

Organizzazione temporale circadiana di alcuni elettroliti sierici nel cavallo saltatore

Circadian pattern of some serum electrolytes in jumping horse

G. Piccione, A. Assenza, A. Costa, F. Fazio, G. Caola

Dipartimento di Morfologia, Biochimica, Fisiologia e Produzioni Animali Sezione di Fisiologia Veterinaria - Università degli Studi di Messina.

ABSTRACT - Carrying on the research turned to define the chronoperformance of the athletic horse, the Authors studied the daily pattern of some interesting sieric metabolites in order to reveal, as possible, a circadian rhythm. At this aim 5 Sella Italiana show jumpers, female, average age 8 years, clinically healthy, traditionally trained and maintained on the same training and feeding conditions, were used. The subjects underwent a preconditioning period of 30 days, during which they were housed in naturally lit individual boxes and fed twice a day, at 11.30 and 17.00. After this period, on each horse blood sample takings, by external jugular catheterization, starting at 08:00 at 4-hour intervals for 2 consecutive days, were carried out. After each sampling, on individual serum, sodium, potassium and chlorides concentrations by indirect method and calcium, phosphorus and magnesium concentrations by UV spectrophotometry were assessed. Statistical elaboration of data was carried out on average values of blood samples taken at the different time points, equidistant 4 hours, using the single cosinor method for the analytical definition of biological temporal series. The periodic model led us to define the circadian rhythm of calcium, with an acrophase at 15.00 (09.28-20.32) for the 1st day and at 15.48 (13.08-18.28) for the 2nd day and of phosphorus, with an acrophase at 14.32 (10.32-18.32) both for the 1st and the 2nd day. The results obtained led us to reveal the existence of a circadian periodicity for the parameters considered and this assertion, besides taking its contribution to define the temporal organization of Ca and P, could reveal clinical implications with further investigations, since the reference physiological values would be more critically examined, taking into consideration its temporal pattern.

KEY WORDS: circadian rhythms, chronoperformance, serum electrolytes, athletic horse.

INTRODUZIONE - Lo studio della periodicità biologica di numerosi parametri ematochimici ha evidenziato, nella maggior parte degli organismi viventi, l'esistenza di variazioni ritmiche caratterizzati da differenti periodi, il più rappresentato dei quali è quello circadiano. L'aver riconosciuto la ritmicità come componente intrinseca della materia vivente, a vari livelli della scala tassonomica,