

## PII4: HEMODYNAMIC CHANGES MONITORING DURING LAPAROSCOPY IN INFANTS WEIGHING LESS THAN 10 KG

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**Background** Hemodynamics changes during laparoscopy are not yet well defined in very young children. Modifications in cerebral and systemic oxygenation and in hemodynamics are intraoperatively evaluated during pediatric laparoscopy in infants weighing less than 10 kg.

**Materials and methods** Ten infants (7M/3F), aged 1 to 60 days (mean weight  $3.6 \pm 1.1$  kg), underwent laparoscopy (LAP Group, n=5) or open surgery (Open Group, n=6). Cerebral regional (crScO<sub>2</sub>) and renal regional oxygenation (rrScO<sub>2</sub>), peripheral oxygen saturation (SpO<sub>2</sub>), heart rate (HR), diastolic (DP) and systolic pressure (SP), transcutaneous CO<sub>2</sub> (TcCO<sub>2</sub>), end-tidal CO<sub>2</sub> (EtCO<sub>2</sub>) and body temperature (TC), and are monitored at different intervals: basal (T<sub>0</sub>); anesthesia induction (T<sub>1</sub>); CO<sub>2</sub>PP insufflation (T<sub>2</sub>); surgery (T<sub>3</sub>); CO<sub>2</sub>PP cessation (T<sub>4</sub>); before extubation (T<sub>5</sub>). An arterial blood gas test is also performed at the start of the intervention and after T<sub>5</sub>. The anesthesiology protocol includes hypotension management with fluid expansion before T<sub>1</sub> and T<sub>2</sub>.

**Results** Significant difference in crScO<sub>2</sub> ( $p=0.009$ , LAP<OPEN values), HR ( $p>0.001$ , LAP>OPEN values) and EtCO<sub>2</sub> ( $p=0.03$ , LAP>OPEN values) is noted in LAP compared to OPEN group.

In LAP group significant changes in rrScO<sub>2</sub> from T<sub>1</sub> to T<sub>4</sub> vs T<sub>0</sub> ( $p \leq 0.01$ ), in HR at T<sub>5</sub> vs T<sub>0</sub> ( $p=0.007$ ), in SP from T<sub>1</sub> to T<sub>4</sub> vs T<sub>0</sub> ( $p<0.001$ ) and in TcCO<sub>2</sub> from T<sub>2</sub> to T<sub>5</sub> ( $p>0.01$ ) are revealed; no relevant variation in crScO<sub>2</sub> and other hemodynamic variables is noted during other surgical intervals.

OPEN group, at T<sub>1</sub> shows lower crScO<sub>2</sub> values compared with T<sub>0</sub> ( $p=0.015$ ); no significant changes are recorded in other parameters during procedure.

Correlation between changes in crScO<sub>2</sub> and SP ( $p=0.01$ ) and in rrScO<sub>2</sub> and SP ( $p=0.001$ ) and DP ( $p=0.008$ ) are also reported.

**Conclusions** The hemodynamic stability is a critical determinant during laparoscopic procedures in infants. Close monitoring, dedicated anesthesiological procedure and multidisciplinary pediatric collaboration are essential to guarantee the infant's safety during minimally invasive surgical procedures.

**Key words** laparoscopy, infants, monitoring, hemodynamics, changes