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| **CANNULA SELECTION** |

**VV BYPASS:**

**Drainage**: JUGULAR

**Return**: JUGULAR

advantage: single site; Avalon double lumen catheter decreases recirculation, is wire reinforced, and allows patient repositioning

disadvantage: use of guidewire for Avalon cannula insertion requires ECHO or flouro guidance. Greatest risk is vessel or atrial perforation

**Drainage**: FEMORAL VEIN extending to infra-hepatic vena cava **\***preferred method when unable to insert VV cannula (patients >20kg and/or 3+ years of age)

**Return:** JUGULAR

advantage: minimizes recirculation

disadvantage: need large enough femoral cannula for adequate venous return

**Drainage**: JUGULAR VEIN

**Return:** FEMORAL VEIN

advantage: easier for venous return

disadvantage: significant recirculation

**VA BYPASS:**

**Drainage**: JUGULAR VEIN

**Return:** CAROTID ARTERY

advantage: known, common technique

disadvantage: increased risk of cerebral infarcts, especially in older patients

**Drainage:** JUGULAR VEIN

**Return**: FEMORAL ARTERY

advantage: saves carotid

disadvantages: decreased perfusion of aortic arch, coronaries, carotid; risk of ischemia to leg

options: placement of distal perfusion cannula into superficial femoral artery. Monitor pressures from post. tibial artery; if < 50 mmHg, attach perfusion catheter and run at rate of 1-200 ml/min

**Drainage:** FEMORAL VEIN

**Return:** FEMORAL ARTERY

advantage: saves carotid

disadvantages: need large femoral cannula for adequate venous return; decreased perfusion of aortic arch, coronaries, carotid; risk of decreased perfusion to leg, foot

**Drainage:** FEMORAL VEIN

**Return:** small cannula in FEMORAL ARTERY supplemented with return to JUGULAR VEIN VA (V)

advantage: provides arterial blood to lungs, aortic arch, upper body

disadvantage: Used for older pediatric patients, near adults

**\* Univ of Michigan DOES NOT recommend femoral cannulation for**

**< 20kg or 3 yr of age**