
PVSS19 Hemodynamics Of Distal Revascularization-Interval Ligation (DRIL)

K.A. Illig, S. Surowiec, C.K. Shortell, M.G. Davies, J.M. Rhodes, R.M. Green;
University of Rochester Division of Vascular Surgery, Rochester, NY

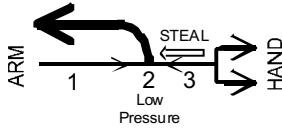
OBJECTIVE: To assess the hemodynamics of Distal Revascularization-Interval Ligation (DRIL) for steal following A-V fistula creation.

METHODS: After operative exposure in nine symptomatic patients, intravascular pressures and flows were measured at Site 1, proximal artery, Site 2, AV anastomosis, Site 3, distal brachial artery, and within the fistula (Figures). Bypass from Sites 1 to 3 was performed and the artery beyond Site 2 ligated.

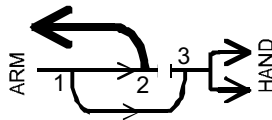
RESULTS: Pre-DRIL (Figure 1), systolic pressure (mmHg; mean \pm SD) at Site 1 was 102 \pm 17, while that at Site 2 was 47 \pm 38 ($p < .0006$). Flow (cc/min) at Site 3 was retrograde with the fistula open (-21 \pm 64), but became antegrade (58 \pm 29; $p < .03$) with occlusion of the fistula. Flow at Site 1, 574 \pm 262, was greater than that within the fistula (444 \pm 114) plus retrograde from the hand (-21 \pm 64), indicating that significant collateral flow to the hand must arise between this point and the beginning of the fistula. Post-DRIL (Figure 2), pressures at Sites 1 and 2 did not change (104 \pm 24 and 51 \pm 43, respectively). However, pressure at the point at which the blood flow split to supply the hand or the fistula, now Site 1, increased from 47 \pm 38 (pre-DRIL Site 2) to 104 \pm 24 ($p < .0001$). Pressure at Site 3 increased to 104 \pm 27, and flow at Site 3 (to the hand) became antegrade (51 \pm 39; $p < .03$). Occlusion of the fistula did not significantly change pressure at Site 3. Total flow in the brachial artery was now roughly equal to the sum of fistula and hand flow.

CONCLUSION: We hypothesize that improvement in hand perfusion following DRIL is due to a higher pressure at the point at which the blood flow splits to supply both hand and fistula (pre: Site 2; post: Site 1), which must be due to the increased resistance of the fistula created by "adding" the arterial segment between Sites 1 and 2 to it.

1: AV Fistula with Steal (PRE)



2: AVF after DRIL (POST)



Notes
