or stenosis. Either result should be beneficial to the aneurysm patient. Procedures designed to restore the expansibility of the proximal arterial wall are referred to as the 'A' principle.

LATE MORTALITY AND MORBIDITY OF COMMON CAROTID LIGATION FOR POSTERIOR COMMUNICATING ARTERY ANEURYSMS: A COMPARISON WITH CONSERVATIVE TREATMENT

H. RICHARD WINN, ALAN RICHARDSON, and JOHN A. JANE (London and Charlottesville) had performed a follow-up study on an initial group of 78 patients of whom 41 had been assigned randomly to non-surgical management and 37 allotted common carotid ligation. None of the patients had been in coma. Treatment was given between 1958 and 1959. The results at six months had previously been published by McKissock *et al.* (1960). This study had followed the fate of the 26 patients surviving non-surgical treatment and the 34 patients surviving for at least six months after surgery. The longest period of follow-up was 14 years and the average period eight years. Fourteen patients were lost to follow-up. Late bleeding episodes were strictly defined according to the data available, and were related only to events after the six months follow-up period. Three groups of absolute, probable, or possible haemorrhage were considered. There was no demonstrable difference in the rebleeding rate over a 10 year period between the two groups of survivors, allowing for the various degrees of proof and the interdigitation of natural death and loss to follow-up. The morbidity of the surgical survivors continued to remain less than those untreated over the ensuing years of follow-up, but the morbidity in both groups changed little with the passage of time. Larger series would require study.

STUDY OF ANTERIOR COMMUNICATING ANEURYSMS

V. CHARLEZ and B. H. DAWSON (Salford) noted that even after small initial bleeds severe and repeated recurrent haemorrhages were apt to take place from anterior communicating aneurysms. Without surgical treatment the primary mortality of haemorrhage from anterior communicating aneurysms had been set as high as 40%. The results of surgery for these aneurysms could be judged properly only in the light of clear knowledge of the form and method of case selection and the form and method used to evaluate long term postoperative results. The authors presented a series of 115 patients, 107 of whom underwent angiography. Operation was performed in 79. The operability rate was 69%. There was considerable variation in the operability rate and in the operative mortality rate over the 17 years of survey. Seventy per cent of the patients had undergone

angiography within two weeks of the first haemorrhage and most patients were operated on within a week after angiography. Using a variation of the pre-operative grading system of Botterell and Hunt, and a grading system for postoperative results, the authors were able to show that most grade 1 cases did well with surgery and returned to full work. The overall mortality in 115 cases was 25% and the surgical mortality in 79 cases was 14%. The surgical morbidity in the 68 survivors after surgery was 26%. The authors concluded that reviews of the results of surgery for anterior communicating aneurysms must include careful pre- and postoperative gradings and details of operability rates.

DIRECT SURGERY OF ANTERIOR COMMUNICATING ANEURYSMS AND ITS EFFECT ON INTELLECT AND PERSONALITY

R. P. SENGUPTA (Newcastle upon Tyne) had analysed the quality of survival in 26 patients whose anterior communicating aneurysms had been clipped. Aneurysm obliteration had been carried out under controlled hypotension without the use of a microscope. At follow-up the patients were examined on the Wechsler adult intelligence scale and the Wechsler memory scale. A questionnaire was completed by the relatives of the patients. Mean test scores showed that the results were very close to those in a normal population with a mean IQ and memory quotient of 100 plus or minus 15. There was nothing to suggest that the group as a whole exhibited specific memory impairment. Relatives assessed only three cases as being of less good intelligence after the operation. It seemed that psychometric studies did not show any evidence of postoperative intellectual deficiencies in this group of patients but personality changes indirectly affected intellectual performance. There was a significant correlation between clinical grading before operation and loss of interest and initiative observed postoperatively. Early surgery in clinically satisfactory patients was compatible with a good outcome. It was concluded that the successful treatment of a ruptured anterior communicating aneurysm depended, firstly, on accurate dissection and isolation of the aneurysm neck without premature rupture or damage to perforating vessels, and, secondly, on the avoidance of vasospasm after surgery. The clinical condition of the patient remained the prime factor in determining the outcome of surgery.

INTRACRANIAL ARTERIOVENOUS MALFORMATIONS: A 26 YEAR EXPERIENCE

EDWIN B. BOLDREY and BYRON C. PEVEHOUSE (San Francisco) had been involved in the care of 150