Endpoints for Hemodialysis Access Procedures: Correlation between Fistulography and Intraaccess Blood Flow Measurements

Objective
To compare angiographic vessel diameter of stenotic hemodialysis prosthetic grafts and autogenous fistulas, the traditional measure of percutaneous intervention success, and pre and post intervention real-time intra-access blood flow rates (IBF) and access blood flow (ABF) measurements during hemodialysis.

Study
• Radiologic images and IBF measurements of 35 patients with 76 procedures were analyzed retrospectively. ABF rates were also included if they took place within five weeks after the intervention. The study population included 19 autologous fistulas and 16 prosthetic grafts.
• In first-time patients, time to failure of treatment was modeled.

Reported Results
• Significant correlations included:
  • Initial ABF (during hemodialysis) and pre-intervention Intra-access Flow Measurements (\( p = 675 \));
  • Initial ABF (during hemodialysis) and fistulography (\( p = 781 \));
  • Post-intervention Intra-access Flow Measurements and ABF (during hemodialysis) (\( p = 798 \));
  • The final intra-access flow measurements and ABF correlated better than final fistulography and ABF (difference = 0.418)
  • There was no significant correlation between access survival after the intervention and Intra-access

Conclusions
• Post-intervention, IBF measurements correlate more strongly than fistulography with ABF rates performed during hemodialysis with Gold Standard flow/dilution measurements.
• More studies are needed to determine the optimum target flow value to be achieved by a percutaneous intervention.

Observation
• The Endovascular Flowmeter and ReoCath® Flow Catheters calculate real-time blood flow through access circuits.
• These measurements provide functional and therefore more physiologically relevant data in the interventional suite than qualitative fistulography measurements.

Reference