



DIAGNOSIS AND COMPLEX TREATMENT OF FLATFOOT IN CHILDREN AT THE INTERSECTION OF BIOCHEMICAL FACTORS

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Abstract

Current. Flatfoot is widespread in the pediatric population, this pathology reduces the cushioning function of the arch of the foot, disrupts the biomechanics of the musculoskeletal system and in the long term leads to systemic complications - rapid fatigue in medical activities, shift of the body's center of gravity, loss of "plasticity" of gait, limitation of supination in the ankle joint, postural imbalance in the spine (hyperlordosis, kyphosis, scoliotic state) and withdrawal from sports/motor activities; Traditional measures (physical therapy, massage, supinator, plaster) are often limited to mechanical manipulation and have no effect on disorders in connective tissue metabolism. As a result, by the age of 8-14, the bone and ligament apparatus "stabilizes", and the clinical effectiveness of correction decreases; in this context, it is necessary to introduce a protocol combining integral screening, metabolic target-oriented correction and step-by-step mechanical correction from an early age (especially the "biomechanical window" of 4-7 years).

Introduction

Research objective

To develop an integral "diagnosis-analysis-treatment" algorithm based on clinical, instrumental and biochemical criteria and to determine the clinical, functional and metabolic effectiveness of a new complex protocol compared to the traditional method.

Materials and Methods

182 patients (56.6% boys, 43.4% girls) were divided into two groups - traditional n=94 and new complex n=88; age groups: 1-3 years (13.6%), 4-7 years (67.0%), 8-14 years (19.3%); diagnosis: original podometry (Friedland index, arch height, heel pronation), computer plantography, radiometric indicators (arch angle, heel-heel angle, heel bone index), electromyography (tibialis anterior, triceps surae) and urinary glycosaminoglycans (GAG), oxypoline; new treatment regimen: 10-15 days of "preparation" (physical therapy + massage + myostimulation), 2-stage corrective plaster "boot" - making a flat sole with the formation of a dome and strengthening the medial edge with PVA, orthotic/orthopedic shoes after plaster, systemic vitamin-mineral support (D3 500-1000 IU, calcium salts, multivitamins) and step-by-step physical therapy;





Research Results

In the traditional group, complete clinical remission was 36.2%, unsatisfactory result was 26.6%, while in the new complex, complete remission reached 66.0%, unsatisfactory decreased to 10.2%; remission by age - 50.0% at 1-3 years, 69.5% at 4-7 years, 64.7% at 8-14 years. Metabolic dynamics - GAG excretion decreased to 39.2-72.9%, oxyproline to 31.2-40.8%. Podometrically, the dome height increased, and the Friedland index approached the "mirror" of the norm. Heel pronation decreased and the dome angle on the X-ray decreased. The heel-heel angle normalized, and the support area on the plantography returned from "writing" to the medial to the physiological three-point support. Bioelectric activity and vibration frequency on the EMG approached the indicators of the healthy group. An 18-72-point integral assessment scale combined clinical-ringen/podometric criteria and standardized the treatment stage and the level of orthosis.

Conclusion

According to the study of the metabolism of the drug (GAG/oxyproline profile) in combination with mechanical correction, physiotherapy, and orthotics, it is possible to eliminate the pathogenetic level of the disease, and the clinical-functional results are consistent. The risk of recurrence is low and the maximum effectiveness is in the range of 4-7 years. The proposed algorithm is recommended for the operation and the screening and age-specific dose correction "therapeutic Play".

