Arterial Catheterization

An arterial catheter is a thin, hollow, tube which is placed into the artery (most commonly of the wrist or groin) to measure blood pressure more accurately than is possible with a blood pressure cuff. The catheter can also be used to get repeated blood samples when it is necessary to frequently measure the levels of oxygen and/or carbon dioxide in the bloodstream.

Common reasons for its use and benefits:

- Low blood pressure (hypotension or shock) - When a low blood pressure cannot be corrected rapidly with fluid given through a patient's veins. The need to measure pressures in the large blood vessels is greatest when the patient is receiving powerful medications that stimulate the heart as a way of keeping the blood pressure up. The arterial catheter allows accurate, second-to-second measurement of the blood pressure; repeated measurement is called monitoring.
- High blood pressure (hypertension) - In some situations, the blood pressure can go so high that it is life-threatening. Such high blood pressure must be lowered gradually in steps, and measurements with an arterial catheter help guide the treatment.
- Severe lung problems - When a patient has a lung problem that is so severe that it requires checking the levels of oxygen or carbon dioxide of the blood more frequently than 3 to 4 times a day, the arterial catheter can be used to draw blood without having to repeatedly stick a needle into the patient.

Risks:

Some of the risks of arterial catheterization include:

- Pain during placement - Discomfort can result from the needle stick and placement of the catheter at the time it is inserted. Doctors try to lessen the pain with a local numbing medicine (anesthetic like novocaine). The discomfort is usually mild and goes away once the catheter is in place.
- Infections - As in the case with all catheters inserted into the body, bacteria can travel up the catheter from the skin and into bloodstream. The longer the catheter remains in the artery, the more likely it is to get infected. Special care in bandaging the skin at the catheter site and changing tubing can help to decrease the risk of infection.
- Blood clots - If blood clots form on the tips of arterial catheters, the clots can block blood flow. If another blood vessel does not carry blood to the area beyond the clot, this can cause the loss of a hand or leg. Such a loss is very rare. To decrease the likelihood of these problems, the ICU staff check regularly for blood flow in the hand or leg when a catheter is in the artery.
- Bleeding - Bleeding can occur at the time of inserting the catheter. The bleeding may stop without doing anything. Sometimes, the ICU staff need to remove the catheter and apply pressure to the site.


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