

with a 16G needle. Fine needle biopsy (FNB) was performed with a regular 20 ml syringe and 25G needle. Ultrasound examinations were carried out on an expert-class scanner Xario SSA-660A Toshiba (Japan) on the basis of the Expert-Kharkiv Medical Center.

125 case histories of patients with BC were analyzed. All patients underwent FNB and CNB under ultrasound control, and cytological, histological and IHC examination of the material was performed. It was found that in 44 patients in whom atypical cells were not found in the biopsy specimen during FNB, a positive result was obtained during CNB. It was also noted that tumor size did not correlate with false-negative FNB results. An IHC study of the material revealed that 86 patients had tumor sensitivity to estrogen, 65 to progesterone, the estrogen-progesterone combination was also detected in 65 patients, and sensitivity to Herceptin was detected in 79 patients.

Comparative assessments of FNB and CNB were carried out for the diagnosis and prognosis of treatment of BC according to the following criteria: information content, the presence of complications, economic accessibility, the ability to predict the clinical course of the tumor process. It was found that in 99.2% of cases, a positive result was obtained with CNA, and despite the higher cost of this type of biopsy, it makes it possible to determine the receptor status of the tumor using IHC, which makes it possible to prescribe effective neoadjuvant chemotherapy, thus increasing the effectiveness of treatment and survival of patients with BC.

ULTRASOUND DENSITOMETRY FOR BONE FRACTURES IN CHILDREN

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Traumatic bone injuries in children take the first place among the pathology

of the bone system without a tendency to decrease. The frequency of fractures in childhood is higher than same data in adults, reaching the previous frequency in men only after 75 years, in women – after 50. However, not all children, even with intense trauma, could have fractures, so that is why questions about bone hardness and the fractures reason still open. According to the literature, measuring bone mineral density, which by 70–80 % reflects its strength, is the main method for predicting the risk of fractures in older people, ultrasonic densitometry (UDM) can be used.

Material and methods. 85 children with fractures (29 girls and 56 boys) aged from 5 to 16 years old – main group (I) and 295 children (179 girls and 116 boys) from one of Kharkov's schools aged from 8 to 17 years old were examined and compared with main group (II). Investigations were performed on an Achilles + UDM, determining the following parameters: ultrasound propagation rate (UP, m/s); Broadband ultrasound attenuation (BUA, dB/MHz); bone hardness index (IS, %), calculated using a computer based on the UP and BUA indicators.

Results. The surveyed children of group II showed a uniform growth of all indicators from 9 to 16 years (from 1 to 4 % annually), which indicates a gradual formation of bone tissue and increase its hardness. The UDM indices in boys were not significantly difference from girls, except at 13 and 16 years, when a sharp increase in IS and UP was determined.

In girls of group I all indicators of IS, except of 14 years old, were lower than group II at 9 years ($p < 0,05$), which indicates a delay of bone formation and, as a consequence, a decrease bone hardness in girls with fractures.

IS in boys from primary group probably was lower than in the control group, starting at 9 years, and its level in the main group and at 14 years corresponds to the 10-year age of children of group II ($p < 0,05$). Boys 5 to 9 years with fractures had no increase in IS and other indicators of ultrasound, because the bone development is delay.

Low-energy fractures in girls were estimated at 86.2%, boys – 66.1 %, high-energy fractures – 13.8 % and 33.9 %, respectively. IS with low energy fractures were probably lower in all age groups, with high energy fractures they did not differ from group II.

Osteopenia in group I was defined in 28,2 %, in II – in 17.1 % ($p < 0,05$), osteoporosis – in 23 % and 4.3 % ($p < 0,01$), respectively.

Conclusions. 51.2 % of children with fractures were found bone hardness insufficiency. UDM could be used for bone hardness determination in children, including in preventive examinations.