

# EVALUATION OF SYMMETRIC (SDMA) AND ASYMMETRIC (ADMA) DIMETHYLARGININES IN HEALTHY AND IN SYSTEMIC INFLAMMATORY RESPONSE SYNDROME (SIRS) NEGATIVE OR POSITIVE COLIC HORSES

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## INTRODUCTION

- ✓ Increased levels of SDMA and ADMA were correlated to severe sepsis or septic shock in human patients [1,2]

## AIMS

- ✓ To compare plasmatic concentrations of ADMA/SDMA in healthy (H) vs. SIRS-positive and negative colic horses over-time
- ✓ To evaluate the correlation between ADMA/SDMA and SIRS score at admission to the hospital (T0)

## MATERIALS AND METHODS

HEALTHY & COLIC HORSES:  
Complete physical exam  
SIRS status & score<sup>[2]</sup>  
Blood collection



COLIC HORSES:  
Blood collection



- Healthy horses: 17/66
- Colic horses: 49/66

### • SDMA/ADMA analytical methods

- Plasmatic SDMA and ADMA were determined using high performance liquid chromatography with fluorescence detection, as previously described [4]

### Statistical analysis

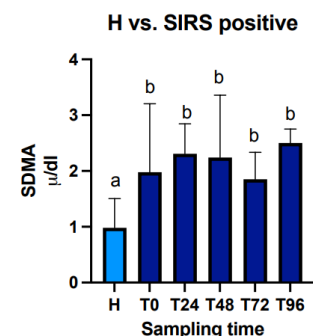
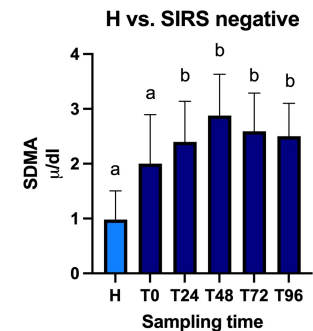
- Distribution → Komolgorov-Smirnov test
- Differences between H vs. colic horses over-time → Kruskal-Wallis and Dunn's multiple comparisons test
- Correlation between ADMA/SDMA and SIRS score at T0 → Spearman test

## RESULTS

		T0		T24		T48		T72		T96	
SDMA	Healthy (n=17)	SIRS-negative (n=25)	SIRS-positive (n=18)	SIRS-negative (n=18)	SIRS-positive (n=14)	SIRS-negative (n=14)	SIRS-positive (n=10)	SIRS-negative (n=13)	SIRS-positive (n=9)	SIRS-negative (n=11)	SIRS-positive (n=9)
	Med	0.98	2.00	1.98	2.40	2.31	2.88	2.24	2.59	1.85	2.50
25th	0.90	1.66	1.22	1.89	1.67	2.52	1.54	1.80	1.51	1.45	1.43
75th	1.51	2.90	3.20	3.14	2.85	3.63	3.36	3.29	2.34	3.10	2.75

		T0		T24		T48		T72		T96	
ADMA	Healthy (n=17)	SIRS-negative (n=25)	SIRS-positive (n=18)	SIRS-negative (n=18)	SIRS-positive (n=14)	SIRS-negative (n=14)	SIRS-positive (n=10)	SIRS-negative (n=13)	SIRS-positive (n=9)	SIRS-negative (n=11)	SIRS-positive (n=9)
	Med	11.90	12.54	13.75	12.85	12.98	13.82	15.25	14.15	13.61	13.60
25th	10.28	11.24	10.54	11.12	10.50	11.83	12.75	11.78	12.39	9.90	11.70
75th	14.28	17.97	20.20	17.45	17.25	16.40	20.19	16.92	16.33	15.60	15.73

- Differences found ( $p < 0.0001$ ) for SDMA between H vs. SIRS-negative (T24-T96) or SIRS-positive (T0-T96) horses
- No differences found for ADMA ( $p = 0.1487$ )
- No correlation observed between SIRS score and SDMA at T0 ( $p = 0.584$ )



## DISCUSSION & CLINICAL RELEVANCE

- ✓ SDMA might be a promising biomarker in colic horses
- ✓ Further research is needed to determine the diagnostic and prognostic role of SDMA

### REFERENCES

1. Mortensen KM et al (2016). High levels of Methylarginines were associated with increased mortality in patients with severe Sepsis. Shock, 46(4): 365-72.
2. Winkler MS et al (2018). Symmetrical (SDMA) and Asymmetrical Dimethylarginine (ADMA) in Sepsis: High Plasma Levels as Combined Risk Markers for Sepsis Survival. Crit Care, 22(1): 216.
3. Roy MF et al (2017). Prognostic Value and Development of a Scoring System in Horses With Systemic Inflammatory Response Syndrome. JVM, 31(2):582-592.
4. Teerlink T (2007). HPLC analysis of ADMA and other methylated l-arginineanalogs in biological fluids. Chromatogr B, 85(11): 21-9.