Flow in Hemodialysis Grafts after Angiography: Do Radiologic Criteria Predict Success?

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BACKGROUND
Ahya, Windus, and Vesley from Washington University School of Medicine, St. Louis, MO, studied the correlation of assessment techniques for evaluating angioplasty success in AV grafts. Anatomically successful angioplasties result in the residual stenosis being less than 30% of the diameter of the access. A hemodynamic success is an angioplasty that increases vascular access blood flow. Clinically, angioplasties are successful if the vascular access can be used for one hemodialysis treatment.

OBJECTIVE
To compare the visual (angiographic) anatomical outcomes with the hemodynamic results of each angioplasty procedure.

STUDY
• 22 hemodialysis patients with PTFE grafts (mean age, 63) received fistulography and angioplasty within 8 to 10 days of a routine access flow measurement (Transonic) below 700 mL/min.
• Another indication for angiography was an unexplained reduction in dialysis adequacy (Kt/V measurements).
• All grafts were patent at the time of the procedure and had a stenotic lesion > 50% of the vessel or graft diameter.
• Post angiographic images were reviewed to evaluate success, and access flow measurements were taken post-procedure within 10 to 13 days.

RESULTS
• 89% of the angioplasties reduced the stenosis < 30% of the vessel.
• The mean percentage of stenosis fell from 78% to 18%
• 89% of the procedures restored blood flow to within 30% of the highest recorded blood flow for the graft.
• The mean post-procedure flow of the study exceeded the mean highest recorded flow measurement for the grafts treated with angioplasty.
• There was no correlation between increase in blood flow and the visual angiographic results of the procedures.

CONCLUSION
“Visual assessment of the lesion following angioplasty fails to predict the hemodynamic success of the procedure.” There is a great need in the radiology suite for the ability to measure blood flow to identify less significant, flow-limiting stenoses.

Reference: