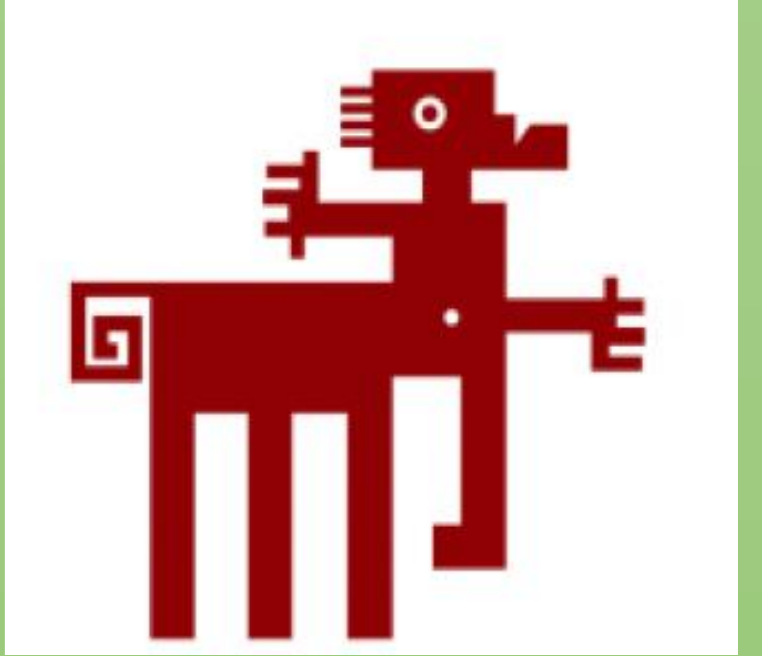


Descriptive study of inflammatory markers in a population of geriatric horses

Ferran Quingles Daví

Juny 2018



INTRODUCTION

Systemic inflammation (SI) occurs as part of a multitude of disease processes in horses. Age can become an important factor in order to determine the inflammatory response. Even though there is an impression that **geriatric equine population is growing**, there is few information about inflammatory markers in this population.

OBJECTIVES

The **objective** of our study was to determine the laboratorial parameters that represent the most accurate inflammatory markers in a geriatric equine population and to estimate a normal confidence interval of those parameters for this population.

MATERIAL AND METHODS

We evaluated a total of 26 healthy horses from the same riding club, taking an **age of ≥ 18 years**. A blood sample from all horses were collected into EDTA-K3 and lithium heparin tubes. A physical examination was done to discard non-healthy horses. Blood samples were analyzed and results for **fibrinogen (Fb)**, **iron** and **myeloperoxidase index (MPXI)** were obtained.

Figure 1. Blood extraction in a horse (February 2018)



RESULTS

Iron and MPXI presented a normal distribution, but fibrinogen did not. Normal confidence interval for iron and MPXI were able to be calculated. Each marker presented different correlation with age.

Figure 2. Density plots of Fb, iron and MPXI in our population.

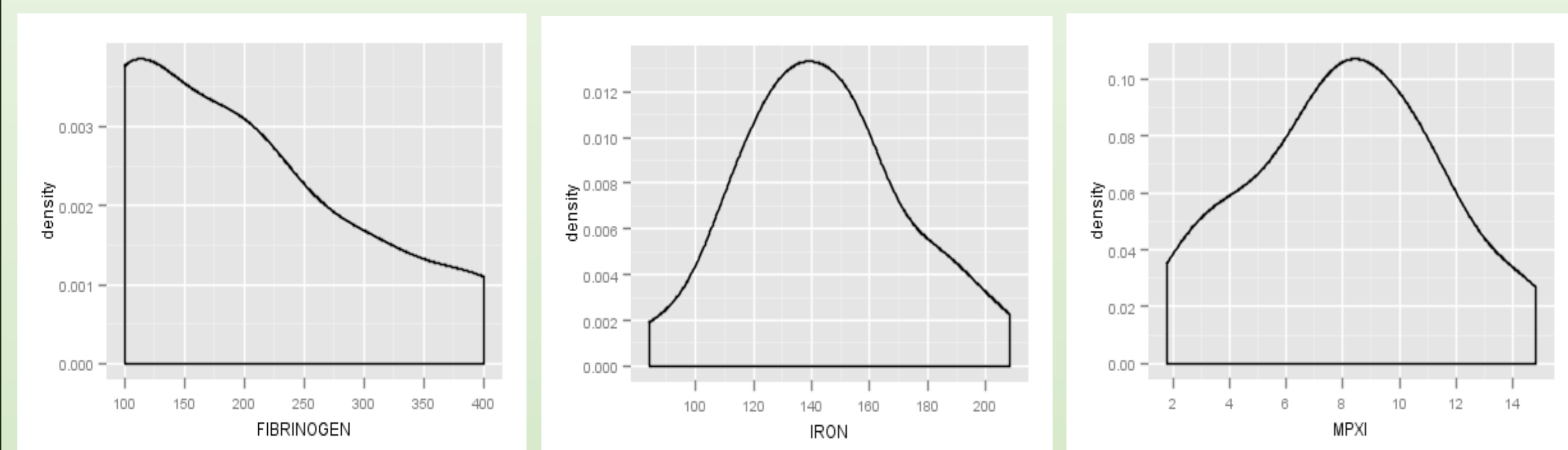
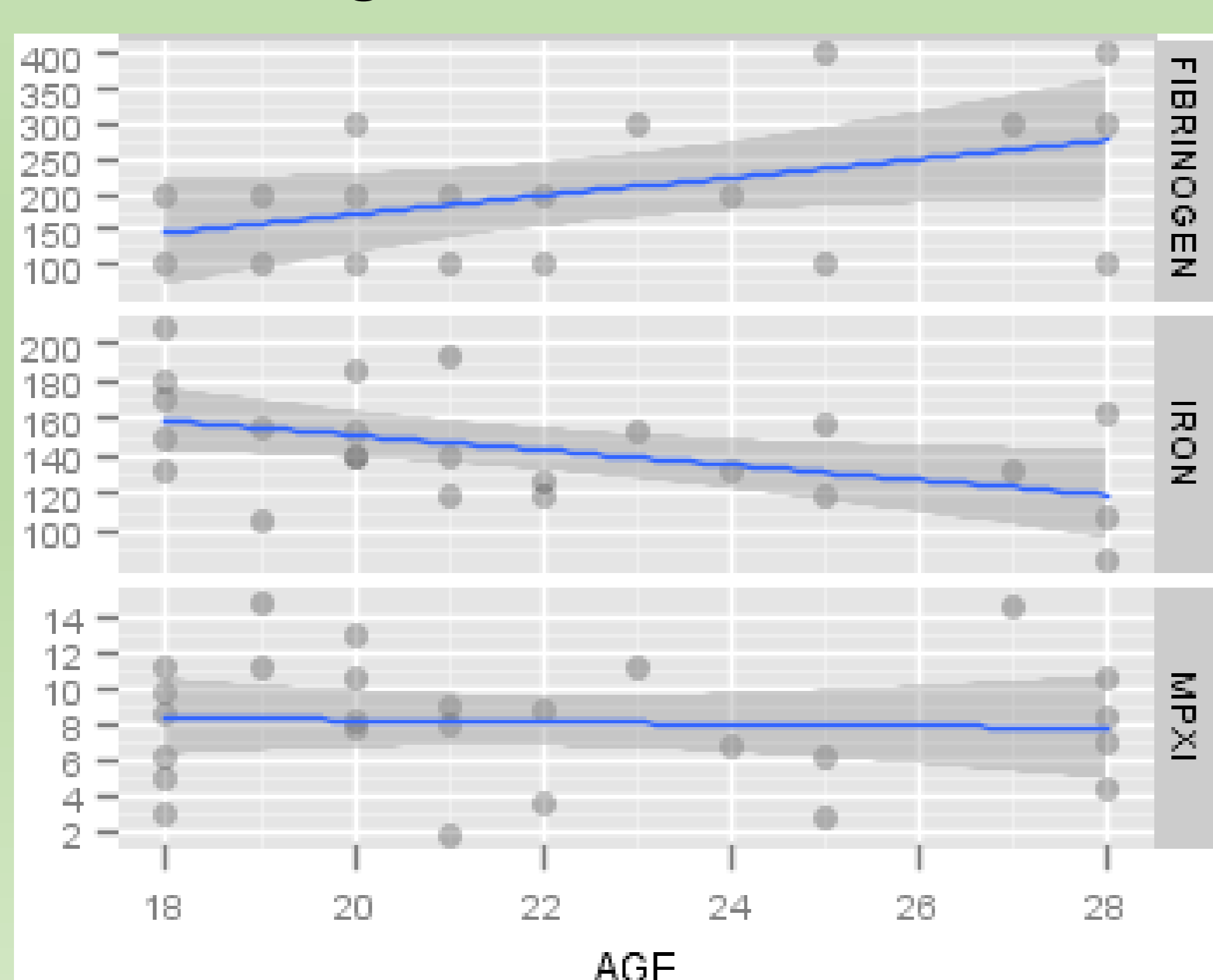


Table 1. 95% CI estimated for Fb, Iron and MPXI.

	Mean	SD of variable	95% CI
Fibrinogen (mg/dL)	196.15	103.85	-
Iron ($\mu\text{g/dL}$)	144.09	29.41	86.44-201.73
MPXI	8.13	3.50	1.28-14.99

Figure 3. Correlative values (Cor) and graphs between age and the tested inflammatory markers.



Cor 0.5546;
p-value < 0.05
POSITIVE

Cor 0.5546;
p-value < 0.05
NEGATIVE

Cor 0.5546;
p-value > 0.05
NOT EXISTANT

DISCUSSION

The obtained results (n=26) represent only a **limited estimation out of all the geriatric equine population**.

The non-normal distribution of Fb and its elevated level of asymmetry can be explained because it is calculated as a non-continuous variable. The high mean value and the positive correlation with age, makes us think that **Fb is increased in the geriatric equine population**.

A lower 95% CI for iron compared with other studies and a negative correlation with the age, makes us think that **iron plasma levels are lower in geriatric horses**.

MPXI presented a normal distribution but a high dispersion of the variable. **It was not correlated with age** neither of the other markers, **so it could be a possible complementary tool** for the diagnosis of SI but needs more data study.

CONCLUSIONS

Exists a **difference between normal intervals** for the studied markers when comparing geriatric respect adult horses.

Fb tends to increase and iron tends to decrease. Contrarily, MPXI seems to not be influenced by age.

The non-correlative relation between the three, **make them useful for the study of SI** in geriatric horses. In addition, they are accessible, economical and easily to perform.

REFERENCES

- Borges, A. S. et al. (2007). *Journal of Veterinary Internal Medicine*, 21(3), 489–494.
- Corradini, I. Et al. (2014). *Journal of Veterinary Emergency and Critical Care (San Antonio, Tex. : 2001)*, 24(4), 414–420.
- Crisman, M. V. et al. (2008). *Vet Clin of North America: Equine Practice*, 24(2), 285–297.
- Hooijberg, E. H. (2014). *Journal of Veterinary Internal Medicine*, 28(5), 1587–1593.
- Schwarz, B. C., et al. (2012). *Veterinary Journal*, 191(1), 72–78.