



Evening Medical Update: Acute Back Pain, Weakness and Paralysis **Tuesday 10 December 2019**

New Horizons in Stroke: Professor Keith Muir

Is it possible that stroke units are selective in patients they take, hence those who having a potentially worse prognosis remain on the peripheral wards and skew the mortality?

The evidence for benefit of stroke units comes from multiple RCTs of stroke unit versus general ward care and is robust. The stroke unit data that were shown from SSCAS are from an audit, not a RCT, so there is a possibility of bias in this regard, although delayed admission is largely a process issue (bed management) rather than clinically driven, so unlikely to account for such a large and dose-related effect.

What are your thoughts on the use of ultrasound to assess stroke and expediting treatment, especially in remote settings such as the smaller islands?

Intracranial imaging to either exclude intracranial haemorrhage or confirm ischaemia is necessary in order to inform acute treatment decisions and ultrasound is not well suited to either, as well as being very operator-dependent. Some novel systems are under evaluation for field use, but to be useful for acute thrombolysis it would need to be close to 100% sensitive and specific for haemorrhage, which seems unlikely to be achievable. Rapid transfer to a location with CT is likely to remain the main option.

Is there anything that you would recommend in regards to training for non-registered community staff (for example, Healthcare Assistants, HCAs), in order to improve outcomes?

Improved clinical outcomes with stroke unit care are driven largely by nursing factors rather than medical or AHP input, so awareness of the issues that stroke unit nurses focus on would likely be of most relevance. There are online training modules from CHSS that would offer a good start.

Regarding blood pressure control in acute stroke – what are the blood pressure targets and what agents are best for blood pressure control in ischaemic and haemorrhagic stroke?

While observational data show associations of poorer outcome with either very high or very low BP, and with variation in BP, there is no evidence at present that intervening to lower blood pressure in the acute setting is of benefit in ischaemic stroke, and evidence in intracerebral haemorrhage is limited. In ischaemic stroke, intravenous thrombolysis is contraindicated if BP is greater than 185/110mmHg; while the licence notes that it is contraindicated if there is a “requirement for aggressive management of BP (intravenous pharmacotherapy),” most clinicians will try a single bolus of labetalol to see if BP settles, after non-pharmacological approaches (ensure quiet environment, empty bladder) have been unsuccessful. The ENCHANTED trial tested the strategy of lowering BP in thrombolysis-treated patients to a lower target and found lower risk of haemorrhage but no difference in functional outcomes. RIGHT-2 gave GTNB to lower BP in the pre-hospital setting and found no difference in outcome for ischaemic stroke patients, possibly poorer outcomes for intracerebral haemorrhage patients. In intracerebral haemorrhage, two acute trials of intervention to lower BP (INTERACT-2 and ATACH-2) did not show significant benefit in lowering BP with a variety of agents at the treating clinicians’ discretion. It is generally concluded that these trials suggest that it is safe to lower BP but that this should not be done very aggressively.

What is the risk: benefit for people on DOAC (direct oral anticoagulant) / Warfarin, and adding single / dual antiplatelet treatment? How long should you continue a patient on clopidogrel / DOAC combination?

There is no evidence for combining antiplatelet therapy with anticoagulants for secondary prevention of stroke and stroke physicians would have serious reservations about the safety of this. The only combination trial is the COMPASS trial of low-dose rivaroxaban plus aspirin, but while this seemed beneficial principally through reduction in



stroke events, the population enrolled was predominantly stable coronary artery disease patients. I am not aware of any evidence that has looked at clopidogrel with DOACs in combination.

Is there any difference in post-thrombolysis bleeding complication rate with Tenecteplase compared to Alteplase?

Too early to tell. SICH is uncommon, and very uncommon in mild strokes (the largest group studied to date with tenecteplase), so the data that we have so far acquired do not yield a reliable estimate. We should have a better idea in the next 18-24 months as larger trials are completed and pooled data analysed.

What is the meaning of penumbra?

The “penumbra” terminology was suggested in 1981 by Astrup, Siesjo and Symon and refers to a region of ischaemic brain tissue where hypo-perfusion is sufficient to stop electrical function of the brain but where cerebral blood flow is adequate to maintain tissue viability for a period of time; the tissue may survive if re-perfused promptly. The original term was based on experimental stroke in primates, and nowadays is generally used to signify tissue hypo-perfusion based on CT or MRI perfusion imaging thresholds that equate to “rescuable” brain tissue.

What can we do to avoid missing the “right brains” who may benefit from treatment even if they have passed the conventional time windows?

Insist upon access to MRI (diffusion and FLAIR for the wake-up population) and perfusion imaging (for the wake up population and others who present late); unfortunately there are no alternatives as yet but to use these techniques.

Do you use SPECT scans?

No longer. SPECT was a useful research tool of its time but scan acquisition is slow and involves radioisotopes. The only easily used SPECT ligand was 99mTechnetium HMPAO, which images blood flow, so MRI and CT based perfusion techniques have largely superseded SPECT. Specific iodinated radioligands have some research uses, but only in the subacute setting.

Should we now have MRI scanners in all hospitals? Or should we be trying to centralise stroke services and transfer patients to super-units and specialised tools?

Yes and yes. Both. Most hospitals already have MRI scanners but prioritise outpatient work over emergencies. There are too many small hospitals currently managing stroke and there are many efficiencies in having fewer, larger units, with demonstrable benefits on mortality, treatment rates and many process indicators shown for e.g. London, Manchester, Northumbria.

Given that some patients have potentially viable brain tissue hours after stroke, is further intervention really necessary in this group?

Yes. Because most patients ultimately don’t do well if left alone. DAWN and DEFUSE-3 show the eventual outcome without reperfusion in this late-presenting group, and it is not good.

What are the specific features you look for using multimodal imaging which would make you decide not to treat them?

No perfusion defect, no arterial occlusion on CTP/CTA; no DWI lesion on MRI.

What is the role of thrombectomy in wake-up stroke?

In selected patients it should be considered up to 24h after last well. The wake-up population accounted for a high proportion of the patients included in DAWN and DEFUSE-3, so those who wake with appropriate imaging (and are beyond the WAKE-UP trial time window) should be considered for treatment.



What is the role of CT scan for posterior circulation stroke?

CT is less sensitive than MRI for small lesions (although some MRI sequences are not 100% sensitive either) and early ischaemic changes are often harder to see because bone leads to beam scattering artefact more than with supratentorial stroke. CT will still detect PCA or cerebellar infarcts (as will CTP, and CTA can show basilar artery, vertebral, or PCA occlusion).

How do you foresee getting MRI scanners to stay open when there are daytime staffing shortages currently?

While we need more trained radiographers, and probably more scanners, services need to prioritise stroke patients over routine outpatient work. Lots of scans are done for sore knees, headache, and routine follow-up of MS etc., to little or no benefit and certainly with no urgency. In WAKE-UP, 1 in 3 patients had a treatable stroke and 1 in 9 of those patients walked out of hospital as a result of treatment with no disability. The saving in bed days, social care costs, DALYs lost would more than pay for extra radiographers and indeed scanners.

How can we deliver universal thrombectomy centres? Is there an argument for hybridising with other out-of-hours vascular intervention services (e.g. PPCI)?

Thrombectomy requires substantial organisational change. In some cases this may map on to cardiology services, but not universally, and stroke thrombectomy requires different equipment and access to different facilities than PCI. Biplane angio facilities and staff with training for neuro procedures (including anaesthetists, nurses and radiographers) are necessary. Stroke patients need to be cared for on stroke units, and have access to neurosurgery and diagnostic neuroradiology for complications. Stroke logically maps onto neuroscience centres when considering the adjacencies that matter, and these could learn from reorganisation for PCI.

Osteoporosis: Professor Stuart Ralston

What is the mechanism of fracture in low energy vertebral fractures caused by making the bed/weeding etc? Stretching? Twisting? Something else?

Any fracture is due to a balance between the energy of the injury /or event, and the strength of the bone. In people with severe spinal osteoporosis the bone seems to be so weak that even a seemingly minor injury (whether stretching or twisting) can cause the bone to break.

How frequently do we need to do DEXA scans after these fractures?

Not very frequently. We do DEXA at 5 years unless there is evidence of treatment failure, manifest by another fracture in which case you could do another DEXA to check BMD was increasing. The absolute minimum is two years.

How would you manage a primary prevention patient with a T score approximately -3, who has had ten years of bisphosphonates and has no modifiable lifestyle risk factors?

You are not describing primary prevention (since the patient has been treated for 10 years!). If the patients BMD had increased on therapy I would stop treatment for 5 years (i.e. a drug holiday)

There are a number of different national guidelines for osteoporosis (SIGN, NOGG, NICE). How would you advise reconciling the three?

SIGN is the only guideline which is truly evidence based. NICE has made some very strange recommendations (such as treating people with a fracture risk of >1%, although that was retracted since it was crazy and lacking any substance). NOGG is not evidence based.

Should we still be giving Calcium D3?

Yes, if the patient has a low dietary calcium intake. If good dietary calcium (>700mg) I often give vitamin D alone.



What is the role of lidocaine patches acutely for vertebral osteoporotic fracture?

My experience is that this is mainly for chronic pain. With acute fracture I recommend a powerful opiate.

With regards to osteoporosis - what is the evidence for calcium and vitamin D in preventing fractures? And what are the side effects?

This is little evidence that a Ca/D prevents fractures except in elderly housebound/ care home individuals. The main side effect is people get fed up of taking the supplements. Other side effects include renal stones.

When would you consider failure of treatment?

When there have been two or more fractures despite treatment.

Has there been a trial of Kyphoplasty against no treatment? What is the number needed to treat (NNT)?

No. However, since KP is equal to VP, and since there have been three negative trials of VP versus sham, the assumption is that KP (like VP) is no more effective than standard care with analgesics.

Malignant Cord Compression: Dr Martin Doak

- In a patient with say prostate cancer and bony metastasis with no symptoms other than chronic pain that has settled, would spinal anaesthesia be feasible?