Intra-operative Hemosphere Hemodynamic Monitoring with Acumen Hypotension Predictive Software (HPI) in a complex Bariatric – Metabolic Patient.

John Leyden, Tim Stegeman, Britney Sice, Daniel Roberts, Anthony Brancatisano, Nicholas Cocco, Brendan Ryan
Sydney Bariatric Clinic and Westmead Private Hospital

Haemodynamic monitoring with Acumen Hypotension Predictive Software (HPI)

Integration of artificial intelligence (AI) and machine learning in predicting intraoperative hypotension (IOH) to enhance detection capabilities and provide an opportunity for timely Interventions to optimize patient outcomes

No Potential Conflicts of Interest to Declare

BACKGROUND

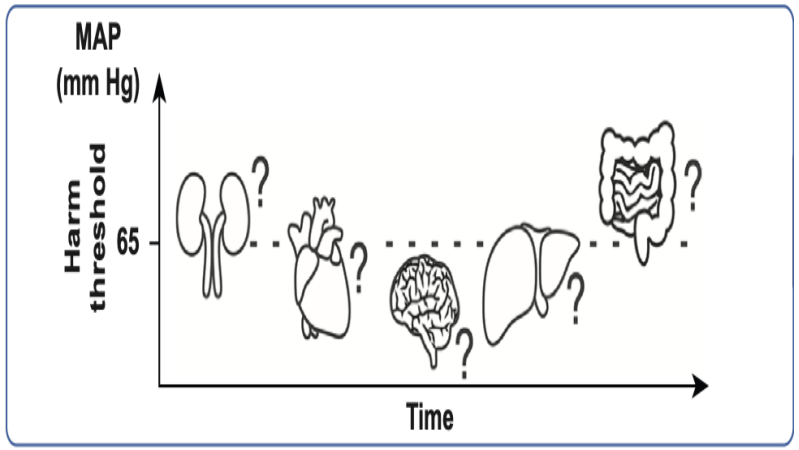
Patient Factors

Super Morbid Obesity; POTS; OSA; Cardiomyopathy: Hypopituitarism; IDDM with autonomic dysfunction; Deconditioned

Surgical and Anaesthetic Factors

Anaesthetic agents; Hypovolaemia; haemorrhage; position; pneumoperitoneum

Risk of Intraoperative Hypotension and End-Organ Dysfunction



Acute Kidney Injury (AKI)
Myocardial ischaemia
Hepatic Dysfunction
CNS Dysfunction
Death

METHODS

- Arterial line (radial)
- Central line (internal jugular)
- Cerebral oximetry (Hemosphere)
- Haemodynamic monitoring with Acumen Hypotension Predictive Software

HPI > 85 for 2 consecutive 20s cycles

89% sensitivity and 90% specificity prediction of hypotension in next 10 minutes

Real time calculated and direct haemodynamic measures that assist evaluation of causes & targeted therapies

RESULTS AND CONCLUSIONS

6 alerts predicting hypotension with interventions that included pressors, IV fluid bolus and reducing pneumoperitoneum insufflation pressures