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Orthokeratology with the trial lens fitting and software fitting

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Purpose: To compare the safety and efficacy of myopia control in patients with trial lens fitting and software fitting orthokeratology lenses.
Method: A retrospective study. Myopic children who received the treatment of orthokeratology lenses from July 2020 to January 2022 were recruited in this study. Only the right eyes were included. The subjects were divided into two groups: trial lens fitting and software fitting. The measurements such as uncorrected visual acuity (UCVA), corneal topography, ocular health(using Efron grading scales) were obtained at baseline, 1 week, 1 month, 3 months, 6 months, and 12 months after lens wear. The axial length (AL) and endothelial cell density were measured at baseline and 12 months after wearing the lens.
Results: The first fit success rate in the software fitting group reached 100%. The difference of UCVA and corneal staining between the two groups was insignificant at any visit. Compared with the trial lens fitting group, the software fitting group showed smaller treatment zone size(radius 1.69±0.21mm vs. 1.81±0.16mm,P=0.004; area 9.13±2.15mm2 vs. 10.36±1.82mm2,P=0.005) and smaller decentration(0.58±0.31mm vs. 0.74±0.39mm,P=0.036). The difference of axial elongation(0.15±0.12mm vs. 0.17±0.14mm) and endothelial cell density changes(-36.63±99.37/mm2 vs. -13.71±87.72/mm2, P=0.256) at one-year follow-up visit between the two groups were insignificant.
Conclusions: Both the two methods showed comparable safety and efficacy. But the software fitting method achieved smaller treatment zone size and decentration.
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