

**THE INDICES OF ION-REGULATING RENAL FUNCTION AT
MELATONIN ADMINISTRATION ON THE BACKGROUND OF
ANAPRILINUM ACTION UNDER CONDITION OF STANDARD
LIGHTING**

Author: Yakymiuk Anna

Co-authors: Kryvchanska M.I., Grytsiuk M.I., Yakimiuk A.D.

Coordinator: Pishak V.P.

Bukovinian State Medical University, Chernivtsi

In the nowadays therapeutic practice β -blockers are one of the most popular remedies, but their influence on the chronorhythms of main renal functions are still unknown. So, the main purpose of our work was to determine the changes in indices of ion-regulating renal function at anaprilinum administration in conditions of standard lighting. All experiments were conducted on 45 pubertal nonlinear male albino rats at conditions of 12 hours light-12 hours darkness. Animals were divided into two groups – one obtained only anaprilinum, the other – β -blocker on the background of melatonin action. The indices of ion-regulating renal function were characterized by hypernatremia, which exceeded control data, but was less than in case of animals, where anaprilinum was administrated in the dosage 2,5 mg/kg of body weight without melatonin introduction (0,5 mg/kg). We also registered increase of sodium ions concentration in urine and its excretion during 24 hours if compare with previous group. Mezor of the rhythm of sodium ions concentration in urine was $1,1 \pm 0,04$ mmol/l with amplitude – $9,4 \pm 2,99\%$. The increase of sodium ions concentration in the blood plasma caused the growth of its filtration charge, an average level for a day was $10,4 \pm 0,82$ mkmol/min/100 g, amplitude – $24,1 \pm 2,13\%$. The absolute reabsorption of ions was changed also. Acrophase was registered at 24.00, bathyphase – at 8.00 a.m. Administration of melatonin (0,5 mg/kg) on the background of anaprilinum action (2,5 mg/kg) led to increase of sodium ions proximal transport for 33% if compare with group of animals, which did not have indole, mentioned above. Phase changes of rhythm structure also took place, the highest level was registered at 24.00, the lowest – at 8.00 a.m. that coincides with the rhythm of secretion of endogenous melatonin. An average level for a day was $1,2 \pm 0,11$ mmol/2 hours/100 g, the amplitude of the rhythm – $26,1 \pm 2,23\%$. Distal sodium ions transport after melatonin administration (0,5 mg/kg) increased up to 15%, but remains 36% lower than in intact animals. Acrophase was registered at midday, bathyphase – at 8.00 a.m. Mezor of the rhythm was $99,4 \pm 2,94$ mkmol/2 hours/100 g, amplitude – $7,4 \pm 2,46\%$. Sodium-potassium coefficient has changed also. It was 53% lower than the same index in intact animals and 33% higher than in group, which obtained only β -blocker (2,5 mg/kg).