REGULARITIES OF INFRADIAN RHYTHMS OF THE ESOPHAGEAL EPITHELIUM PROLIFERATION ACTIVITY IN JAPANESE QUAILS (COTURNIX JAPONICA) AND MALE VISTAR RATS

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Abstract. The simultaneous study of infradian biorhythms of cell mitotic activity in oesophageal epithelium was conducted on japanese quails and male Vistar rats of two age groups. 4-day and 12-day biorhythms were detected in the dynamics of the mitotic index of the oesophageal epithelial in male Vistar rats of 3-5 months old, and solely 12-day biorhythm was detected in japanese quails of 4-6 months old. In an earlier stage, specifically in the age of 1.5-2.5 months, solely a 4-day infradian biorhythm was detected in the dynamics of the mitotic index of the oesophageal epithelial both in male Vistar rats and in japanese quails. The dynamics of mitotic index in male Vistar rats and in japanese quails of the similar age groups had identical in period and synchronous in phase infradian biorhythms. The dynamics of mitotic index both in male and female of japanese quails of the similar age groups were synchronous too. The study of the cell mitotic activity in oesophageal epithelium of male Vistar rats during a longstanding time duration over a period of 3 years allowed to establish that its infradian biorhythms present 4.058- and 12.175-day exhibition frequency, obviously determined by action of external synchronize factors. The rhytmicity similar to the changes of the mitotic activity described above was observed in the dynamic of the average daily meaning of Bz-component of the interplanetary magnetic field during the exploration period (2011–2013 years). In the days of the most expressed negative quantity of the Bz-component of the interplanetary magnetic field the minimal meanings of the mitotic index were detected, which points to possible synchronizing influence of apparent decrease of Bz-component value on infradian biorhythms of bird and mammal mitotic activity in epithelial tissues. Thus the apparent decrease of value of the interplanetary magnetic field Bzcomponent may be the factor which synchronizes infradian biorhythms of bird and mammal mitotic activity in epithelial tissues.

Keywords: infradian rhythm, mitotic index, epithelium, helio-geophysical factors, rats, quails.