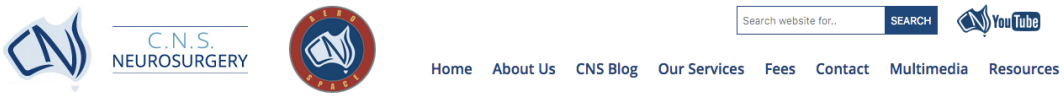
Perioperative Care Summary – By Dr Vini Khurana, Neurosurgeon (V2.8/2020)

This summary can be used in conjunction with information on my professional Website www.cnsneurosurgery.com.au

The following banner appears at the top of each of CNS Neurosurgery's Webpages:



Our YouTube channel, which has my relevant neurosurgery videos, can be accessed via the banner's **CNSYouTube** icon. Individual subjects of interest can be accessed via a dropdown menu in the **Resources** tab of the banner. Click **CNS Blog** for hot topics.

The surgeries I perform: (listed & described via the dropdown menu of the **Resources** tab, under the "**CLICK HERE for ALL topics**" link)

Cranial

- Arachnoid cyst fenestration
- Brain tumour surgery (meningioma, glioma) including skull base lesions
- Chiari I decompression
- Cavernous malformation (cavernoma) surgery
- Microvascular decompression (MVD) for trigeminal neuralgia
- Middle cerebral artery aneurysm clipping
- Awake and asleep craniotomies using minimally invasive techniques.

Spinal

- Anterior disc replacements in the cervical and lumbar spine using fusion cages and artificial mobile discs (total disc replacement/TDR)
- Decompressive laminectomy/rhizolysis and microdiscectomy
- Mazor robot-assisted minimally invasive posterior instrumentation, decompression

Peripheral

- Carpal tunnel decompression

Note: Any of the following recommendations are my personal preferences, and may vary according to specific clinical circumstances/specialist advice.

Before or at the time of admission to hospital:

- I usually advise that **anti-inflammatory** medications (NSAIDs, in particular, aspirin, ibuprofen, Voltaren, Celebrex) be ceased a *minimum of 2 weeks* prior to surgery *unless* specifically recommended otherwise by an attending physician;
- I prefer my patients *off* fish oil and krill oil for 3-4 weeks prior to surgery;
- If a patient is on an **anticoagulant** such as Warfarin, Plavix, Asasantin, Pradaxa or the equivalent, I usually cease these a *minimum of 10 days* prior to surgery and in the oral anticoagulant's place we can use bridging clexane SQ daily (*however the specific Rx here* is per discussion with the attending physician and/or a haematologist). Resumption post-operatively will be discussed post-op;
- In patients with **diabetes** who are managed with insulin: we need to anticipate possible BSL issues during fasting, intraoperative, and post-operative phases. Regular BSL checks. Use of an insulin sliding scale. I usually ask the anaesthetist and/or peri-op physician and/or CMO to provide advice;

- **Fasting** is recommended for at least 6 hours prior to the estimated start time of surgery, but I allow regular medications with sips of water, or sips of water for thirst, in that 6 hour fasting period. I prefer patients stay *on* their regular meds;
- **Pre-operative tests** may include blood tests (CBC, EUC, Coags), chest x-ray, and ECG +/- Echo, depending on the patient's age and medical circumstances;
- Unless otherwise specified, a minimum *hospital admission* blood test set for my patients should be a **CBC + 'group & hold'**;
- Permanent cessation of **smoking** is advised. I typically *do not* undertake spinal instrumentation operations on patients who use tobacco products owing to the effects of tobacco products on accelerating spinal disease and impairing healing and bony fusion.

When caring for my patients post-op:

- **TEDs** (worn daily until home) and **SCDs** (used until three walks in one day) please; ensure the TEDS aren't too tight or leaving a constriction ring on the patient's leg;
- **SQ Clexane** 40mg daily (typically commencing the day after surgery);
- **Early mobilisation** is desirable; typically the morning after surgery depending on the operation;
- **'Foley' bladder catheter** (IDC) out when the patient has ambulated 3 times;
- I prefer the *early* use of regular **aperients** until B.O. (e.g., coloxyl w senna ii bd; Movicol i bd) (note: I delay their use in ALIF patients until taking clear liquids);
- Aseptic **wound care** techniques and products (see below);
- Optimisation of **hydration and diet**; if intravenous fluids are required: *Hartmann's;*
- I typically keep **IV antibiotics** going for around 24-48 post-op.
- Early transition to **oral** analgesics, and I prefer *no overuse* of narcotics;
- I try to keep patients on their pre-op pain medications until around *6 weeks* post-op at which time **weaning** can commence (this can depend on the circumstances).

Importance of 'neuro obs':

- Careful attention to **limb** (and where relevant, **cranial**) neuro checks; usually 1-2 hourly in the first 12-14 hrs of surgery;
- If **anterior cervical** surgery has been undertaken, "**neck obs**" *hourly* for the first 12 hours are mandatory, looking for haematoma signs: swelling in the neck, respiratory distress aka "air hunger", tracheal deviation, or unusual drain output. Drain output *may not* be reliable. It is rare for a neck haematoma to occur, but look out for one *always* in anterior cervical spine surgery patients;
- Look for **trends** – progressive spinal or limb pain, progressive limb numbness, progressive limb weakness, development of emesis, change in GCS, pupillary change;
- Sometimes the **vitals** change accordingly, e.g., hypertension, bradycardia.
- *If in doubt, call out!*

Early signs to look for:

- ACDF/TDR (anterior cervical spinal surgery) patients – **neck hematoma** signs (see above);
- Spinal patients: **CSF leakage** from wound (rare), **progressive** neurological deficits (rare), **substantial** new low back pain and/or substantial new limb pain (rare), **postural headache**;
- Cranial patients: drop in **GCS**, new **headache/emesis**;
- **Vitals** trending unexpectedly up or down. Unexplained low pulse **oximetry**.

Wound care preferences:

- **Meticulous aseptic technique** is paramount. Keep **original dressing** on for first **48 hrs**, if still clean and dry.
- If a **wound drain** is present, keep an eye on its output, and take care with patient transfers so as not to dislodge the drain (it is sutured in and covered with a

dressing). Call if the drain output is higher than expected. I usually request the drain be removed 24-36 hrs after surgery, depending on the clinical circumstance. Ensure a fresh dressing is placed over the drain skin site once the drain is out;
- **Showering** is usually okay from the *second day after surgery* onwards;
- Daily wound **dressing changes** *after* showering (the dressing change is usually over "yellow" **Cetrimide/chlorhexidine**); again, strict aseptic technique always;
- If **Steri-strips** are in place, leave them there until at least the 7th post-operative day; if they fall off before then (e.g., during a dressing change), *don't* replace them, just cover the wound with a fresh dressing after a Cetrimide/chlorhex clean;
- If **staples** are in place, leave them there until the 10th post-operative day; just keep the stapled wound covered with a daily dressing change over Cetrimide/chlorhex;
- My preferred dressing is **Primapore** or the equivalent. No adhesive should contact the incision itself, only the sterile soft padding part should contact and cover the incision;
- I **remind** patients not to scratch wounds, not to allow their spectacle frames to contact healing cranial wounds, and to keep wounds as clean and dry as they can in the first few weeks especially;
- If there is a **problem with the wound** (*rare*): drainage, swelling, redness, opening up, the patient should contact their local doctor and my Rooms asap. *Don't wait!*
- For patients with anterior cervical incisions, I also ask them to apply **sunscreen** over their incision when outdoors but only *after* 2-3 weeks post-operative (if the wound has healed well, as expected) and during the first 12 months from surgery.

Physiotherapy and rehabilitation:
- **Bedside physiotherapy** during the inpatient stay is usually all that is needed for most of my spinal patients; typically, I like them to demonstrate they can do stairs independently (but under the physio's supervision) before they are discharged;
- *Some* patients (e.g., elderly, complex spinal reconstruction, far/remote interstate travellers, or if in logistic need) may require **formal inpatient rehabilitation**, and I usually refer them or specifically to a preferred facility or I request they be referred for this;
- If the patient was instructed to wear a **cervical collar** (e.g., after ACDF for 6 wks) or a **lumbar brace** (for 3 mo's after ALIF or posterior Robot-assisted surgery), they may need some **temporary PT/HT** for 6 weeks after their collar or brace is ceased, in order to optimise their muscle tone and restore range of motion;
- I recommend ***gentle* physiotherapy** (massage – not deep tissue; spinal ROM exercises; dry needling prn; postural advice) and gentle hydrotherapy after any cervical collar is discontinued at 6 weeks post-op, or after any lumbar brace is discontinued at 3 months post-op;
- **No spinal manipulation**, ever;
- After spinal surgery, I elect to be on the conservative side and recommend **no lifting greater than 2kg** (2 litres of milk-equivalent) **for the first 2 months**; thereafter, a gradual increase in physical activities as self-monitored/tolerated.

Other 'general' recommendations:
- **Necks and lumbar spines** don't really like to be flexed/bent, so I advise **avoiding overflexion/overbending** (use knees to bend, kneel on a cushioned pad etc.) whenever possible;
- Neck/back heat **packs and rubs** (e.g., Metsal, Voltaren gel, Dencorub, Tiger Balm) are AOK as tolerated;
- Most of us are vitamin D deficient, so take over-the-counter **oral Vit D daily**; you may need **oral calcium** as well, and GP can check your serum Vit D, $Ca^{2+,}$ and bone density;
- A high quality bed **mattress** and a nice 'feather-down' low-medium height **pillow** are my recommendations, too. When I travel, I always travel with my own pillow.
- **Never smoke**. Ever. To your spine, it's like driving a motorcar with no engine oil.