

ASSESSMENT OF ANESTHETIC MORTALITY AT THE TEACHING VETERINARY HOSPITAL OF THE UAB: RISK FACTOR ANALYSIS

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OBJECTIVES

The objectives set to achieve are:

- To estimate the risk of anesthetic mortality, the associated risk factors and anesthetic complications at the Teaching Veterinary Hospital of the Autonomous University of Barcelona.
- To compare our results with other studies of anesthetic mortality in small animals.

MATERIAL AND METHODS

This prospective and single institution cohort study, in dogs and cats, was done from April of 2019 to April of 2020. A total of 1583 cases was analyzed, which 1363 were dogs and 220 cats. A form, that included patient and death characteristics, was used for data collection. Data management and analysis was performed using R language.

RESULTS

The results were 2 cats died due to anesthesia (0.91%) and 7 dogs (0.51%). The main results from studied variables and trends (table 1):

VARIABLE	CATEGORY	% DEAD DOGS	% DEAD CATS
AGE	GERIATRIC	1.39	0.00
	SENIOR	0.22	1.74
	YOUNG	0.63	0.00
BCS	CACHECTIC	10.00	20.00
	NORMAL	0.45	0.71
	OBESE	0.00	0.00
	SEMIOBESE	0.81	0.00
	THIN	0.00	0.00
ASA	1	0.00	0.00
	2	0.12	0.00
	3	1.09	4.08
	4	8.11	0.00
REASON	ABDOMINAL	0.94	0.00
	DIAGNOSTIC	0.20	1.25
	MINOR	0.45	0.00
	ORTHOPAEDICS	0.51	5.88
	THORACIC	6.25	0.00
DURATION	LONG	0.93	1.06
	MEDIUM	0.00	0.85
	SHORT	0.00	0.00
TIMETABLE	NORMAL	0.39	0.96
	EMERGENCY HOURS	2.60	0.00
LOCOREGIONAL	NO	0.56	1.06
	YES	0.34	0.00

Table 1. Anesthetic related risk of death according to the studied variables. Our trends are coloured with red and green (red: risk factors; green: protectors).

In the univariable statistical study, we obtained 2 statistically significant variables: firstly, to be classified as a sick animal (ASA 3-4) and anesthesia in emergency. In the multivariable, only the case of sick patients was considered significant (Table 2).

		ALIVE	DEAD	UNIVARIABLE OR (95% CI, p-value)	MULTIVARIABLE OR (95% CI, p-value)
AGE	Mean	6.9 (4)	9.4 (5)	1.17 (0.97-1.43, p=0.113)	1.06 (0.29-11.7, p=0.561)
WEIGHT	Mean	19.6 (13.6)	11.6 (10.5)	0.94 (0.85-1.01, p=0.130)	0.95 (0.87-1.33, p=0.187)
RISK	ASA I-II	1043 (99.9)	1 (0.1)		
	ASA III-V	313 (98.1)	6 (1.9)	19.99 (3.40-378.35, p=0.006)	13.95 (1.69-301.08, p=0.029)
SURGERY	ABDOMINAL	211 (99.1)	2 (0.9)		
	DIAGNOSTIC	498 (99.8)	1 (0.2)	0.21 (0.01-2.22, p=0.206)	0.58 (0.02-8.11, p=0.689)
	MINOR	438 (99.5)	2 (0.5)	0.48 (0.06-4.04, p=0.467)	1.82 (0.16-21.79, p=0.614)
	ORTHOPAEDICS	194 (99.5)	1 (0.5)	0.54 (0.03-5.72, p=0.620)	2.04 (0.08-34.77, p=0.620)
	THORACIC	15 (93.8)	1 (6.2)	7.03 (0.32-77.62, p=0.120)	5.94 (0.19-113.49, p=0.238)
TIMETABLE	NORMAL	1281 (99.6)	5 (0.4)		
	EMERGENCY HOURS	75 (97.4)	2 (2.6)	6.83 (0.97-32.27, p=0.023)	5.05 (0.55-34.90, p=0.113)

Table 2. Risk factors related with the anesthetic mortality rate, according to the studied variables. Data are expressed as number (%) and values as mean (standard deviation). OR: odds ratio; CI, confidence interval).

DISCUSSION

With a bibliographic review:

- Our results were favorable with respect to studies in referral centers (0,6-1,2%).
- We got common risk factors (sick animals). In addition, we observed trends in emergency hours, patient age, long and invasive surgeries, use of locoregional, animal weight or size, and standardization of anesthetic protocols.
- The results obtained were difficult to compare with other studies due to differences in population size, type of center and definition of variables.

CONCLUSIONS

- We have seen that the risk of anesthetic death is 0.91% in cats, and 0.51% in dogs. Mortality in healthy dogs (ASA 1 and 2) is 0.1% and in sick patients (ASA 3 and 4) is 1.92%.
- Risk factors associated with mortality are ASA category 3 and 4.
- It would be interesting to continue collecting cases to obtain a larger sample size. In order to search other risk factors with significant statistical value, which provides more useful information to reduce our mortality rate.