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Vascular Access Surveillance by Pressure Methods

Dynamic venous pressure

Blood flow on the dialysis machine is set between 50 and 225 ml/min for a period of time at the beginning of a treatment, and then the venous pressure is recorded. Patients who exceeded a venous pressure limit (set by facility protocol) were considered to have abnormal results and were referred for an access intervention. The method was not consistently adapted and criteria for intervention were not standardized. **Unstandardized dynamic venous pressure (DVPs) surveillance is not an evidence-based acceptable method and is no longer recommended in the 2006 NKF K/DOQI Clinical Practice Recommendations & Guidelines.**

Static pressure (Direct or Derived)

Static Intra-access pressures measurements are made by using the pressure transducers of the dialysis machine. With the blood pump and ultrafiltration turned off, pressure in the venous line and the arterial pre blood pump pressure are recorded. The venous and arterial intra-access pressures are **calculated using an equation** that corrects for gravity. Results should be recorded and trended to be a valid indication of access dysfunction. Static pressure IS an **ACCEPTABLE, evidence-based** method of surveillance as recommended in the 2006 KDOQI Clinical Practice Recommendations & Guidelines.

Derived static pressure

Derived static pressure readings are calculated by using the venous pressure readings from the machine, blood flow, coefficients sets (based on type of machine, needles and bloodlines), MAP and hematocrit/hemoglobin. Data from the last 60 min of dialysis is excluded to eliminate the effect of ultrafiltration on hematocrit, blood pressure and changes in systemic and vascular access resistances. Derived static pressure IS an **Acceptable, evidence-based** method of surveillance as recommended in the 2006 KDOQI Clinical Practice Recommendations & Guidelines

Vasc-Alert® System (Derived static pressure)-Novel Approach

A mathematical algorithm is used to calculate mean VAPR for each dialysis session. Readings are considered to be high if the treatment VAPR result exceeds 0.55. The arterial access performance ratio (AAPR) is also calculated. Results above 0.6 for grafts and 0.65 for fistulas are considered to be elevated. If either the AAPR or VAPR results are elevated for three consecutive treatments, an alert is issued for the patient. Vasc-Alert calculates results with every treatment and shows trending over time. Vasc-Alert IS an **Acceptable, evidence-based** as referenced in the 2006 NKF K/DOQI Clinical Practice Recommendations & Guidelines (Pg S220).