## НАЦІОНАЛЬНА АКАДЕМІЯ МЕДИЧНИХ НАУК УКРАЇНИ ДЕПАРТАМЕНТ ОХОРОНИ ЗДОРОВ'Я ХАРКІВСЬКОЇ ОБЛАСНОЇ ДЕРЖАДМІНІСТРАЦІЇ ДУ "НАЦІОНАЛЬНИЙ ІНСТИТУТ ТЕРАПІЇ ІМ. Л.Т.МАЛОЇ НАМН УКРАЇНИ" ДУ «ІНСТИТУТ МЕДИЧНОЇ РАДІОЛОГІЇ ІМ. С.П. ГРИГОР'ЄВА НАМН УКРАЇНИ» ГРОМАДСЬКА ОРГАНІЗАЦІЯ "МОЛОДІ ВЧЕНІ ТА СПЕЦІАЛІСТИ ІНСТИТУТІВ НАМН УКРАЇНИ М. ХАРКОВА" ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ

МАТЕРІАЛИ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ МОЛОДИХ ВЧЕНИХ З МІЖНАРОДНОЮ УЧАСТЮ

## «ПРОФІЛАКТИЧНА МЕДИЦИНА СЬОГОДНІ: ВНЕСОК МОЛОДИХ СПЕЦІАЛІСТІВ»

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## CIRCADIAN RHYTHM OF BLOOD PRESSURE IN ADOLESCENTS WITH OBESITY AND ARTERIAL HYPERTENSION

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The purpose of the study was determination in children with obesity, circadian rhythm of blood pressure by means of daily monitoring of blood pressure (BP).

Materials and methods. We observed 139 obese children (study group), including 91 boys and 48 girls (mean age  $13.65 \pm 0.2$  years). According to the results of the measurement of office BP, all children of the main group were divided into two subgroups: the first subgroup included 50 (36%) adolescents with obesity and elevated "office" BP above 95 percentiles, that is with arterial hypertension, the second subgroup was 89 (64%) adolescents suffering from obesity, with normative for their age, height and sex BP. The comparison group consisted of 36 healthy children, representative of age and gender. All children were daily monitored by using BP monitor ABPM-04 (Meditech Ltd., Hungary).

The obtained results. According to the results of the study, it was found that normal version of the nightly reduction of systolic BP ("dipper") had about one third of the surveyed (36,0  $\pm$  6,8%) of the first subgroup (p <0,05) and 42,6  $\pm$ 5,2% children of the second subgroup (p <0,05). Among variants of daily systolic BP profiles in children of 1 subgroup, prevailed the variant with insufficient nocturnal decrease ("non-dipper"), which occurred in 54,0 ± 7,04% of adolescents. In patients from 2 subgroup, the percentage of subjects with insufficient reduction of systolic BP ("non-dipper") was  $45.3 \pm 5.3\%$ . The most adverse variant of the daily index (DI) with increased systolic BP at night ("night-peaker") was recorded in  $10.0 \pm 4.2\%$  of adolescents from the first subgroup (p <0,05). Children with excessive decreased («over-dipper») systolic BP at night among both subgroups were no found. Normal diastolic BP reduction at night met with equal frequency in both subgroups, but twice less than in the comparison group, p <0,05. The "non-dipper" type of diastolic BP DI, as well as systolic, predominated in adolescents from 1 subgroup (44,0  $\pm$  7,02%, p <0,05) and found in 35,9  $\pm$  5,5% of adolescents from 2 subgroup (p <0,05). Number of people with excessive reduction of diastolic BP («over-dipper»), which can lead to hypoperfusion and the occurrence of myocardial ischaemia [S. Yu Akhunova et al. (2011), V.V. Popov (2006)], were found in  $19.9 \pm 5.6\%$  and  $29.2 \pm 4.8\%$  of the examined in 1 and 2 subgroups, respectively. The proportion of people with a paradoxical increase of diastolic BP at night met only in the first subgroup and was  $2.0 \pm 1.9\%$  (p < 0.05).

Conclusions. Violations of BP circadian rhythms in obese children was manifested by an increase of the proportion of pathological types, that is, "non-dipper", "night-peaker" and "over-dipper" at the expense of "dipper"-variant. Elevation of BP at night is a potentially dangerous factor in connection with the increased likelihood of cardiac and cerebrovascular diseases in obese children.

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