**TITLE: CEREBROVASCULAR EFFECTS OF RETROPERITONEAL LAPAROSCOPY IN CHILDREN**

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**INTRODUCTION:** Retroperitoneal laparoscopy is a technique which is being used with increasing regularity.(1) Cerebral blood flow velocity has been shown to vary directly with $ETCO_2$ in children undergoing intraperitoneal laparoscopy.(2) This study examines the cerebral hemodynamic effects of retroperitoneal $CO_2$ insufflation in children.

**METHODS:** With REB approval and written parental consent pediatric patients undergoing laparoscopic partial or total nephrectomy were enrolled. A standardized anesthetic technique of isoflurane 1 MAC and remifentanil 0.2 µg/kg/min was used. Parameters measured included peak airway pressure, end-tidal $CO_2$ and middle cerebral artery blood flow velocity (Vmca). Transcranial Doppler sonography was used to measure Vmca. Data was collected before, during and after 12 mmHg of retroperitoneal pneumoperitoneum, at regular 1-2 minute intervals. Within group analysis was performed using repeated measures ANOVA and values at different points of time were compared using paired t-test. $P<0.05$ was considered significant.

**RESULTS:** Twelve participants with a mean age of 6.5 ± 4.8 yr and weight of 23.9 ± 13.5 kg have been recruited to date. Both Vmca and end-tidal $CO_2$ tended to increase progressively throughout the study period. All Vmca and end-tidal $CO_2$ values from 3 minutes onwards were significantly higher than baseline ($P<0.01$).

**DISCUSSION:** Changes in cerebral blood flow velocity in children undergoing retroperitoneal laparoscopy seem to be related to the resultant effects on end-tidal $CO_2$. This effect seems to be similar to that seen during intraperitoneal laparoscopy.(2)

**REFERENCES:**

1. *J Uro l*160:1138-41.
2. *Asso cAn aesth o fGB an dIrelan d*abstract, 2001