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MEETING ABSTRACTS

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Anaesthesia in the frail patient

A1

When a heart transplanted patient needs major abdominal surgery: is "awake neuraxial anesthesia" an option?

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Background
In the surgical population, comorbidities, aging, and frailty are increasingly prevalent [1]. The decision to operate was sometimes challenging due to the difficult balancing of risks versus benefits. Many efforts are undertaken in order to minimize anesthesiological and surgical impact on physiological status and so to reduce perioperative complications. In this context a possible anesthesiological strategy for abdominal surgery is the so called "Awake Neuraxial Anesthesia", that combines neuraxial anesthesia and mild sedation, keeping patient in spontaneous breathing.

Case report
A 72-year-old man, with Marfan syndrome and severe dilatative cardiomyopathy, received a heart transplant in 2020; he presented also recurrent episodes of pneumothorax, ischemic strokes without severe sequelae and chronic renal failure (CRF). In 2024, he was diagnosed with colon cancer necessitating right hemicolectomy. Among the issues was altered autonomic physiology due to donor heart denervation, resulting in preload-dependent heart [2]. Risks included also infectious complications due to immunomodulatory therapy, pneumothorax during mechanical ventilation, metabolic complications due to CRF. Following a multidisciplinary evaluation to explore strategies to minimize perioperative risk, we decided to perform neuraxial anesthesia in spontaneous breathing. Preoperatively, the patient was prepared according to the local ERAS protocol. Intraoperatively, standard monitoring (ECG, SpO2), invasive arterial pressure, semi-invasive cardiac monitoring (proAqt), BIS, capnography, and temperature sensor were applied. Segmental spinal anesthesia was performed at T9-T10 with levobupivacaine 0.5% 10 mg, dexmedetomidine 5 mcg, and 1 ml saline (total volume 4 ml, final levobupivacaine concentration 0.25%). Written informed consent was obtained with special regard to off-label intrathecal dexmedetomidine use. As expected, because of orthosympatic block, secondary to thoracic spinal anesthesia, hypotension occurred immediately post-intrathecal injection, promptly treated with noradrenaline infusion maintained throughout the procedure (maximum dose 0.18 mcg/kg/min); proAqt showed decreased systemic vascular resistance and preserved cardiac index. Furthermore an epidural catheter was placed at T7-T8 for postoperative analgesia and intraoperative use, administering 5 ml 1% lidocaine boluses (total 20 ml) during critical surgical steps. Intravenous sedation was achieved by dexmedetomidine infusion (0,1-1 mcg/kg/h) and 10 mg ketamine boluses (totaling 100 mg), resulting in a Richmond Agitation-Sedation Scale of -2/-1 and bispectral index (BIS^{TM}) > 80. Spontaneous ventilation was maintained with a 2 L/min oxygen mask throughout, arterial blood gases were checked at baseline and hourly, with P/F always > 300, CO2 and pH within range. The laparoscopic procedure lasted two hours without issues, with good surgical maneuverability according to the surgeon's opinion. Postoperative analgesia was ensured by 0.2% ropivacaine at 4-6 ml/hour rate via epidural catheter. Cautionary hospitalization in intensive care setting was mantained for 24 h. Postoperative period was uneventful without medical or surgical complications.

Conclusion
The approach of "Awake Neuraxial Anesthesia", within advanced monitored anesthesia care framework, could represent an effective and safe option for high risk patient, even in major abdominal surgery.
Consent to data collection and publication was obtained from the patient.

References

1. Partridge JSL, Harari D, Dhesi JK. Frailty in the older surgical patient: a review, Age and Ageing, 2012;41(2):142–147.
2. Choudhury M. Post-cardiac transplant recipient: Implications for anaesthesia. Indian J Anaesth 2017;61:768–74.

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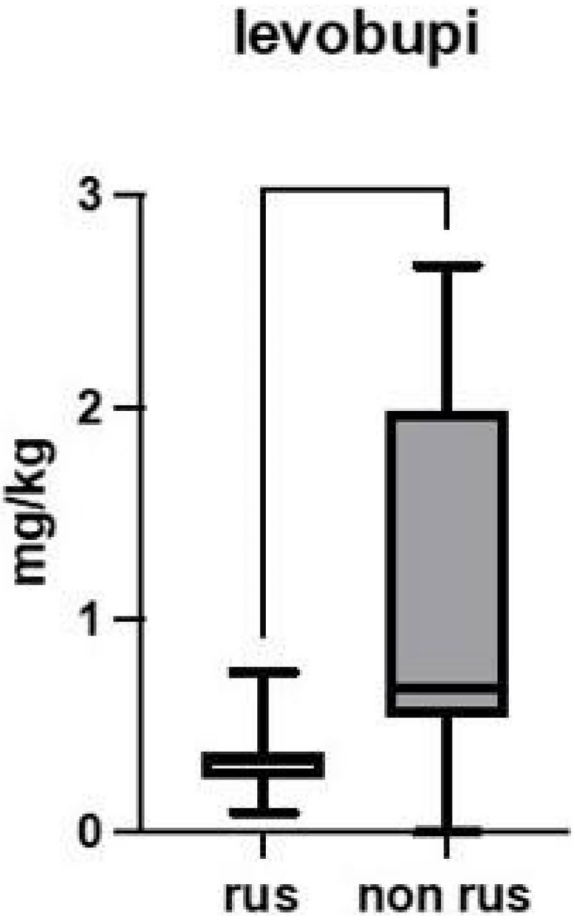
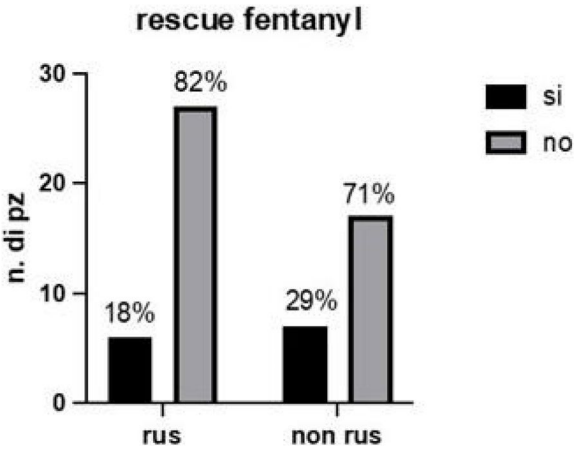


Fig. 1 **(abstract A88).** See text for description



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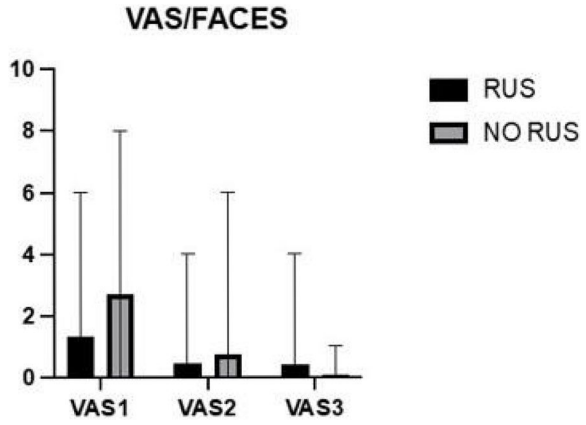

Fig. 3 **(abstract A88).** See text for description

Veterinary anaesthesia

A89

Effect of vatinoxan on anesthetic parameters in guinea pigs (*Cavia Porcellus***) undergoing orchiectomy**

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Alpha2-adrenoceptor agonists, such as medetomidine, are frequently employed with dissociatives in veterinary anesthesia. However, these agents can elicit cardiovascular adverse effects, including vasoconstriction and bradycardia, potentially compromising tissue perfusion. Those effects could impair anesthesia in guinea pigs, with already are more susceptible to anesthetic risk compared to dogs. The vasoconstrictive impact of medetomidine can be mitigated by vatinoxan, a selective alpha2-adrenoceptor antagonist with limited central nervous system penetration, confining effects to tissues outside the blood–brain barrier. Recently, Zenalpha®, a novel formulation comprising medetomidine and vatinoxan in a fixed ratio (1:20), has been introduced. This study aimed to evaluate vatinoxan's effects in Zenalpha® on guinea pigs undergoing orchiectomy with a ketamine- medetomidine protocol.

Twenty-four guinea pigs were divided into two groups. Baseline heart rate (HR), respiratory rate (RR), and rectal temperature (T°) were recorded (T0). Anesthesia was induced with intramuscular ketamine (40 mg/kg) and either medetomidine (0.4 mg/kg, Group KM) or medetomidine-vatinoxan (Zenalpha®: 0.4 mg/kg—8 mg/kg, Group KZ). Time to loss of righting reflex (LRR) was noted, and vital signs (HR, RR, peripheral oxygen saturation [SpO2], and T°) were monitored every 5 min. Orchiectomy via a scrotal approach followed, with surgical duration recorded. Subsequently, atipamezole (2 mg/kg) was administered intramuscularly, and head lift time (HL) and time to resumption of righting reflex (RRR) were recorded.

Between-group comparisons were made using Wilcoxon rank sum test, while within-group variations between baseline and T5 were assessed using Wilcoxon signed-rank test for HR and T°.

No significant between-group differences were noted. However, Group KM exhibited a notable decrease in HR (T0-T5) ($p = 0.006$), unlike the Group KZ ($p = 0.116$). Smooth recovery without complications was observed in all animals. Tables 1 and 2 present data on LRR, surgical time, HL, RRR, HR, RR, SpO2, and T°.

The absence of significant between-group differences implies that Zenalpha® did not significantly affect cardiovascular parameters in this guinea pig cohort, despite a more marked HR reduction in the KM group versus baseline. Both groups maintained stable anesthetic parameters with no complications. However, vatinoxan's inclusion did

not produce clinically meaningful benefits in the ketamine-medetomidine combination. The 1:20 medetomidine-to-vatinoxan ratio may not elicit effects in guinea pigs similar to those observed in dogs, and further studies on dosages and drugs' ratios would be needed.

Trial registration
Protocol n° 0000210/2024, University of Turin.

References

1. Jalanka HH, Roeken BO. The use of medetomidine, medetomidine-ketamine combinations, and atipamezole in nondomestic mammals: a review. J Zoo Wildl Med. 1990; 259–282.
2. Pypendop BH, Verstegen JP. Hemodynamic effects of medetomidine in the dog: a dose titration study. Vet Surg. 1998; 6:612–22.
3. Bennett K, Lewis K. Sedation and Anesthesia in Rodents. Vet Clin North Am Exot Anim Pract. 2022; 25:211–255.
4. Salla KM, Turunen HA, Kallio-Kujala IJ, Pekkola V, Casoni DC, Lepajoe J, Björkenheim P, Raekallio MR, Vainio O. Effects of vatinoxan in dogs premedicated with medetomidine and butorphanol followed by sevoflurane anaesthesia: a randomized clinical study. Vet Anaesth Analg. 2022; 49:563–571.

Table 1 (abstract A89). Results for loss of righting reflex (LRR), surgical time, head lift time, and resumption of righting reflex (RRR) in groups KM and KZ

Variabili	Group KM	Group KZ	*p* value
LRR (min)	3 (2–3)	3(2–4)	0,976
Surgical time (min)	13 (9–14)	12 (10–16)	0,974
HL (min)	9 (6–14)	12 (10–14)	0,228
RRR (min)	25 (24–27)	25 (20–28)	1

Table 2 (abstract A89). Results for heart rate (HR), respiratory rate (RR), peripheral oxygen saturation (SpO2), and rectal temperature in groups KM and KZ

	Time Points			
Variable	T0	T5	T10	T15
HR (beats/min)				
Group KM	250 (240–283)	205 (190–222)	202 (183–211)	197 (181–203)
Group KZ	218 (189–260)	100 (193–203)	188 (184–194)	185 (176–192)
p value	0,156	0,509	0,248	0,119
RR (breaths/min)				
Group KM	120 (99–153)	58 (48–88)	52 (44–77)	48 (40–59)
Group KZ	126 (103–163)	54 (48–68)	48 (47–64)	48 (47–61)
p value	0,623	0,639	0,467	0,861
SpO2 (%)				
Group KM	-	92 (93–95)	100 (100–100)	100 (99–100)
Group KZ	-	96 (94–100)	100 (100–100)	100 (98–100)
p value	-	0,09	1	0,401
T° (°C)				
Group KM	37,9 (37,8–38,3)	37,5 (36,7–38,2)	37,5 (36,0–38,2)	37,0 (36,2–38,1)
Group KZ	38,1 (37,5–38,7)	37,9 (36,4–38,5)	37,6 (36,4–38,3)	37,2 (36,4–38,0)
p value	0,645	0,698	0,476	0,757

A90

Corneal lesions and tear film evaluation in dogs in general anesthesia for non-ophthalmic surgeries receiving two different treatments for corneal protection

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Background
Corneal abrasions are the most common ocular complication in humans during general anesthesia (GA) for non-ophthalmic surgery. Anesthesia induced corneal lesions have also been reported in veterinary medicine (1, 2).
Objective
To evaluate the quality and production rate of precorneal tear film, and to determine the incidence of corneal lesions in dogs receiving two different ocular treatments during GA for non-ophthalmic surgeries: 0,25% hyaluronic acid eye drops or topical 2% pilocarpine instillation.
Study design
Blind, prospective, clinical study (PG/2021/0000969; 07/01/2021).
Materials and Methods
An ophthalmological examination (slit-lamp biomicroscopy, STT-1, BUT, IOP, fluorescein-lissamine green staining, tear osmolarity) was performed before preanesthetic medication in dogs undergoing elective surgery. The consent of the dog owners was required. Dogs were randomly allocated to receive 0,25% hyaluronic acid (GH) or 2% pilocarpine (GP) as topical ocular treatment during GA. STT-1 was performed immediately after intubation (T-int) and hourly (T-1 h, T-2 h) until the end of anesthesia, just before instilling one drop of the assigned treatment according to randomization. The same ophthalmologist, blind to the treatment, performed the complete ophthalmological examination after extubation (T-est) and 24 h after GA (T-24 h).
Results
Thirty dogs (60 eyes) were enrolled. STT-1 values showed a decrease in both groups immediately after intubation, but GP showed a rapid increase in tear production with a significant difference between the groups at T- 1 h, T-2 h and T-est. No statistically significant differences were found between the two groups for the other values (BUT, IOP, tear osmolarity). No corneal ulcerations were detected, while 11.7% of eyes at T-est and 15% at T-24 h presented corneal abrasions. There were no statistically significant differences between the two groups in the incidence of corneal abrasions.
Conclusions
The topical eye treatments tested prevent corneal ulcers. According to the medical literature, several prophylactic strategies can prevent exposure keratopathy by using lubricant eye drop formulations during GA (3). The topical pilocarpine administration increased tear production but did not eliminate corneal complications during GA. In our study, tear osmolarity did not change after the exposure keratopathy associated with GA.

References

1. Dawson C, Sanchez RF. A prospective study of the prevalence of corneal surface disease in dogs receiving prophylactic topical lubrication under general anesthesia. Vet Ophthalmol. 2016 Mar;19(2):124–9.
2. Scarabelli S, Timofte D, Malalana F, Bardell D. Corneal abrasion and microbial contamination in horses following general anaesthesia for non-ocular surgery. Vet Anaesth Analg. 2018 May;45(3):278–284.
3. Grixti A, Sadri M, Watts MT. Corneal protection during general anesthesia for nonocular surgery. Ocul Surf. 2013 Apr;11(2):109–18.

A91

Butorphanol-alfaxalone-midazolam-sevoflurane anaesthesia in dogs suffering from various cardiac pathologies undergoing cardiac computed tomography: a case series

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Background
Several publications evaluated cardiac computed tomography (CCT) in dogs under general anaesthesia [1, 2, 3, 4], but none of them focused on the anaesthetic protocol.
Case series
Twenty-three client-owned dogs (11 males, 12 females; ASA III or IV, body weight and age 29.2 ± 16.4 kg and 101.1 ± 45.4 months,