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 (rScO$_2$). rScO$_2$ values below 40–45% might be associated with cerebral ischaemia.

Hypothesis: rScO$_2$ 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 rScO$_2$ 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 rScO$_2$ values were comparable (median 52%, 45–58% IQR vs 57%, 44–60% IQR). Preoperative rScO$_2$ was lower in the late intervention group compared to postoperative values (median 33%, 26–43% IQR, vs 47%, 39–49% IQR).

In 7 late intervention infants rScO$_2$ was <45% preoperatively, so at risk for cerebral ischemia. In 2 rScO$_2$ remained <45% postoperatively.

Conclusions Neonates with VI ≥ p97 + 4 mm do have a compromised cerebral oxygenation, and usually react to cerebrospinal fluid drainage with recovery of the rScO$_2$ 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.