patients have alkalosis. That is, they have low 2 Paco and

are seen with respiratory alkalosis, hypokalemia and hypocalcemia.

J) Respiratory anemia, long-term positive pressure leads to bone marrow depression.

Criteria for separating the patient from the ventilator

If the patient-related parameters return to normal, the patient can be removed from the device. These parameters include the following

A) The patient can have voluntary breathing with 21% FiO2.

B) All symptoms related to pathological processes should be controlled:

- ✓ The patient's fever should be stopped.
- ✓ In CXR the lungs are clean.
- ✓ Dangerous dysrhythmias are not observed.
- ✓ The patient's hemodynamic status is constant.

C) The patient should be awake, have the ability to cough and have a healthy vomiting reflex.

D) The volume of inhaled current in spontaneous breathing should be equal to more than 5 ml / kg.

E) Ventilation per minute is more than 5 liters per minute and does not exceed 10 liters.

F) The vital capacity (C) of the patient is more than 10-15 ml / kg.

G) The pressure of the tail force is equal to or more than 20 cm of water.

H) The patient's breathing rate should be equal to less than 25 breaths per minute.

H) The amount of arterial blood gases is normal.

Conclusion

If any of the following are present, the patient should be reconnected to the ventilator:

A) The diastolic pressure changes by 10 mm Hg or more.

B) The number of breaths reaches more than 25 to 30 times per minute.

C) Increasing more than 10 breaths per minute and decreasing it to less than 8 breaths per minute is a sign of fatigue.

D) The number of pulses increases by more than 20 beats per minute and reaches a heart rate of more than 125 beats per minute.

E) Frequent premature ventricular (PVC) contractions, which can be the cause of hypoxemia instability.

F) Breathing with great difficulty and tedious.

G) Abdominal paradox Intense's abdominal paradox due to dysfunction of the diaphragm at the time of inhalation, downward movement of the abdomen.

H) ABG arterial blood gas levels become abnormal.

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