EFFICIENCY OF ORTHOKERATOLOGY IN STOPPING THE PROGRESSION OF UNCOMPLICATED ACQUIRED MYOPIA DURING THE COVID-19PANDEMIC

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Introduction: Measures imposed during the COVID-19 pandemic, one of the worst epidemics in history, have accelerated the adoption of digital technologies worldwide. According to UNESCO, approximately 1.37 billion students (80% of the world's student population) in more than 130 countries worldwide are at risk of developing or progressing myopia due to digital or e-learning methods, which have replaced study. in the classrooms. As a protracted battle against COVID-19 is predicted, there is a real concern that the COVID-19 pandemic may insidiously aggravate the myopia epidemic.
Aim: To assess the efficiency of orthokeratology during the COVID-19 pandemic period.
Material and methods: The study included 120 patients (240 eyes) who underwent orthokeratological treatment over 3 years. 40 patients (80 eyes) applied night lenses continuously during the non-pandemic period; another 40 - discontinued orthokeratological treatment for 3-6 consecutive months in the third year of non-pandemic surveillance, and another 40 applied night lenses irregularly, ie on average at least 3 nights per week, in the third year of surveillance, which coincided with the COVID-19 pandemic period. All groups were divided according to the degree of myopia (small or medium), age (6-17 years and 17-19 years) and the presence or absence of hereditary factor.
Results: The data obtained in the study show that in the first two years of surveillance, in all study groups the dynamics of the annual gradient of progression of myopia was similar, without statistically significant difference, according to the sphere equivalent (GMPS) and the length of the anteroposterior axis (GMPA). The differences inGMPS and GMPA manifested in the third year of the study. In patients aged 7-16 years and low-grade myopia who applied OK irregularly during the pandemic period, GMPS increased statistically significantly, and averaged up to 15% from initial value, compared with patients who had applied OK uninterruptedly in the non-pandemic period - on average up to 5% from initial value. Also, in cases of irregular wearing of night lenses during the pandemic period, GMPS increased more significantly in patients with hereditary factor present. A similar dynamic was registered in the case of GMPA. In the group where patients discontinued refractive therapy for a continuous period of 3-6 months, GMP increased significantly in the third year of the study, and averaged 70% of the initial values. In patients aged 7-16 years and medium-grade myopia, the dynamics of GMPS was similar to the previous group, increasing, on average, up to 12.3% from initial values, in patients who applied night lenses irregularly during the pandemic period, compared with patients who applied OK uninterrupted in the non-pandemic period - on average up to 2.5% of the initial value. In both groups, GMPS increased more significantly in patients with hereditary factor present. Similar dynamics were recorded in GMPA. In the group where patients discontinued refractive therapy for a continuous period of 3-6 months, GMP increased significantly in the third year of the study, and averaged 45% ofthe initial values. In patients aged 17-19 years and low-grade myopia, GMPS averaged 3.1% from initial valuesin the group who applied night lenses irregularly during the

pandemic period, compared with 1.8% in the group where OK was applied uninterruptedly in the non-pandemic period. The difference between the lots was, however, statistically insignificant. In patients who discontinued OK for 3-6 months, GMPS averaged up to 31.1% from initial values, significantly exceeding GMPS values in previous batches. Compared to the previous groups, in patients aged 17-19 years and medium-grade myopia, the GMPS dynamics were similar during all three years of surveillance in patients who applied the lenses continuously in the non-pandemic period and irregularly in the pandemic period. In patients who discontinued orthokeratological treatment for 3-6 months, GMPS was on average 17.1% from initial values.

Conclusions: The results of the study showed that the irregular wearing of night lenses in the pandemic period leads to an increase in the annual gradient of progression of myopia compared to their regular wearing in the non-pandemic period. This may be due not only to the regular application of night lenses, but also to the prolonged time in front of gadgets and the reduced outdoor time imposed by the self-isolation regime.