TITLE: CEREBRAL HEMODYNAMICS IN CHILDREN WHEN DESFLURANE REPLACES PROPOFOL

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INTRODUCTION: Facilitating rapid anesthetic emergence by changing from propofol (Prop) to desflurane (Des) anesthesia affects cerebral blood flow velocity (CBFV) (1). This study was designed to determine if mild hypocapnia can prevent this change in CBFV in children.

METHODS: With REB approval 10 healthy children scheduled for urological surgery were enrolled. Each patient randomly received Prop at either 30 or 40 mmHg end-tidal CO₂ (ETCO₂) followed by Des 1 MAC at the same ETCO₂. The same sequence was repeated with the other ETCO₂. CBFV was measured at steady-state for each agent and ETCO₂. Heart rate, mean arterial blood pressure and temperature were recorded simultaneously.

RESULTS: The age and weight were 34.5±19.4 mo and 14.1±3.4 kg, respectively. Heart rate increased and blood pressure decreased with Des compared to Prop, at both ETCO₂ levels ($P<0.001$). CBFV was higher with Des as compared to Prop, regardless of the ETCO₂. ($P<0.001$, Table).

ETCO ₂	30	30	40	40
Agent	Prop	Des	Prop	Des
CBFV (cm/s)	25.3(6.9)	42.3(9.1)	33.7(8.8)	62.5(9.1)
BP (mmHg)	60.6 (13.9)	54.2 (8.8)	67.0 (8.0)	57.6 (5.2)
HR	95.0 (10.3)	109.0 (11.8)	98.0 (10.1)	108.8 (13.2)

Values are mean(SD)

DISCUSSION: Switching from propofol to desflurane anesthesia in children causes an increase in CBFV that could not be prevented by mild hypocapnia. This should be taken into consideration in patients with decreased intracranial compliance.

REFERENCES

- 1) *Can J Anesth.* 51:824-8.