

Renal Transplant Focus Note

Key Flow Publications

IMPAIRED RENAL ARTERY BLOOD FLOW AT TRANSPLANTATION IS CORRELATED TO DELAYED ONSET OF GRAFT FUNCTION, Lundell A, Persson NH, Kallen R, Ekberg H, Transplant International 1996;9(1):57-61. (Transonic Reference # 685AH)

This seminal renal transplant flow study compared the transit-time ultrasonic flow probe to other methodologies and measured flow and resistance twice, before construction of the ureter anastomosis and after. He established correlation between low renal blood flow (<250 mL/min) and delayed onset, based on lack of a decrease in serum creatinine at 24 hours. Cadaveric donor transplants were found to have a lower graft blood flow than living donor transplants, probably due to the prolonged cold ischemia time for cadaveric kidneys. He concluded, "measuring blood flow with a transit time flowmeter is easy and gives an immediate estimation of the arterial circulation in the transplant. Our measurements correlated significantly with the occurrence of delayed onset in graft function as well as with the need for post-transplant dialysis. This immediate information would be clinically valuable when the postoperative graft status is evaluated and variation in immunosuppressive regimen is considered."

ASSESSMENT OF PRESERVATION INDUCED REPERFUSION INJURY VIA INTRAOPERATIVE RENAL TRANSPLANT BLOOD FLOW AND ENDOTHELIN CONCENTRATION STUDIES, Bretan, P.N. Jr. Lobo, E., Chang JA, Dumitrescu O, Miller B, Yen TS, J Urology 1997;158(3):714-18. (Transonic Reference # 1093AH & 53V)

This is a validation study as well as a research and clinical study. Validation of the clinical Flowprobe was conducted with actual renal blood flow with a graduated cylinder and stopwatch observed and plotted against measured flow. Bretan et al conclude that "a one-hour compared to the immediate (5 minutes) post-reperfusion renal blood flow ratio can be a prognostic indicator of subsequent renal function.

EXPERIMENTAL AND CLINICAL ASSESSMENT OF PRESERVATION-INDUCED REPERFUSION INJURY COMPARING RENAL TRANSPLANT BLOOD FLOW AND RENAL ENDOTHELIN CONCENTRATIONS, Bretan PN Jr, Lobo E, Dumitrescu O, Miller B, Yen TS, Transplantation Proceedings 1997;29(8):3520-3521. (Transonic Reference # 1092AH & 54V)

In this study the Flowprobe was calibrated with absolute blood flow measurements that were taken simultaneously from the renal vein yielding a correlation coefficient of 0.962. The authors conclude that the ultrasonic transit time Flowprobe accurately measures postreperfusion renal blood flow and offers a practical and noninvasive method for assessing renal reperfusion injury after transplantation. This can help optimize immunosuppressive strategies to maximize renal recovery.