Focus Note

Do Antegrade & Retrograde Catheters Measure Identical Flows? Which Catheter Should I Use?

DO ANTEGRADE & RETROGRADE CATHETERS MEASURE IDENTICAL FLOWS?

If there are no side branches in the vascular access between the tip of an antegrade ReoCath® catheter and the tip of a retrograde ReoCath® catheter, the nominal flow at both sites is identical. Any difference in measurements from the two catheters would result from their measurement accuracy specifications and systemic parameter changes (e.g. pressure, CO) at different measurement times. This was corroborated by a Buffalo, NY group who compared antegrade and retrograde readings and found that the two readings are the same within the catheters's measurement tolerances, if the flow had not been altered by an intervention between the time the measurements were performed.

SHOULD ONE USE AN ANTEGRADE OR RETROGRADE CATHETER?

The direction, either antegrade or retrograde, of the interventional introducer sheath through which the catheter is inserted determines the choice of catheter. Most interventionalists prefer to work in the antegrade direction so, in most cases, an antegrade ReoCath® catheter is the catheter of choice (Fig. 1). However, some interventionalists insert two introducer sheaths, one antegrade and the other retrograde, into the vascular access. In such instances, an antegrade catheter can be left in place as the interventionalist performs a retrograde intervention (Fig. 2).

Interventionalists who perform both antegrade and retrograde angioplasties will pull the introducer back and turn it around when their intervention in a first direction is completed. With this scenario, the interventional radiologist would need to use both the antegrade and retrograde catheter to measure flow in both sheath orientations (Figs. 1 & 3).

Antegrade Catheter

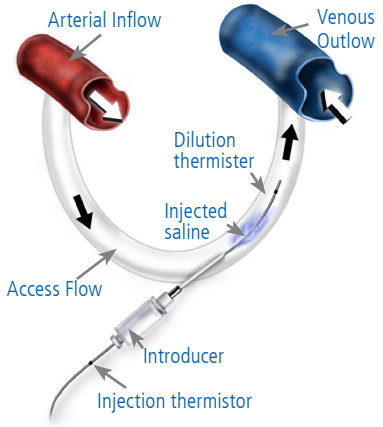

Fig. 1: The catheter of choice is frequently an antegrade catheter (6 F, 35 cm length) inserted into the graft in the same direction as blood flow. Measured saline is released proximal to the catheter tip. The dilution temperature is then measured downstream.

Antegrade Catheter & Retrograde Introducer

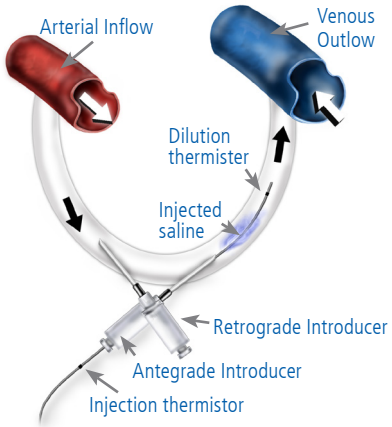

Fig. 2: When two introducers are inserted into the vascular access, an antegrade catheter can remain in place as the interventionalist performs a retrograde intervention through the second retrograde introducer.

Retrograde Catheter

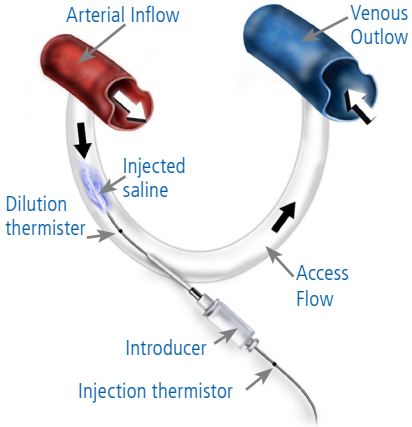

Fig. 3: A retrograde catheter (6 F, 48 cm length) is shown here measuring flow in the access. The catheter is inserted through an introducer against the direction of flow. Saline is released at the catheter's tip . A downstream dilution thermistor then measures the temperature of the diluted blood flow.

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