

# CEREBRAL ANGIOGRAM: POST-OPERATIVE MANAGEMENT AND CARE

## PRACTICE GUIDELINE<sup>®</sup>

### DOCUMENT SUMMARY/KEY POINTS

- To outline post-operative care for patients after a cerebral angiogram
- Bed rest and encourage to lay flat with the affected limb kept straight for 4 hours
- Observations are performed every 15 minutes for the first hour, 30 minutely for the next 2 hours, hourly for the next 4 hours and 4<sup>th</sup> hourly until discharge
- Notify admitting Medical team if vital signs are out of range for patient, if neurological status deteriorates, if bleeding/haematoma occurs at the wound site or of any concerns
- This document is a guide only and does not take away the need for clinical judgement in individual cases

### CHANGE SUMMARY

- N/A – new document

### READ ACKNOWLEDGEMENT

- Medical staff involved in cerebral angiogram procedures and Nursing staff in Recovery and Wards receiving these patients post-operatively are to read and acknowledge they understand the contents of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure and Guideline Committee	
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<b>Team Leader:</b>	Registered Nurse	<b>Area/Dept:</b> Commercial Travellers Ward CHW

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## 1 Introduction

The purpose of this practice guideline is to outline post-operative care for patients who have undergone a cerebral angiogram.

This guideline includes frequency of observations, what to look for when checking the cerebral angiogram wound site and potential complications.

This document is a guide only and does not take away the need for clinical judgement in individual cases.

## 2 Post-Operative Pain Management and Fluids

### Pain Management

- PRN analgesia as charted.
- Pain should be minimal.<sup>1</sup>

### Hydration

- Intravenous therapy as ordered.
- If an intravenous cannula is capped upon return to the ward, this should be kept in-situ in case oral hydration is not tolerated.
- Encourage oral hydration as tolerated.<sup>2</sup>

## 3 Cerebral Angiogram

A cerebral angiogram is the study of the blood vessels in the brain.<sup>3</sup> It is an invasive procedure that involves a catheter being inserted through the groin up to the arteries feeding the brain.<sup>3</sup> Contrast dye is then injected in the cerebral arteries to observe the flow of blood in the cerebral system.<sup>3</sup>

Indications for performing a cerebral angiogram include:

- To identify narrowing of blood vessels in the brain<sup>2</sup>
- To identify blockages of vessels that supply blood to the brain<sup>2</sup>
- To identify bleeding, aneurysms, arteriovenous fistulas or congenital malformations<sup>2</sup>
- To identify feeding blood vessels of a brain tumour<sup>2</sup>
- To assess results of specific treatments (e.g. aneurysm coiling/clipping)<sup>2</sup>

## 4 Post-Operative Management and Care

- Bed rest without ambulation to the toilet for the first 4 hours post operatively.<sup>1,2</sup>
- Encourage to lay flat with the affected limb kept straight for the first 4 hours post procedure.<sup>1,2</sup>

### Post-Operative Observations

- Frequency of observations<sup>1</sup>
  - 15 minutely x 4 (every 15 minutes for the first hour)
  - 30 minutely x 4 (2 times per hour in the next two hours)
  - 1 hourly x 4 (1 time per hour in the next four hours)
  - 4<sup>th</sup> hourly (1 time every four hours for the duration of inpatient stay)
- Type of Observations<sup>1</sup>
  - Temperature, Pulse, Respiratory Rate, Blood Pressure, Oxygen Saturation
  - Neurological Observations including Glasgow Coma Scale
  - Neurovascular Observations of the affected limb (also compare the affected limb with the unaffected limb)
  - Wound site checks of the groin (visualise the puncture site and palpate area)

**Note:** The discontinuation of groin checks in the 4<sup>th</sup> hourly observations should be ordered by the admitting Medical team with consideration to the patients' clinical condition (e.g. patient having heparin infusion, patient on anticoagulant therapies)

### Wound Management

Cerebral angiogram is performed via a trans-femoral approach.<sup>3,4</sup>

Wound site in the groin area. Observe for any of the following at the puncture site:<sup>4</sup>

- Bleeding
- Bruising
- Haematoma (small hard lumps)

**Note:** Patients receiving a heparin infusion or anticoagulant therapies are at higher risks of prolonged bleeding and bruising at the wound site.

If a Safe Guard Air Pressure Dressing is used, refer to [Cardiac Catheterisation: Interventional, Non-interventional and Electrophysiological Studies-CHW Practice Guideline](#).

## Possible Complications

- Groin site<sup>1,2</sup>
  - Bleeding from wound site - management includes applying continuous pressure to the puncture site and notify treating team to review
  - Large haematomas at puncture site or poor perfusion of affected limb (absence of pulse with changes in colour, capillary refill and temperature) - management includes increasing neurovascular observations and urgently informing admitting Medical team
  - Femoral artery pseudo aneurysm (rare)<sup>4</sup> – management includes sand bag over the wound site, immobilisation of the affected limb, bed rest and urgently inform admitting Medical team
- Common: <sup>1,2,4</sup>
  - Mild headache, nausea and vomiting, transient amnesia (resolves within 24 hours), transient hearing loss, visual loss (resolves within 24 hours)
- Serious: <sup>1,2,4,5</sup>
  - Cerebral Ischemia - signs include severe headache, facial asymmetry, dysphasia, dyslexia, altered/loss of sensation, prolonged loss of vision, ataxia
  - Cerebral Haemorrhage - signs include sudden severe headache with neurologic deficit, neck stiffness, continuous vomiting, loss of consciousness
  - Contrast-induced Nephropathy<sup>2</sup> - signs include reduced urine output, changes in blood pressure and shock<sup>6</sup>
  - Allergic reaction to the contrast<sup>2</sup> - signs include flushing, pruritus, respiratory distress
  - Haematogenous Sepsis - signs include rigors and high fevers in the first 12-24 hours post procedure
  - Retroperitoneal bleeding (rare)<sup>7</sup> – signs include extreme abdominal pain, haematuria and shock

Seek urgent Medical Assistance for serious complications. Refer to local Clinical Review and Rapid Response procedure.

**Note:** Notify admitting Medical team if vital signs are out of range for patient, if neurological status deteriorates, if bleeding/haematoma occurs at the wound site or of any concerns.<sup>1,2</sup>

## 5 References

1. Connors JJ, Wojak JC. Interventional neuroradiology: strategies and practical techniques. Pennsylvania: W. B. Saunders Company; 1999.
2. Harrigan MR, Deveikis JP. Handbook of cerebrovascular disease and neurointerventional technique. 2<sup>nd</sup> ed. New York: Springer; 2013.
3. Aminoff MJ, Greenberg DA, Simon RP. Clinical Neurology. 6<sup>th</sup> ed. New York: McGraw-Hill; 2005.
4. Pearse Morris P. Practical neuroangiography. 2<sup>nd</sup> ed. Philadelphia: Lippincott Williams & Wilkins; 2007.
5. Wilkinson I, Lennox G. Essential neurology. 4<sup>th</sup> ed. Massachusetts: Blackwell Publishing; 2005.
6. Wood SP. Contrast-induced nephropathy in critical care. Critical Care Nurse [Internet]. 2012 Dec [cited 2015 Sep 29];32(6):15-23. Available from: <http://www.aacn.org/wd/Cetests/media/C126.pdf>
7. Daliakopoulos SI. Spontaneous retroperitoneal hematoma: a rare devastating clinical entity of a pleiada of less common origins. Journal of Surgical Technique & Case Report [Internet]. 2011 Jan-Jun [cited 2015 Sep 29];3(1):8-9. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3192510/>

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