Vasospasm – Quick Guide

Key Points:

- Symptomatic vasospasm presents as a clinical deterioration in neurology post acute Subarachnoid Haemorrhage (SAH) -usually 4-10 days post bleed
- Occurs in the majority of patients who have an aneurysmal SAH (can be identified by angiogram) but only ~30% will become symptomatic
- Symptoms of vasospasm normally are a new focal deficit (limb weakness in one side/limb but can also be a generalised deterioration in GCS or new speech deficit
- In asymptomatic patients (when vasospasm identified on angiogram) – ensure normovolaemia, good oxygenation and a Map more than 60mmhg unless instructed otherwise by neuro surgeon (NS)
- With symptomatic patients – to rule out other causes of neuro deterioration (such as re-bleed, hydrocephalus, seizures and fluid/electrolyte imbalances) **Urgent** CT and CT angiogram at same time to diagnose potential vasospasm

Treatment:

- Hypertension – this depends on patient's current BP and neurology but normally SBP > 180mmHg or 20% above patient's baseline
- If this does not improve neurology then to increase BP until neurological symptoms improve (can be aiming SBP 200-220mmHg in some cases to achieve this)
- May also require Intra-arterial Nimodipine if in severe vasospasm – this is done in Neuro-radiology MRI suite and is decided by NICU and neuro-radiology consultants (can be done a number of times to treat severe spasm)

Nursing considerations:

- Extremely strict BP control - be prepared to adjust Noradrenaline rates frequently and only increase/reduce rate by 0.01mcg/kg/min at a time
- Nimodipine dosing MUST be 30mg every 2 hours to avoid big drops in BP however, in some patients this is often unavoidable (can pre-emptively increase Noradrenaline rate slightly immediately after giving Nimodipine if patient known to be sensitive)
- Avoid anti-hypertensive drugs if at all possible – these should be stopped anyway if vasospasm identified but, if prescribed, check with neuro registrar if still appropriate to give
- Patients in vasospasm are also often sensitive to Paracetamol therefore, **NEVER** give at the same time as Nimodipine (if replacing magnesium intravenously also be aware of potential drop in BP)
- If vasospasm suspected/confirmed, ensure LiDCO is attached and calibrated every 24 hours (use a variety of measurements to assess fluid status – SVV, lactate, Hct and give any fluid boluses against LiDCO to aim for normovolaemia)
- If patient is going for IA Nimodipine treat as a pre-op patient – complete peri-op checklist, keep NBM/aspirate NGT etc and monitor groin stab site and pedal pulses post-procedure
- If doctors decide to start weaning off hypertensive therapy, ascertain before reducing Noradrenaline what their neurological symptoms were when vasospasm was identified – when reducing their BP, it can be useful to know what to look out for
- When weaning off hypertensive therapy, make a note of patient's SBP when/if neurological symptoms occur and inform doctors
- As SAH and vasospasm can cause a degree of cardiac stunning – ensure daily ECGs are done and NT-proBNP + troponin sent with daily bloods
- If requiring high doses of Noradrenaline, ensure bedside echo has been performed and consider use of Dobutamine to maintain good cardiac output
- As vasospasm causes reduced perfusion to the brain, it is essential to maintain good oxygenation – SpO2 > 97% and PaO2 > 10kPa

  BE VIGILANT FOR ANY SLIGHT DETERIORATION IN THESE PATIENTS AS IF CHANGES HAPPEN THEY MUST BE ACTED ON QUICKLY TO PREVENT LIFE THREATENING COMPLICATIONS!