Abstract O-029 Table 1

	Day 1			Day 2			Day 3		
	preterm	term	*P* value	preterm	term	*P* value	preterm	term	*P* value
rSO_2 cerebral	81.9	78.3	n.s.	84.1	79.8	n.s.	78.6	77.0	n.s.
rSO_2 renal	79.9	92.9	0.001	68.5	84.3	0.022	65.9	88.1	0.007
rSO_2 abdominal	64.9	78.2	0.045	62.6	69.2	n.s.	59.8	81.1	0.041
SaO_2	96.0	98.0	0.002	94.8	98.3	0.001	94.7	97.7	0.014
FTOE cerebral	0.13	0.22	0.030	0.10	0.19	0.002	0.17	0.22	n.s.
FTOE renal	0.16	0.04	0.001	0.27	0.13	n.s.	0.30	0.12	0.012
FTOE abdominal	0.29	0.16	n.s.	0.34	0.31	n.s.	0.37	0.18	0.047

Background and aim IUGR fetuses display redistribution of fetal blood flow to vital organs. This can be different in preterm and term IUGR fetuses. It is not known whether the distribution of the neonatal circulation is still affected by IUGR, and if it differs between these groups. Our aim was to compare the neonatal circulation in preterm and term IUGR infants, measured by NIRS.
Methods Preterm and term infants were prospectively included between May 2012 and April 2014 when IUGR was diagnosed. Cerebral, renal and abdominal regional tissue oxygen saturations (rSO_2) were measured for 2 h continuously using NIRS on days 1 to 3 after birth. Fractional tissue oxygen extraction (FTOE) was calculated using rSO_2 and arterial oxygen saturation (SaO_2) values: $(SaO_2–rSO_2)/SaO_2$.
Results We included 42 IUGR infants (21 preterm/21 term), gestational age median 31.3 weeks (IQR 28.5–33.2), and 38.6 weeks (37.7–39.1), respectively; birth weight 1100 grams (770–1510), and 2420 grams (2027–2645). Results are shown in Table 1.
Conclusion In the first 2 days after birth, preterm IUGR infants showed lower renal and abdominal rSO_2 (higher FTOE) when compared with term IUGR infants, indicating altered neonatal circulation. Furthermore, cerebral rSO_2 was higher and cerebral FTOE was lower indicating increased cerebral perfusion. This may be interpreted as brain sparing continuing after birth. However, the difference with term IUGR (higher cerebral FTOE indicating no brain sparing) vanishes. We conclude that preterm IUGR infants experience brain sparing in the first 2 days, whereas term IUGR infants do not.

Circulation/PDA

O-030 NEW IBUPROFEN DOSING STRATEGY FOR OPTIMAL PATENT DUCTUS ARTERIOSUS CLOSURE IN PRETERM NEONATES

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Background and aims Ibuprofen is the drug of first choice to close a patent ductus arteriosus (PDA) in preterm neonates. The most commonly used 10–5–5 mg/kg/3days bolus dosing schedule is only effective in about 60% to 80% of patients, dependent on post natal age. We provide a new dosing regimen for ibuprofen, based on current available pharmacokinetic/pharmacodynamic (PK/PD) evidence that would result in the highest PDA closure rate.

Abstract O-030 Table 1 Suggested ibuprofen bolus and continuous doses

PNA (days)	Cl (ml/hr)	T1/2 (hr)	Bolus dose (mg/kg)	Infusion rate (mg/kg/hr)
1	1,20	216	15	0,04
2	3,36	77,16	15	0,12
3	6,15	42,17	15	0,22
4	9,44	27,47	15	0,33
5	13,17	19,70	15	0,46
6	17,28	15,01	15	0,60
7	21,74	11,93	15	0,76
8	26,53	9,78	15	0,93

Methods Simulation of different ibuprofen treatment strategies using NONMEM to predict the best pharmacodynamic effect based on available PK/PD data. Based on current evidence we assumed that ibuprofen efficacy depends on the cumulative time of threshold plasma level above 15 mg/l and that the volume of distribution is independent of postnatal age.
Results We show that the predicted plasma concentrations fit best after a 15 mg/kg ibuprofen loading dose followed by a postnatal age dependent continuous ibuprofen dose (table1). With this dosing schedule predicted plasma levels of 90% of patients continuously remain above threshold.
Conclusions Based on PK/PD evidence, we suggest that the 10–5–5 mg/kg ibuprofen dosing schedule that has been used for PDA closure around the world during last decades is insufficient and should be improved. Our new dosing strategy needs further validation in daily clinical practice, but we expect a very high PDA closure rate.

O-031 COMPARISON OF BNP AND NT-PRO-BNP FOR ASSESSMENT OF THE PATENT DUCTUS ARTERIOSUS IN VERY PRETERM INFANTS

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