measurements through the reservoir may increase the efficacy and the safety of the treatment. A ventriculostriatal or ventriculoperitoneal shunt should be inserted if resolution of the posthaemorrhagic hydrocephalus has not taken place by the time the infant weighs 2000 g, and if the protein concentration of the cerebrospinal fluid is low.

References

Commentary
C BANNISTER
Consultant Paediatric Neurosurgeon, Manchester

The early management of hydrocephalus after intraventricular haemorrhage in low birthweight, premature infants of low gestational age continues to give problems. Those who care for these tiny infants are still seeking the ideal method of treatment that will control the hydrocephalus but neither produce infection of the cerebrospinal fluid or damage the central nervous system. By inserting a ventricular catheter attached to a reservoir situated beneath the scalp, the authors achieved satisfactory control in 13 infants with gestational ages ranging from 26 to 33 weeks, and with birth weights of between 740 and 2130 gm by repeatedly tapping the reservoir, sometimes more than once a day, for periods lasting up to 90 days. While the necessity to carry out the taps and the volume of fluid removed was largely determined by the clinical signs and the size of the ventricles measured by ultrasound scanning, note was also taken of intracranial pressure measurements made through the reservoir before and after removal of the cerebrospinal fluid. The authors contend that measurement of the intracranial pressure probably increased the efficacy of their treatment.

In this small series satisfactory control of the hydrocephalus was achieved, but not without complications. Wound breakdown occurred in one case, and in another fresh blood was found in the cerebrospinal fluid after a tap. No infections or blockages of the ventricular catheters occurred, but it has to be stressed that this was an extremely small series. The method allows easy repeated removal of cerebrospinal fluid from the lateral ventricles and is a convenient way of measuring intracranial pressure, but it has the disadvantage that it requires an operation to be performed on a small and often frail premature infant, and insertion of a ventricular catheter does cause some local cortical damage. What the method does not permit is continuous removal of cerebrospinal fluid, and therefore—as the authors point out—the intracranial pressure is not smoothly controlled. Whether or not this is important for long term development of the brain has yet to be determined. Other methods of intermittent removal of cerebrospinal fluid from the ventricular system probably achieve results comparable to those reported by the authors.

Though the method described has some attractive features, in particular its use of intracranial pressure
measurements, it still falls far short of the ideal, and the search will no doubt continue for a method with minimal complications that permits the raised intracranial pressure in premature infants with post-haemorrhagic hydrocephalus to be controlled smoothly until such time as they can have an indwelling cerebrospinal fluid diversion system inserted.