9.11 Neurovascular Status Assessment

Reviewed September 2007

Purpose

To assess arterial flow to limbs and to record observations for early detection of neurovascular compromise.

Scope

Nursing staff.

Student Nurse under supervision.

Medical staff.

Associated Documents

Clinical Record

Clinical Pathways

Vital Centres Observations Sheet (QMR0026A)

PACU/BSCU Observation Chart

Anaesthesia and Recovery Record (QMR0013)

Day Surgery Burwood Package

References

- Neurovascular assessment Cathleen E Kunkler, Orthopaedic Nursing May/June 1999, Vol
- Potter and Perry 1997 Fundamental of Nursing 4th edition, St Louis Mosby
- Neurovascular Assessment (2006). Retrieved July 2006 from www.nursingceu.com/courses/34/index_nceu.html
- Neurovascular Assessment Procedure (November 2004). Retrieved July 2006 from www.unchealthcare.org/site/Nursing/nurspractice/procedures/procedurens.pdf

Procedure

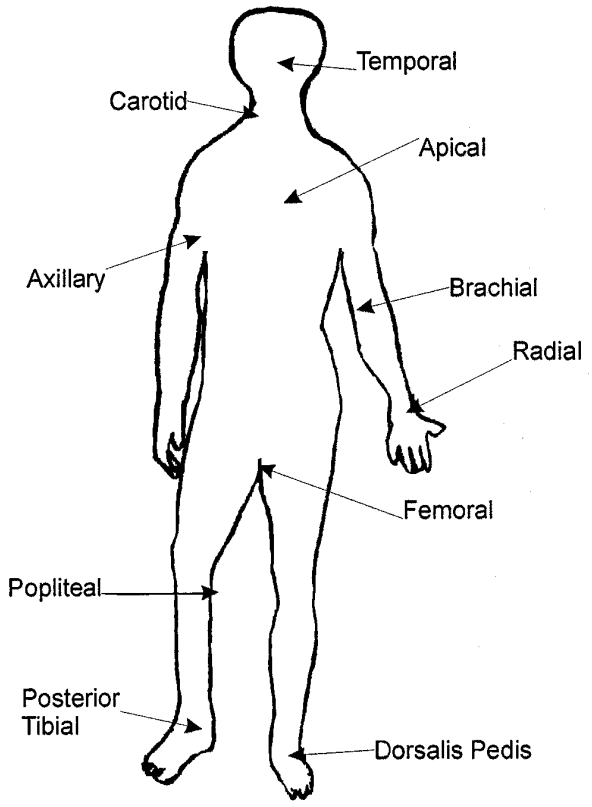
Step	Action	Rationale
1	Explain procedure to patient	To obtain patient co-operation, informed consent and to and facilitate understanding of the

		procedure.
Step	**Action**	**Rationale**
2	Assess limbs 1-2 hourly or more frequently as indicated checking for: **Colour** ▪ Pinkish white ▪ Pallor ▪ Blanching/motley appearance. ▪ Redness ▪ Cyanosis	**NB :** The affected limb is to be compared with the unaffected limb. Indicates blood supply. Indicates decreased blood supply Indicates that arterial pressure will not overcome obstruction. May indicate injury to superficial capillaries. Indicates decreased oxygenation of blood
3	**Temperature** ▪ Hot ▪ Warm ▪ Cool ▪ Cold Consider temperature of the environment	 May indicate sepsis or an inflammatory response. Indicates adequate perfusion. Indicates inadequate perfusion. Indicates very poor peripheral perfusion. Cool environmental temperature may cause limb temperature to be cooler.
4	**Capillary Refill- Assess extremity at level of the heart** Carry out the Blanch Test – ▪ Press the patient's nail bed (finger/toe) for 2-3 seconds until it blanches. ▪ Release and observe the time required for the nail bed to regain colour :- 1-2 seconds More than 2 seconds Immediate refill Observe for oedema- note if mild, moderate or pitting	 Normal Inadequate arterial supply Inadequate venous return Presence of oedema may indicate venous stasis

Step	Action	Rationale
5	**Movement- Establish whether the patient had a normal of decreased range of movement prior to surgery** Check patient is able to move limb/fingers or toes, and that movement is not painful. (Note that the patient may be unable to move due to spinal or epidural anaesthetic or other regional block)	Pain on movement may indicate ischaemia.
6	**Sensation- Determine if patient had altered sensation prior to injury/surgery and assess if current sensation is different from previous sensation.** Patient feels normal sensation to touch. Ask patient o close his eyes and ask him to tell you where he is being touched. Check front and back of area being touched, and determine if any numbness, parasthesia / tingling is present.	Adequacy of neurologic function is indicated by presence of sensation to light touch. Altered sensation indicates the degree of ischaemic compromise to nervous system.

Step	Action	Rationale
7	**Pulse** Palpate the relevant pulses and determine whether pulses are: Full/ Bounding Normal Diminished Weak Absent <u>Arm</u> Auxiliary Brachial Radial <u>Leg</u> Femoral Popliteal Posterior tibial Dorsalis pedis	To assess the arterial flow of the limb Adequacy of circulation/perfusion is indicated by the presence of a pulse.

Figure 1: Pulse Points



Step	Action	Rationale
8	**Pain** Determine location and quality of pain e.g. intermittent, sharp, throbbing, burning etc. and ascertain radiation of pain. Burning may indicate nerve injury and increased pain with passive motion may indicate Compartment Syndrome. Notify Medical Staff of any increased severe pain or diminution of NV status. <u>Further Assessment of pain status</u>: *Acute*: sudden severe pain (arterial) *Acute*: little or no pain, tenderness along inflamed vein (venous) *Chronic arterial*: intermittent claudication, rest pain *Chronic venous*: heaviness / fullness	Affected extremity may be painful. Pain indicates injury, pressure, trauma to tissue or as a result of surgery. **NOTE:** Pain, which is progressive and increases despite interventions to relieve it and pain with passive motion may indicate NV compromise. Marked oedema may be present and skin appear shiny indicating Compartment Syndrome- **<u>Notify Medical Staff Urgently</u>** Assists in determining whether insufficiency is acute or chronic, arterial or venous.
9	Document observations	<u>Remember:</u> **P**ain , **P**ulses, **P**aralysis, **P**araesthesia, **P**allor, Ca**P**illiary refill and Tem**P**erature
10	Report any significant changes to Medical Officer	To initiate treatment in cases of compromised blood flow.