Publication Brief

Access Flow Measurement As A Predictor of Graft Thrombosis: Making Clinical Decisions

BACKGROUND

Over “170 publications address the accuracy, prognostic value, and economic impact of dilution technology in measuring vascular access blood flow.” Implementing a vascular access surveillance program reduces thrombosis rates in dialysis patients. It consequently reduces the costs associated with access maintenance. Krivitski and Gantela adopt an editorial approach in evaluating flow thresholds used to predict access failure in several clinical studies.

OBJECTIVE

1) Evaluate the analysis (Paulson, et al) of the significance of access flow measurements in predicting thrombosis;  
2) To apply “a statistically accepted three-step approach for clinical decision making” to assess the utility of access flow surveillance (similar to KDOQI Guidelines) in the prediction of thrombosis.

STUDY

Using a sensitivity of 80% and a false positive rate of less than 20% as criteria, Paulson et al concluded that “despite a relationship between access flow (Qa) and risk for thrombosis, access flow (Qa) does not provide enough predictive accuracy to be the sole criterion for clinical decision making.” Krivitski and Gantela contest this analysis and point out that the criteria used to gauge the success of an access flow surveillance program are arbitrary and do not address the role of flow measurements in clinical decision making. They contend that tests should be selected based on:  
1) the effect of missing the disease;  
2) the effect of falsely identifying the disease;  
3) the prevalence of the disease in the population.

None of this information was used in Paulson’s study to select flow criteria.

CONCLUSION/DISCUSSION

Krivitski and Gantela suggest using a statistical process, a harm-benefit analysis, to evaluate the usefulness of access flow measurements in predicting thrombosis. Their harm-benefit approach shows that, statistically, all artificial grafts will eventually thrombose, but access flow studies discriminate between patients that require angiography and those that do not.

Furthermore, the approach demonstrates that implementation of an access flow surveillance program decreases thrombosis rates and the corresponding costs. These economic rewards resulting from access flow surveillance are not currently recognized by HCFA, resulting in the slow adoption of access flow.

REFERENCE