



Consensus Conference on Neurovascular Services 7th October 2004 Executive Summary

A meeting to discuss the impact of endovascular treatments of subarachnoid haemorrhage due to aneurysmal rupture on established surgical treatments was held at the Royal College of Surgeons of England in London on 7th October 2004.

The meeting was chaired by Mr James Steers, the President of the Society of British Neurological Surgeons (SBNS) and co-chaired by Dr Margaret Hourihan, President of the British Society of Neuroradiologists, (BSNR) and Mr David Hardy, Vice President SBNS.

Presentations were given by eminent Neurosurgeons and Neuroradiologists as well as Neuroanaesthetists, Neurologists and Commissioners. There was wide ranging discussion.

Aneurysmal rupture causing subarachnoid haemorrhage (SAH) is a serious disease with an incidence of approximately 8 per 100,000 per annum in the UK, i.e. 4800 cases per year. The mean age of onset is 51 years and half those treated are between 40 and 60 years of age. One third of patients die before reaching medical care. Without treatment half of those surviving would die within 6 months, mostly from rebleeding. Those patients who are in a good clinical status at the time the aneurysm is secured will have a 60-80% chance of surviving.

Traditionally aneurysms have been secured (to prevent rebleeding) by open surgery and a clip applied to the neck of the aneurysm. This is a major procedure necessitating several days post-operative critical care and 2-3 weeks in-patient care.

Endovascular treatment, by coiling the aneurysm, was introduced in the early 1990's in Oxford. This posed a dilemma as to the best form of treatment. By 2003 over 100,000 patients had been treatment worldwide by endovascular methods but there was no grade 1 evidence of efficacy. It is recognised that in certain cases surgery is more appropriate and in others endovascular treatments, depending on the position and conformity of the aneurysm.

The International Subarachnoid Aneurysmal Trial (ISAT) was a large scale international multi-centre randomised trial comparing surgical and endovascular treatments in cases where both treatments were considered, by Neurosurgeons and Neuroradiologists, to be equally appropriate. 43 centres took part, 21 in the UK (2/3rd of

UK units). 2143 patients were included and the results published in the Lancet October 2002 and 2005 (1). The trial showed that 76.6% of patients treated endovascularly by coiling were independent compared to 69.1% in the surgical arm. The mortality rate was 8% in the endovascular arm compared to 9.9% for surgery. The relative risk reduction was 24%. Furthermore the trial showed that coiling was less costly and more clinically effective in terms of quality of life and health economics. Although grade 1 evidence, the patients entered into this trial were selected, this limitation is recognised and strong views are held in this regard.

The National Subarachnoid Haemorrhage Audit was a UK wide observational study of the management of aneurysmal subarachnoid haemorrhage in all the UK Neurosurgical Units between September 2001 and September 2002. Data was collected on 3221 patients with SAH of which 2420 had a confirmed aneurysmal rupture. 52.3% of patients underwent surgery, 37.9% coiling and 8% no treatment. There was no significant difference in outcomes of the two groups. In selected patients similar to those in ISAT the unfavourable outcome was 28% in coiled and 31% in surgically treated cases. There was no difference in deaths (5.7%).

There was considerable discussion on the implications of changes in treatments to service provision, training, numbers treated to maintain competency and the future of smaller units. The following conclusions and recommendations were made.

CONCLUSIONS

1. The ISAT trial (Grade 1 evidence) demonstrated that patients in good grade after SAH with small anterior circulation aneurysms suitable for coiling (representing 60% of patients) had an absolute reduction in poor outcome of 7.4 % at one year if treated by coiling rather than clipping.
2. The National Spontaneous Subarachnoid Haemorrhage audit measured the treatment outcomes of clipping and coiling. The audit demonstrated that there was no statistically significant difference between the two treatments within the available sample size.
3. Although the long term efficacy of coil occlusion over surgical clipping is unknown. The benefit of coiling over clipping on survival has now been shown to be maintained, at least up to 7 years (2).
4. The NICE guidelines state that coiling of ruptured aneurysms is more effective and safer than neurosurgical clipping.
5. Both treatments have a place in the effective management of subarachnoid haemorrhage following aneurysm rupture.
6. Scotland has demonstrated that it is possible to set up an effective network for neurovascular management of patients with ruptured cerebral aneurysms.

RECOMMENDATIONS

1. Centres undertaking the management of aneurysmal subarachnoid haemorrhage should be able to offer both clipping and coiling. Those unable to do so should form a network to enable either treatment to be available for each patient as appropriate.
2. For each patient there should be discussion between Neuroradiologists and Neurosurgeon to determine the most effective treatment
3. The process of consent should include informed discussion of relative merits and risks of both treatments and the reason for the treatment decision in that particular case.
4. Ideally there should be facility, including beds and anaesthetic sessions, to secure the aneurysm in good grade patients within 48 hours of ictus.
5. This service must be appropriately funded.
6. There should be a continuing audit of outcome data for all Units and Networks providing treatment of aneurysmal subarachnoid haemorrhage. This audit should be nationally funded.

References

1. International Subarachnoid Aneurysm Trial (ISAT) Collaborative Group. International Subarachnoid Aneurysm Trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised trial. *Lancet* 2002; 360: 1267-74.
2. Molyneux AJ, Kerr RSC, Yu L-M, for the International Subarachnoid Aneurysm Trial (ISAT) Collaborative Group. International Subarachnoid Aneurysm Trial (ISAT) of neurosurgical clipping versus endovascular coiling in 2143 patients with ruptured intracranial aneurysms: a randomised comparison of effects on survival, dependency, seizures, rebleeding, subgroups, and aneurysm occlusion. *Lancet* 2005; 366: 809-17.