Background There is no consensus regarding optimal timing in treating posthaemorrhagic ventricular dilatation (PHVD). Near-InfraRed Spectroscopy (NIRS) is a non invasive method, measuring cerebral regional oxygenation (rScO2). rScO2 values below 40–45% might be associated with cerebral ischaemia.

Hypothesis rScO2 can provide additional information about cerebral oxygenation in infants with PHVD and may therefore be of value to determine timing of intervention.

Methods We measured rScO2 in 13 neonates before and after neurosurgical placement of a ventricular reservoir. Based on ventricular index (VI; Levene), distinction was made in neonates treated early (VI < p97 + 4 mm) and those treated late for their PHVD (VI ≥ p97 + 4 mm).

Results Median GA 31 wks (27–37 wks) and median BW 1750 g (1145–3270 g). Five neonates were treated early and 8 late. In the early intervention group, pre- and postoperative rScO2 values were comparable (median 52%, 45–58% IQR vs 57%, 44–60% IQR). Preoperative rScO2 was lower in the late intervention group compared to postoperative values (median 33%, 26–43% IQR vs 47%, 39–49% IQR).

In late intervention infants rScO2 was <45% preoperatively, so at risk for cerebral ischemia, In 2 rScO2 remained <45% postoperatively.

Conclusions Neonates with VI≥97 + 4 mm do have a compromised cerebral oxygenation, and usually react to cerebrospinal fluid drainage with recovery of the rScO2 values to within the normal range. Infants in the early intervention group were within normal range pre- and postoperatively. NIRS might be of additional clinical value in progressive PHVD in order to determine optimal timing for intervention.