



SMACC is one of the most unusual medical conferences in the world, and in June 2016 it came to Dublin. The Neuro Critical Care pre-conference workshop was place the day before the main conference. I found myself in a room full of intensivists, listening to material that wasn't really core EM stuff and only understanding about half of it (a view shared by other Emergency Physicians in the coffee break) but I did my best and here are my learning points. I think the organisers could usefully indicate their target audience a little better!

## Stroke: who benefits from endovascular therapy?

The ability of thrombolytics to get rid of clots causing ischaemic strokes dramatically reduces with the length of the clot: if you can actually see it on CT, it is probably 4-10mm and tPA is unlikely to shift it.

In some such patients, endovascular therapy within 6 hours (in addition to systemic tPA) may be beneficial. The clot-retrieval gadgets used to perform the procedure have improved in recent years [*which is used to justify only including more recent trials, though that seems fair enough*] and the [HERMES collaboration](#) (published in Feb 2016) pooled patient-level data from 5 trails (2010-2014), and concluded that:

*"endovascular thrombectomy is of benefit to most patients with acute ischaemic stroke caused by occlusion of the proximal anterior circulation..."*

Strokes in the basal circulation haven't been included in trials: the speaker described them as so devastating that centres with the capability to offer this therapy would just go ahead and treat, as nobody would be willing to randomise them.

Finally, [ASPECTS](#) (Alberta Stroke Program Early CT Score) was recommended for scoring non-contrast CT brain scans.

## Mannitol versus hypertonic saline (HTS)

We still don't know whether ICP-guided hyperosmolar therapy even works, but HTS seems to work better on physiological parameters of interest (and is less likely to fail to reduce the ICP than mannitol). Unfortunately, there's scant decent data on patient outcomes, only secondary (measurable) outcomes. The speaker said he's ditched the mannitol and his unit had switched to HTS.

## Decompressive craniectomy for MCA infarcts

These "large hemispheric strokes" - involving the basal ganglia - are bad news. Tissue necrosis leads to failure of the blood brain barrier and a loss of cerebral homeostasis, and clinically patients with these nasty strokes progress to rising ICP with severe headache, papilloedema and an 80% mortality.

Scoring over 20 on the NIH stroke scale is regarded as being associated with a risk of "malignant infarction", or, there are clues in the imaging. These vary by modality but an example might be infarct of over 50% of the MCA territory on CT, or, on a CT perfusion scan, involvement of more than 2/3rd of MCA territory has a useful sensitivity and specificity. Serum S100B is looking promising as a test, but availability is limited.

Decompressive craniotomy (DC) is a drastic treatment, but it reduced mortality and improved functional outcome in several trials, but at the cost of more survivors with significant disability (modified Rankin score of 4). If DC is considered, it needs to be done within 48 hours, on patients under 60 years old, and you need to remove a large flap (12cm) and open the dura. This is to reduce shearing forces to the swelling brain.



### "Mostly dead is slightly alive"

In TBI, a GCS of 3 and bilateral reactive pupils has a 75% survival rate, overall survival from GCS of 3 is 50.8% and even with GC3 and bilateral *non* reactive pupils, a minority have good neurological outcome: it isn't always a death sentence.

### Delayed cerebral ischaemia in SAH

Occurs in about 30% of sub-arachnoid haemorrhage patients, 3-14 days post bleed, presents as falling sodium & GCS... and I must confess I'd never heard of it. 🙄

It's not just in conferences sessions that you learn stuff at these events, but by chatting to colleagues. This was how, at smaccDUB, I heard about [anti-NMDA receptor encephalitis](#) - a rare cause of acute psychosis in young people. A poll on Twitter revealed I was amongst 57% who'd never heard of it before.