Endovascular management of intracranial aneurysms — current status in South Africa

We have recently encountered several misunderstandings and misconceptions concerning the local endovascular treatment of intracranial aneurysms. As such we feel compelled to respond and to issue a statement on the current status of this treatment modality in South Africa.

The first misconception is that the endovascular treatment of cerebral aneurysms is an experimental procedure. The first description of the endovascular treatment of cerebral aneurysms dates back to 1974 when Serbinenko *et al.*[1] reported on the occlusion of cerebral vessels using detachable balloons. The next major breakthrough in endovascular aneurysm management was reported in 1991 with the introduction of the Guglielmi Detachable Coil system (GDC, Target Therapeutics, Fremont, Calif., USA).[2] The GDC system was approved for clinical use in Europe in 1992 and was approved by the FDA for use in the USAin 1995. The first GDC case in South Africa was performed in 1994. Since then centres offering neurointerventional expertise have been established in Pretoria, Durban, Bloemfontein and Cape Town. From 1994 to 2002 a total of 73 such cases have been performed by our practice in Pretoria.

During 2002 we treated a total of 20 cases of intracranial aneurysm using endovascular occlusion, compared with 10 such cases in 2001. Reasons for this increase include: (*i*) our increased ability to manage more complex aneurysms with balloon-remodelling and stent-scaffold techniques; (*ii*) further improvements in catheter and coil technology; and (*iii*) a greater number of cases referred primarily or preferentially for endovascular treatment by our referring neurosurgeons. We feel this reflects the increased understanding and acceptance of the role of endovascular treatment of cerebral aneurysms among both the local neurosurgical fraternity and the general public.

Worldwide acceptance of the endovascular treatment of intracranial aneurysms has recently been further validated by the publication of the International Subarachnoid Aneurysm Trial (ISAT) in October 2002.[3] This was an international multicentre randomised trial comparing the efficacy and safety of endovascular coiling versus neurosurgical clipping in patients with a recently ruptured intracranial aneurysm. A total of 2 143 out of 9 559 patients presenting with subarachnoid haemorrhage were assessed as being suitable for treatment by either surgical or neurointerventional techniques and were randomised accordingly. Interim analysis in April 2002 showed that 23.7% of patients who underwent endovascular treatment were dependent or dead (as defined by a modified Rankin scale[4,5] of 3 - 6) at 1 year compared with 30.6% of patients who underwent neurosurgical treatment. The relative and absolute risk reductions in dependence or death for endovascular versus surgical treatment were 22.6% and 6.9% respectively. Based on these interim results the trial steering committee decided in May to halt recruitment into the trial, but to continue follow-up of existing cases. Within the group of cerebral aneurysm cases included in the study the case fatality rates were similar for both the endovascular and surgical groups, and re-bleeding rates within 1 year were 2.4% in the endovascular group and 1% in the surgical group. Despite this, the ISAT group's interpretation of the results was that the outcome in terms of survival free of disability at 1 year was statistically better with endovascular coiling. This indicates that as an optional treatment modality, endovascular coiling of cerebral aneurysms is at least technically as efficient as neurosurgical management, and that the short-term outcome related to the former method is significantly better than that after surgery. Of note is that 97.3% of aneurysms treated in the trial were in the anterior circulation, as most participating centres already considered endovascular treatment to be the favoured option for posterior circulation aneurysms, which mirrors our own experience. These data must surely confirm that the endovascular treatment of intracranial aneurysms is a well-established and universally accepted method of treatment and can hardly be termed 'experimental' at this stage.

The second problem we have encountered relates to associated economic issues. As the majority of cases in our practice are 'private' we often face a lack of understanding by various funders about the nature of these endovascular procedures. This creates problems when requesting authorisation for these procedures. One issue concerns the classification of the coils used as 'prostheses'. Coils are embolic agents and as such are designed to occlude a blood vessel or aneurysm lumen. *Dorland's Medical Dictionary* defines a prosthesis as 'an artificial substitute for a missing body part, such as an arm or leg, eye or tooth, used for functional or cosmetic reasons or both'.[6] Clearly embolic agents cannot be considered 'prostheses', and the prosthetic allowance limits applied by many medical aid schemes may therefore only be applicable in those cases where stent-scaffolding is used in addition to coil placement for the treatment of complex wide-necked aneurysms. Funding for endovascular cases is a thorny issue, with bills in excess of R100 000 being issued when large or complex wide-necked aneurysms are treated this way.

This is primarily due to the cost of the coils and other consumable items imported from Europe and the USA, with all of the usual associated economic issues. The cost issue is one of the main reasons why endovascular treatment is often limited to a select number of South African patients who can

afford this method of treatment. The lack of available endovascular expertise in many state and academic hospitals is related in part to the high costs related to these cases, but also to a lack of neurointerventional expertise within many academic and state institutions. Neither interventional radiology nor neurointervention is recognised locally as a subspeciality despite the availability of such expertise in the four major centres. As a result there is extremely limited exposure by radiologists or neurosurgeons-in-training to these techniques in South Africa.

We trust that this article will serve to dispel some of the misunderstandings and misconceptions surrounding endovascular treatment of cerebral aneurysms in South Africa. Despite these high-tech methods of treatment lying somewhere near the pinnacle of quaternary-level medicine in a country where there are far more pressing health-related and socio-economic problems, it is nevertheless important that neurointerventional expertise be retained and indeed promoted locally to ensure equity with the rest of the world and improved access to these treatment methods by all South Africans.

Ian C Duncan
Pieter AFourie

Unitas Interventional Unit
Lyttelton
Centurion, Gauteng

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World pandemic of obesity — any hope of its being controlled?

How severe is what has authoritatively and eloquently been called 'this staggering epidemic of obesity'?[1]

According to the World Health Organisation (WHO), more than 300 million adults worldwide are obese; about 115 million live in developed countries.[2] Obesity is such that in the USA, now deemed 'the fattest nation on earth', it results in 300 000 deaths annually.[1] Indeed, the ominous belief is that obesity will soon replace smoking as the most powerful preventable risk factor.[3] Its severity in certain countries and populations is indicated in an official Australian report, published in 2001,[4] which states that about 40% of Australians are overweight and 20% obese. As to sequelae, for example the occurrence of diabetes, which is very largely precipitated by weight gain,[5] 1 in 4 Australians aged 25 or older has diabetes or is at high risk of developing the disease in the next 5 - 10 years.[4] A further illustration, particularly in relation to obesity's rising trend, is that in the USAthe age-adjusted prevalence of the condition (body mass index (BMI) > 30) was 22.9% in 1986 - 1994, whereas by 1999 it had risen to 30.5%.[6] In the particular section of the US population most affected, namely African American women, more than half of those aged 40 years and older were found to be obese, and more than 80% overweight.[6]

What was the situation in the past? Historically, obesity remained uncommon in developed populations[7] until early in the 20th century. Since then there have been major rises in its occurrence in numerous countries, although to a highly variable degree. Thus, in a comparison undertaken in 1990 - 1994, prevalences in US white men and women were found to be 20% and 22.4%, respectively,[8] while in France prevalences were far lower at 6.5% and 7.0%.[9] In Japan, remarkably, prevalences were uniformly very low at 1.8% and 2.9%, despite a considerable rise in the country's socio-economic state.[10]

Two or more generations ago there was very little weight gain with age in African populations.[11] This is still the case in a number of less advanced countries, e.g. Tanzania, where the prevalence of obesity in black women is very low at 1.9%.[12] In South Africa the mean prevalence of obesity among black women in North West province, predominantly rural dwellers' has risen to 28.6%,[13] while among women in Cape Town it has risen to 34.4%,[14] and in Durban to 22.6%.[15] One of the puzzling features in the occurrence of obesity in African populations is that the proportion of men affected is much lower, for example, 2.9% in North West,[13] 7.9% in Cape Town,[14] and 3.7% in Durban.[15]

As for sequelae, previously in rural areas in South Africa the association between obesity and hypertension was slight.[16] In 1988 this was also the case with regard to hypercholesterolaemia and hyperglycaemia where, in a study of obese African women and controls in the city of Soweto, the proportion affected by these parameters did not differ significantly.[17] However, in recent years the association between obesity and the parameters mentioned has become more