Preventing Hypotension And Acute Kidney Injury In Dogs Undergoing Ovariohysterectomy

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Acute Kidney Injury (AKI) is a life threatening complication of anaesthesia and surgery. Although multiple factors contribute to peri-operative AKI; prolonged hypotension is an important modifiable risk factor. The multi-factorial nature of both hypotension and AKI suggests that a combination of interventions is needed to minimise these complications.

A randomised controlled clinical trial was conducted in dogs undergoing ovariohysterectomy in a university teaching hospital (Animal Care and Ethics Committee approval: A22011). Healthy female dogs were recruited and randomised to receive either routine treatment (control) or care package protocol. The care package included pre-anaesthetic testing, early intervention for hypotension and avoiding nephrotoxic drugs. Frequency, duration and severity of hypotension and number of dogs with evidence of AKI 24 hours post-operatively were compared. AKI was assessed via change in serum creatinine and urine cytology.

There were 28 and 27 dogs in the control and care package groups respectively. Pre-anaesthetic findings were the same between groups. Hypotension duration was significantly shorter (11.9 ± 8.4 min), with fewer episodes (median 1, range 1 - 2) in the care package group compared to the control group (24.8 ± 21.2 min and 2, 1 - 6). Post-operatively the care package group had significantly less dogs with increased creatinine or elevated casts in their urine (zero, 0% and five, 18%, care package and control groups respectively).

The care package is effective at minimising the duration of hypotension and this may reduce the risk of post-operative AKI in dogs undergoing ovariohysterectomy.

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