

Critical Nursing Care
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Technicians will be asked at some point in their career to monitor a critical patient. These patients require a high level of care, concentration, and critical thinking skills. Technicians must be comfortable with monitoring these patients and using their brain to problem solve and alert the clinician when patient parameters change.

One of the most critical patients is a patient on the critical care ventilator. Most general practice and some specialty facilities do not have critical care ventilators, but the process of caring for a ventilator patient can be translated to any critical patient. Everything that a technician has learned in school is used on these patients. Critical patients are usually obtunded or heavily sedated. Multiple monitoring devices should be used to keep an eye on the patient's vitals, hydration status, ventilation status, and organ function. Documentation is also critical. Every change in a patient's status should be documented and vitals should be taken on the patient frequently.

The patient's airway should be assessed first. Ventilator patients should be intubated for as long as possible. Sedated patients have decreased ventilator drive and are at risk for regurgitation and aspiration. These patients are usually on multiple medications to help decrease their respiratory drive so the machine can breathe for them. Sterile technique should be used to place the endotracheal tube to make sure that there is minimal bacteria that enters the airway. One of the major complications of a mechanically ventilated patient is hospital acquired pneumonia due to bacteria being introduced by the endotracheal tube. A pulse oximeter should be placed on the patient to make sure that the patient is appropriately perfusing its organs. Capnography should also be used to make sure the patient is ventilating appropriately. A normal ETCO₂ reading is 35-45 mmHg. Suctioning and humidifying of the endotracheal tube should be performed every four hours, or as needed, to prevent mucous secretions from clogging the endotracheal tube.

Hopefully, the patient had already had venous access. If not, a peripheral catheter most likely will not be enough for these patients. Triple or quadruple lumen central lines should be placed. These will help with the multiple medications that these patients are on as well as possibly be used for intravenous nutrition and blood sampling. These can be placed in the jugular veins, saphenous veins, medial veins, and ombobraceal veins. Ombobraceal veins are very hard to see, so I would suggest to go to other veins first. If placing a central line in a jugular vein, a radiograph must be performed to make sure that the catheter is placed in the cranial vena cava right above the right atrium.

An arterial catheter should be placed in these patients. These can be placed in the dorsal pedal artery, femoral artery, or coccygeal artery. Use caution in placing a catheter in the femoral artery because this can be hard to secure to the patient. An arterial blood sample can be used

to assess patient ventilation and oxygenation. Arterial catheters can also be used to more accurately assess blood pressure. Sometimes, especially in these critical patients, you are unable to place an arterial catheter because their blood pressure is so low. With these patients, you must wait until you can feel the artery until you can place a catheter.

A multiparameter unit should be placed on the patient to assess heart rhythm, ETCO₂, invasive blood pressure, oxygenation, and temperature. The ECG clips should be placed on “sticky” pads to ensure that the metal clips do not cause skin damage. There are multiple brands of these to choose from, choose what is best for your practice.

A urinary catheter should be placed in these critical patients. Technicians should use a long-term urinary catheter, such as a foley, and place with sterile technique. A collection bag should be placed on the catheter to ensure that we can measure the amount of urine that the kidneys are producing.

The patient should also be placed on a properly cushioned area. When it comes to critical patients, it is easier on everyone if the patient is placed on an elevated table. This way, you can get around the patient on all four sides. These patients are prone to pressure sores especially when they start losing muscle mass due to inactivity.

Once the patient is hooked up to all monitoring devices, there are multiple areas of the patient to consider. The patient’s airway, mouth, eyes, ears, urinary system, and gastrointestinal system must be cared for. The technician must also perform physical therapy.

Airway care

If the patient has an endotracheal tube, it must be properly cared for to make sure that the patient does not acquire hospital born pneumonia. The endotracheal tube must be replaced every 24 hours with sterile technique. In a recumbent patient, you must inflate the cuff to ensure that the lungs inflate appropriately. One complication of the cuff being inflated, or over inflated, could cause tissue necrosis of the trachea. It is suggested to deflate the cuff and reposition the endotracheal tube every four hours to prevent tissue necrosis. These patients also need humidification of their airway. This can decrease mucous viscosity and decrease tracheal inflammation. To do this, Technicians can instill a small amount of sterile water into the endotracheal tube and then suctioning the endotracheal tube after. Suctioning of endotracheal tube is necessary to prevent mucous buildup and occlusion of the airway. This should be performed every 4 hours or on an as-needed basis.

Oral Care

Patients that are recumbent and have endotracheal tubes or tracheal tubes in, are at an increased risk of ulcers in their oral cavity. To prevent this the whole mouth must be kept moist. The technician must suction out all mucous and debris. Use a different suction catheter than the one used for the tracheal tube. This will prevent bacteria from being introduced into the lungs. A glycerin solution can then be used to prevent drying out the tongue. The tongue can

also be covered with a glycerin soaked gauze. Do not wrap the tongue as this can cause rannula's to form. The pulse oximeter probe should also be taken off the tongue and moved to a different area to prevent necrosis. This procedure should be done every four hours.

Eye Care

Critical patients that are recumbent are at an increased risk of eye ulcers because they cannot blink. Artificial tears should be placed on the eyes every two hours. Goggles can also be used to seal off the eye from the environment. Most clinics do not have goggles, so trying to keep the eyes closed with tape could also be used. Technicians should check for ulcers in the eyes at least once a day.

Urinary Care

Urinary catheters should be cleaned every 8 hours to prevent infection. This included flushing the prepuce with a dilute chlorhexidine solution and wiping the lines associated with the urinary catheter. The urinary bag should be emptied every four hours to assess kidney function. A technician should calculate how much fluid is going into the patient and how much fluid is coming out of the patient to assess kidney function and hydration status. Patients are at a higher risk of acquiring urinary catheter infections, so keeping the catheter clean will help keep the infections at bay.

Gastrointestinal/Nutritional care

Critical patients need nutrition. This can be delivered via central line by parenteral nutrition or via nasogastric or nasoesophageal tube by liquid diets. Do not place non-sterile nutrition through the central line. This can cause infections in the blood stream and create more complications for the patient. Most likely, these patients will have diarrhea. Technicians must keep the patient clean and dry. Keep a close eye on the color of the fecal material. Black or bloody stool can indicate a more serious complication and will need more attention.

Physical Therapy

Physical therapy is very important in critically ill patients. These patients lose muscle mass quickly and can acquire pressure sores and ulcers. Passive range of motion and rotating of the hips should be done every four hours. Patients can get out of the hospital quicker the sooner physical therapy is started.

Critical ventilator patients can be very time consuming and technicians will have to think and troubleshoot their way through many organ systems of these patients. There are multiple drug calculations and every part of nursing care that technicians have ever learned about. When a critical patient walks out the door, it can be a very rewarding experience for the whole team.

References:

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