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Arterial Blood Gas Analysis

Arterial blood gas analysis plays a key role in saving lives everyday. The procedure gives doctors the vital information that lets the doctors know to initiate procedures that will sustain a patient's life. By testing the level of blood gases in the blood, the arterial blood gas analysis procedure reveals the state of the patient's breathing and exposes any abnormalities. The results of the analysis prove to help and save the lives of people with breathing problems everyday. The magnitude of the procedure and the effect it can weigh on someone's life, makes it imperative to know how to properly draw blood from an artery and perform blood gas analysis.

Preparation is a crucial part of the arterial blood gas analysis procedure. First, after receiving the patient chart issued by the doctor, review the order to verify what it calls for (Casciari). Once it has been established that an arterial blood gas analysis has been ordered, it is time to gather the necessary supplies. The most important of the supplies is the blood gas kit. This comes prepared and packaged for convenience and sterility, and includes such items as the syringe and other materials to be used later in the procedure. In addition to the kit, a cloth towel, bag of ice, and the patient label should be obtained and easily accessible for future use. Review a checklist to make sure everything is present (Russell). Before touching any patients or syringes, self-preparation must be diligently completed. First, wash hands with anti-bacterial soap for at least one minute, thoroughly scrubbing and cleansing throughout the fingers the entire time. If a sink or soap is not readily available, anti-bacterial gel can be substituted. Once that is done,

apply the surgical gloves provided by the hospital and ensure that they fit correctly and are the right size (Park 3).

The patient can now enter the room. During interaction with the patient it is important to keep in mind his or her disposition and state of mind. The patient is more than likely nervous, anxious, or scared, and it is the doctor's responsibility to try to allow for a comfortable environment for the patient. With a smile, introduce yourself by stating your name and title (Apodaca). It is important to verify the patient's identity by checking the patient's wristband and comparing it to the patient label received earlier (Egan et al. 13). Once the patient's identity is clarified, briefly explain the procedure and purpose of drawing arterial blood to the patient. Throughout all conversation with the patient, make sure to maintain a friendly temperament and attitude, downplaying the severity of the procedure, making the patient feel as comfortable as possible (Apodaca).

Certain precautionary steps are necessary to prevent severe mistakes. The most important of these is to check for collateral circulation. The procedure is done by performing an Allen's Test. The purpose of the Allen's Test is to make sure that in the case of error in which the artery that is punctured becomes damaged and fails to function, the other artery will continue to flow blood to the hand. To perform the test, instruct the patient to close their hand into a fist while you put steady pressure on the artery to be punctured. Have the patient release their hand, and, if the blood flows back to their hand and returns to its original color, the other artery is fully functioning (Shapiro 9). Now that collateral circulation has been checked, you can start to prepare the patient's arm. Place a rolled up cloth towel under the patient's hyper extended arm, and wipe the area of puncture with the alcohol wipe provided in the blood gas kit (Casciari).

Before puncturing the skin, it is necessary to check for a pulse. The pulse is the force that pumps the blood into the syringe, so it is vital that it is functioning normally. Use the index and middle fingers and check for the pulse in located in the wrist. It is imperative to not use the thumb when checking for a pulse, because there is a pulse in the thumb and it would skew the results, as you may be sensing your own pulse instead of the patient's pulse (Russell). Now that all of the precautions have been safely and effectively taken, it is time for the arterial puncture. Retrieve the syringe from the blood gas kit and remove the syringe cap. Place the needle with the bevel up and puncture the skin at a forty-five degree angle. Allow the syringe to fill with one milliliter of blood. Remove the syringe and immediately apply pressure with a piece of gauze. Hold the pressure for five minutes, and if the bleeding continues, hold for 5 more minutes until the bleeding has ceased (Shapiro14). Label the syringe and lock it into the safety cap. Place the sample into a bag of ice so that oxygen does not seep in.

With the puncture completed, you may remove your gloves and wash your hands (Park 10). Sincerely thank the patient for his or her time and ensure the patient that everything went as planned (Apodaca). Transport the sealed bag of ice with the syringe in it to the blood lab so that the blood can be analyzed. The blood lab can analyze the amount of oxygen and carbon dioxide in the blood, and thus conclude whether the breathing process is functioning normally or irregularly. For patients with breathing problems, such as asthma, shortness of breath, or patients on life support, arterial blood gas analysis is essential to revealing information about their condition and allowing the doctors to best help (Russell).

It is imperative to know how to correctly and efficiently perform arterial blood gas analysis, as it affects people's lives. Each and every step in the process matters and makes a difference, and must be done with diligence and care. This procedure is an important asset and

tool for doctors, and medical treatment could not be conducted as effectively without it. People everywhere are living healthier, more stable lives thanks to the numerous breakthroughs in medical science.