Effect of pre-medication drugs on cardiovascular parameters during anaesthesia and on speed of recovery of patients undergoing daily general anaesthesia for radiotherapy.

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Objectives

To develop a protocol for safe pre-medication of patients undergoing general anaesthesia for radiotherapy.

Method

A nurse-led observational study using client-owned dogs prescribed radiotherapy for treatment of anal sac adenocarcinoma. Pre-medications were randomly assigned; either 0.02mg/kg buprenorphine, 0.2mg/kg methadone or 0.2mg/kg butorphanol. Cardiovascular parameters, mean isoflurane usage, extubation time and total recovery time were recorded.

A repeated measures MANOVA was used to determine differences between cardiovascular parameters data between groups, and repeated measures ANOVA tests for mean isoflurane usage, extubation time and full recovery time. $P < 0.05$ was significant. Post-hoc paired t-tests with Bonferroni correction were performed where appropriate.

Results

Twenty-four dogs were included, with eight dogs per drug group. There was no difference of cardiovascular parameters between groups ($F=2.045$, $p=0.140$). There was a difference of lowest mean isoflurane usage between groups (Wilks Lambda 0.236 $F(7,15)$ 6.85, $p=0.001$), with butorphanol resulting in highest usage (butorphanol vs buprenorphine mean difference (M.D.) 0.9%, $p<0.001$, butorphanol vs methadone M.D 0.6%, $p < 0.001$). For extubation time, there was a significant difference between groups (Wilks Lambda 0.167 $F(7,15)$ 10.67, $p<0.001$), with buprenorphine associated with shortest extubation times (buprenorphine vs butorphanol M.D. -3.1 minutes (mins) $p<0.001$, buprenorphine vs methadone M.D. -2.3mins $p<0.001$). There was a significant difference of total recovery time (Wilks Lambda 0.241 $F(7,15)$ 6.75, $p = 0.001$), with buprenorphine associated with shortest recovery time (buprenorphine vs butorphanol M.D. -16.3mins $p<0.001$, buprenorphine vs methadone M.D. -9.9mins $p<0.001$).

Time to recovery $P < 0.001$

Extubation time $P < 0.001$

Clinical Significance

Buprenorphine reduced isoflurane usage and recovery times and appears to be the drug of choice for these patients.