

BC Nephrology Days PVA October 2005

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Overview

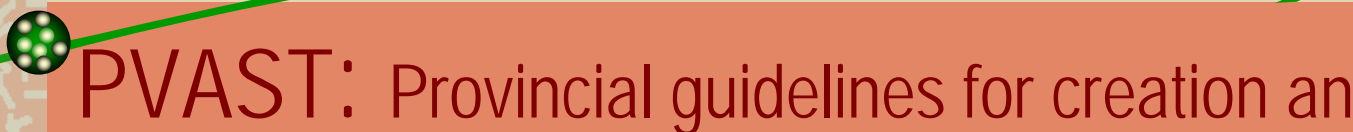
- ✚ Clinical Care Monitoring
- ✚ Nursing Initiatives
- ✚ Accomplishments
- ✚ Future Plans



Clinical Care Monitoring

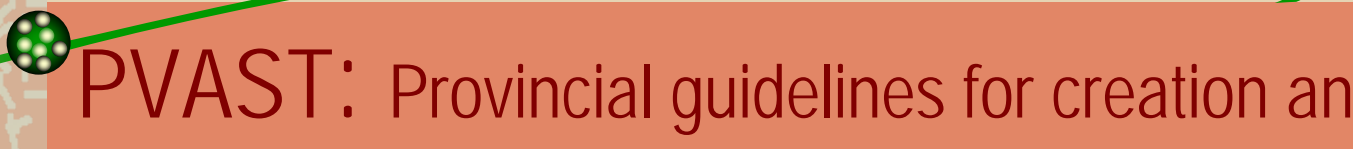
- ✚ BC Guidelines
- ✚ Surgery Priority List
- ✚ Radiology Triage List

✚ <http://www.bcrenalagency.ca/News/NephrologyDay/>



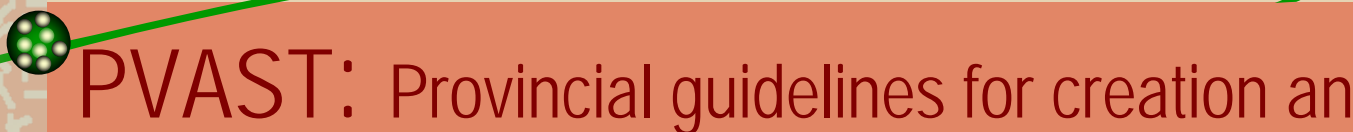
PVAST: Provincial guidelines for creation and management of HD VA

- ✚ A) Creation:
- ✚ Referral for creation of VA should be done when $GFR < 25 \text{ ml}$ and $> 15 \text{ ml}$ and change in GFR is $> 5 \text{ ml/min/year}$
- ✚ It is recommended the patients be assessed pre-operatively by vascular access surgeon and /or nephrologist whether radiological assessment of their vasculature by either ultrasound or venography is required prior to creation of vascular access.
- ✚ VA of choice are AVF followed by AVG and lastly tunneled catheters in pats who do not have any suitable vessels for AVF/AVG creation
- ✚ Tunneled catheters should be placed if hemodialysis catheters is to remain in situ for $> 1\text{-}3$ months.
- ✚ Catheters should be placed in IJ veins as the first site.



PVAST: Provincial guidelines for creation and management of HD VA

- ✚ Tunneled cuffed catheters should not be placed on the same side as a maturing AV access, if possible.
- ✚ Real time ultrasound guided insertion is recommended to reduce insertion-related complications(Guideline 5D).
- ✚ Fluoroscopy is recommended for insertion of all cuffed dialysis catheters and the catheter tip should be adjusted to the level of the caval/atrial junction or into the right atrium to ensure optimal blood flow (Guideline 5C).
- ✚ Femoral HD catheters may be place when urgent VA is required, using long(≥ 20 cm) catheters and a more suitable access (IJ catheters) should be established as soon as possible(within one week).



PVAST: Provincial guidelines for creation and management of HD VA

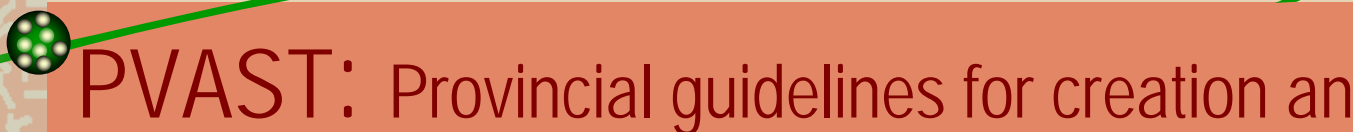


B) Monitoring



a) Maturation of created access:

1. At **2 weeks** after creation: AVF/AVG (if applicable) should be assessed by trained individual (vascular access or kidney clinic nurse +/- nephrologist +/- vascular surgeon)
 - a. If absent thrill or bruit, the patient should be urgently referred back to the vascular surgeon
2. At **6 weeks** after creation: AVF/AVG (if applicable) should be assessed by the VA team for maturation failure.
 - a. If inadequate maturation, appropriate investigations (Fistulogram) and interventions should be initiated
3. At **4-6 weeks prior** to anticipated initiation of HD: AVF/AVG should be assessed by VA team
 - a. If access inadequate for cannulation, appropriate investigations and interventions should be initiated




PVAST: Provincial guidelines for creation and management of HD VA



b) Established VA

1. AVF and AVG should be monitored on a q 4-6 weekly schedule by the preferable methods in following order:
 - a. Access flow measurements
 - b. Dynamic or venous pressure measurements
 - c. Access recirculation using 2 needle, 3 sample urea method if other technology not available
2. Catheter function can be followed using recirculation values preferably using dilution method (transonic machine) q 4-6 weekly
3. Evaluation and assessment should be preferably done by identified VA team:
 - a. Vascular access nurse, Nephrologist, Vascular Surgeon, Radiologist

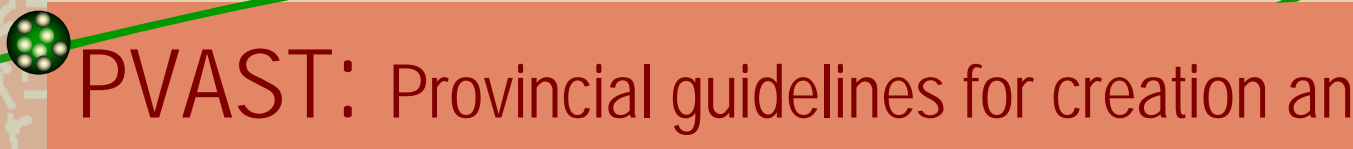


PVAST: Provincial guidelines for creation and management of HD VA

4. Investigation and treatment by venography (fistulogram) is recommended

a) Within **1-2 weeks** for:

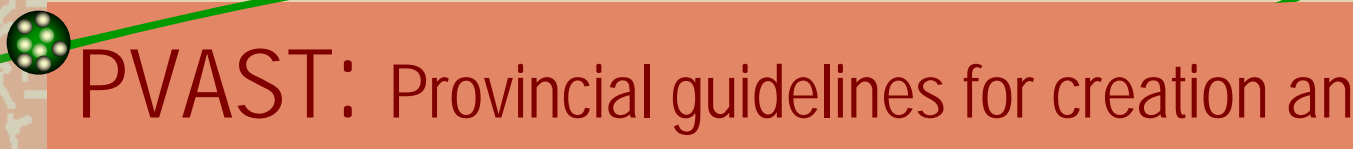
- i. Absolute access flows of $< 500\text{ml/min}$ in AVF and $< 650\text{ml/min}$ in AVG
- ii. Decrease in access flow of $>20\%$ from baseline
- iii. Inability to achieve a blood pump speed on dialysis of $\geq 300\text{ml/min}$ within 1 week of initiating dialysis
- iv. Difficulty with cannulation and excessive bleeding post hemodialysis otherwise unexplained
- v. Arm or facial swelling
- vi. High machine venous pressures or low machine arterial pressures on hemodialysis



PVAST: Provincial guidelines for creation and management of HD VA

b) Within 2 days for:

- i. Access flows of $< 300\text{ml/min}$
 - ii. Decrease in access flow of $\geq 50\%$
2. Pts with catheters who have catheter dysfunction may be treated by TPA empirically
- a) The need for TPA on > 2 occasions in 2 week period should be investigated with HD catheter dye study to rule out persistent thrombus, fibrin sheath or malposition
 - b) If evidence of fibrin sheath around catheter, trial of catheter stripping under radiology may be attempted, if possible. If not, catheter will need to be replaced.
3. Persistent catheter dysfunction or the development of new facial swelling in any patient should be investigated with venography to rule out central venous stenosis.



PVAST: Provincial guidelines for creation and management of HD VA

C) Intervention:

1. Treatment of stenosis of the fistula/graft or central venous veins should first be attempted by angioplasty unless otherwise directed by the radiologist or vascular surgeon.
2. Angioplasty should be done in a timely manner:
 - a. Usually within 2 weeks
 - b. Within 2 days if
 - i. Absolute access flow < 300ml/min
 - ii. Drop from baseline of >50% or
 - iii. Clinical indication (severe bleeding or unable to dialyze pt)
1. Surgical revisions of stenosed fistula/graft should be done on a more urgent basis, as per surgical priority scale.

PVAST: Provincial guidelines for Urgency of Surgical Waitlist

✦ Priority 1: < 24 hrs, immediate need for dialysis

- Dialysis line placement
- Dialysis revision or replacement (malfunction)
- AV fistula/graft thrombosis, potentially salvageable
- AV fistula/graft, not salvageable > dialysis line placement

✦ Priority 1 < 24 hrs, immediate need for surgical intervention for bleeding or infection

- AV fistula/graft salvageable
- AV fistula/graft not salvageable > dialysis line placement

✦ Priority 2: < 3 weeks, urgent need for dialysis

- Patient newly dialysis dependent, dialysis line in place
- Anticipated urgent dialysis need (nephrologist's criteria)



PVAST: Provincial guidelines for Urgency of Surgical Waitlist

- ✚ **Priority 2:** < 3 weeks, urgent need for AV fistula/graft intervention
 - Radiological treatment for stenosis
 - Surgical treatment for stenosis, aneurysm, steal syndrome, venous hypertension etc
- ✚ **Priority 3:** < 6 weeks, elective need for dialysis
 - Anticipated dialysis need > 3 months (nephrologist's criteria)
- ✚ **Priority 4:** < 6 weeks – 3 months, elective need for dialysis
 - Anticipated dialysis need > 6 months (nephrologist's criteria)



PVAST: Provincial radiology triage criteria



< 24 hours

1. Flow/Hemodynamics

- i. Access flow < 400ml/min in AVG

2. Physical findings

- i. Unable to cannulate
- ii. Loss of thrill



PVAST: Provincial radiology triage criteria



< 48 hours

1. Flow/ Hemodynamics
 - i. Access flow <300ml/min in AVF
 - ii. Access flow 400-500ml/min in AVG
 - iii. > 50% drop in baseline for AVF/AVG
2. Physical Findings
 - i. Acute arm swelling in AVG



PVAST: Provincial radiology triage criteria



< 1 week

1. Flow/Hemodynamics
 - i. access flow 300-500ml/in in AVF
 - ii. Access flow 500-650ml/min in AVG
 - iii. > 20% drop from baseline
 - iv. VP 125-150mmHg using 16-15 gauge needles @BPS 200ml/min for three consecutive runs
 - v. AP -220mmHg using 16-15 gauge needles @BPS 200ml/min for three consecutive runs
 - vi. Unable to achieve BPS of > 300ml/min in new access or >350ml/min in mature accesses



PVAST: Provincial radiology triage criteria

2. Dialysis Adequacy
 - i. PRU < 66% without other obvious causes
 - ii. KT/V < 1.2 without other obvious causes
 - iii. Uremic symptoms without other obvious causes
3. Physical findings
 - i. Difficultly cannulating (repeatedly)
 - ii. Acute arm swelling in AVF
 - iii. Significant decrease in thrill
4. Clinical scenarios
 - i. Post thrombectomy
 - ii. Post angioplasty
 - iii. Steal syndrome



PVAST: Provincial radiology triage criteria



< 2 weeks

1. Flow/Hemodynamics
 - i. BPS – gradual 25-50% drop from baseline
 - ii. VP - gradual 25-50% increase
2. Physical findings
 - i. Prolonged bleeding post needle removal (repeatedly) without any other indications



PVAST: Provincial radiology triage criteria



< 1 month

1. Physical findings
 - i. Chronic arm swelling
2. Clinical scenarios
 - i. Ipsilateral arm venography pre access creation
 - ii. Failure of access to mature



Nursing Initiatives

- ✦ VA Nurses

- ✦ Vascular Access Education Group

- ✦ Note: See “A BC Initiative: Strengthening the Achilles’ Heel of Hemodialysis”

VA Nurses



Vascular Access Education Group (VAEG)

✚ Mandate

- Provides a forum for consultation in developing;
 - Policies and procedures
 - Address educational needs of nephrology nurses and patients

✚ Terms of Reference

- Provincial perspective
- Provincial guidelines
- Meet monthly via teleconference, BC Nephrology Days

✚ Members

- VA Nurses
- Katie Nikl (Fraser Health)
- Laurie Bates (Interior BC)



Accomplishments

- ✦ Protocols and Procedures
 - Cannulation of an AVF/AVG
 - Cannulation of an Access with a CVC
 - Instillation of tPA
 - Procedure for Transonic Monitoring
- ✦ VA clinics
- ✦ Access flow monitoring
- ✦ HemoNOVA
- ✦ PROMIS VA database



Future Plans

- ✦ Cannulation Education Program

- Ongoing
- Novice to expert

- ✦ National VA networking team



Questions??



Thank You