

## PW2-7

### Structural brain changes in teenagers with essential arterial hypertension

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**Objective:** To study the prevalence of structural changes of brain with the help of MRI data in teenagers with essential AH and to assess their connection with data of 24-hour blood pressure monitoring.

**Methods:** 150 youths with essential AH at the age of 12-18 years old were examined. Average age of patients was  $14,9 \pm 2,0$  years old. The control group involved 12 healthy youths comparable with the examined group by sex and age. Every patient was made BP daily monitoring (BPDM), according to results of which study groups were formed: 1 group – patients with phenomenon of “white coat hypertension” (WCH) – 44 persons; 2 group – youths with labile atrial hypertension (LAH) – 50 persons; 3 group – stable atrial hypertension (stable AH) – 56 persons. Magnetic resonance imaging (MRI) of brain was made by tomography Magnetom – OPEN (Siemens AG, Germany).

**Results:** Linear sizes enlargement of liquor contained structures of brain was disclosed in 74% of pts in the study group. Difference of average size figures of subarachnoid cavity (SAC) of postcranial fossa in all study groups in relation to control as amended to sex and age was clinically significant. In the group of teenagers with stable AH SAC size of convexital brain space were more than in healthy counterparts ( $p=0,031$ ). 0.14 mm increase (0,02:0,46),  $p=0,032$  of SAC size of posterior cranial fossa is marked with 1 mm Hg increase of average BP daily. 1% increase of time index of systolic BP at nights causes the same parameter increase in 0,09 mm (0,01:0,16),  $p=0,028$ .

**Conclusion:** Sizes enlargement of liquor contained structures of brain can be interpreted as early markers of its disturbances along with essential AH formation in teenagers. Signs of average BP daily and time index of SBP at nights make a great contribution into formation of structural brain disturbances in the form of enlargement of subarachnoid cavity of occipital zone, which is initial substrate in the chain of disturbances of liquor contained areas with BP increase.