

PP19

The efficacy of external ventricular drainage using a peripherally inserted catheter® for treating hydrocephalus in neonates

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The clinical management of hydrocephalus in challenging cases, such as posthemorrhagic ventricular dilatation in preterm neonates, varies greatly among children's hospitals. Several treatments have been proposed, but there is no consensus regarding which treatment is best. Many pediatric neurosurgeons prefer ventricular reservoirs or ventriculosubgaleal shunts as temporary measures for diverting cerebrospinal fluid (CSF). We report on the efficacy of external ventricular drainage (EVD) with a peripherally inserted (PI) catheter for treating hydrocephalus in neonates. A total 25 procedures were performed in 20 infants (for preterm posthemorrhagic hydrocephalus in 10, for large spina bifida in 4, and for aqueductal stenosis complicated by a severe cardiac anomaly in 1). The mean duration of drainage was 54.6 days (range, 10 to 116 days). Six cases of preterm posthemorrhagic hydrocephalus were treated with fibrinolytic therapy in which urokinase was administered into the ventricles. No infections were associated with EVD, and no secondary hemorrhages were associated with fibrinolytic therapy. In some cases, permanent shunt surgery was not required. The management of hydrocephalus by means of EVD using PI catheters is safe and effective in neonates.

Keywords: hydrocephalus; external ventricular drainage; peripherally inserted catheter; neonatal intensive care unit.