Publication Brief

In search of an optimal bedside screening program for arteriovenous fistula stenosis

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BACKGROUND
Guidelines recommend systematically screening for stenosis using various methods, but no studies so far have compared all of the options.

OBJECTIVE
To compare the performance of several bedside tests performed during dialysis in diagnosing angiographically proven >50% fistula stenosis. A prospective blinded study was performed.

STUDY
• Prospective blinded study;
• 119 hemodialysis patients with mature fistulas, physical examination (PE) was conducted; dynamic and derived static venous pressure (VAPR), blood pump flow/arterial pressure (Qb/AP) ratio, recirculation (R), and access blood flow (Qa) were measured; and angiography was performed.

RESULTS
• Angiography identified 59 stenotic fistulas: 43 stenoses were located upstream from the venous needle (inflow stenosis), 12 were located downstream (outflow stenosis), and 4 were located at both sites.
• Inflow Stenosis Identification: Optimal Tests:
  - Qa < 650 mL/min (Sensitivity 65%; Specificity 89%)
  - Combination of a positive Physical Exam “or” Qa < 650 mL/min (accuracy 80% and 81%, respectively), the latter being preferable because it was more sensitive (Sensitivity, 85%; Specificity, 79%).
• Outflow Stenosis Identification: Optimal Tests:
  - PE (accuracy 91%; sensitivity, 75%; specificity, 93%); VAPR (accuracy, 85%; sensitivity 81%; specificity 86%)
  - PE is preferable because it was more reproducible, easier to perform, and applicable to all fistulas.

CONCLUSION
Fistula stenosis can be detected and located during dialysis with a moderate-to-excellent accuracy using physical exam and vascular access flow measurement to screen for stenosis.

Reference