NICE guidance

Supraorbital minicraniotomy for intracranial aneurysm

Interventional procedures guidance
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Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with

those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

1 Guidance

1.1 Current evidence on the safety and efficacy of supraorbital minicraniotomy for intracranial aneurysm appears adequate to support the use of this procedure provided that the normal arrangements are in place for consent, audit and clinical governance.

2 The procedure

2.1 Indications

2.1.1 Cerebral aneurysms are small balloon-like dilated portions of blood vessels that may occasionally rupture, causing haemorrhage, stroke or death. Therapy is designed to support recovery from the initial bleed, together with specific treatment to prevent re-bleeding.

2.1.2 The majority of cerebral aneurysms arise from the major blood vessels in the centre of the head as they cross the space between the skull and the brain (the subarachnoid space). The standard surgical approach to this area is through an incision in the scalp, just in front of the ear, and an opening in the underlying bone on the side of the head. The abnormal vessels are approached side-on in the subarachnoid space beneath the brain. The surgical treatment of cerebral aneurysms involves placing a permanent clip across the neck of the aneurysm (effectively closing the neck of the balloon) to separate it from the normal vessel while preserving blood flow to the brain. If clipping is not possible, the aneurysm may be reinforced by wrapping it with synthetic material to reduce the risk of rupture.

2.2 Outline of the procedure

2.2.1 Supraorbital minicraniotomy is an alternative approach through a smaller incision made above the eyebrow and through the underlying skull. This allows a front-on approach to the abnormal vessels. The aneurysm is then clipped or wrapped using conventional microsurgical instruments.

2.3 Efficacy

2.3.1 No controlled studies were identified. In two studies, all the aneurysms were either successfully clipped or wrapped, but length of follow-up was not reported. In another study, 89% (33 out of 37 patients) showed good recovery on the Glasgow Outcome Scale, but it was not clear how many of the patients were followed up for the entire duration of the study (17 months). This study also reported good cosmetic outcomes following surgery. For more details, see the overview.

2.3.2 One Specialist Advisor considered it unlikely that the efficacy of treating an aneurysm would be affected by the small exposure used in this procedure when compared with the standard surgical approach.

2.4 Safety

2.4.1 In the three case series reviewed, rupture of the aneurysm during surgery occurred in 3% (4 out of 139), 2% (2 out of 102) and 3% (1 out of 37) of patients. Other adverse events were: death within 8 days of surgery (4%, 4 out of 102); central nervous system infection (2%, 2 out of 102); impaired cerebrospinal fluid circulation requiring shunting (7%, 7 out of 102); supraorbital nerve damage (11%, 4 out of 37); and wound infection (3%, 1 out of 37). For more details, see the overview.

2.4.2 The Specialist Advisors had no major safety concerns.

2.5 Other comments

2.5.1 This procedure involves a different surgical approach for performing an established procedure (craniotomy for intracranial aneurysm) and, although there may be a greater risk of per-operative rupture, this has usually been managed successfully.

2.5.2 There is an increasing trend to deal with aneurysms by endoluminal techniques.

3 Further information

Sources of evidence

The evidence considered by the Interventional Procedures Advisory Committee is described in the overview.

Information for patients

NICE has produced information for the public on this procedure. It explains the nature of the procedure and the guidance issued by NICE, and has been written with patient consent in mind.

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Endorsing organisation

This guidance has been endorsed by Healthcare Improvement Scotland.