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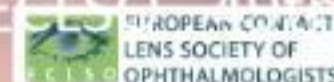
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**COMPARISON OF EFFICACY OF MONOTHERAPY WITH
ORTHOKERATOLOGY OR 0.01% ATROPINE
VERSUS
COMBINATION THERAPY
IN MYOPIA MANAGEMENT**

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Speaker's name : Tuna Celik Buyuktepe

I do not have any potential conflict of interest

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Introduction

- Myopia [1]
 - public health problem
 - socioeconomic burden
- Children: rapid progression & high myopia.
- High prevalence & sight-threatening

Slowing down myopia progression

Pharmacologic / optical methods





Aim

- Our study aimed to compare the efficacy of Ortho-K lenses and 0.01% atropine ophthalmic solution in myopia management as standalone treatment versus combination treatment.



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Material and Methods

- School-aged children
- Manifest refraction spherical equivalent (MRSE) of -1.0 to -5.5.0 D
- Exclusion criteriae:
 - Strabismus or amblyopia
 - Keratoconus, allergic conjunctivitis, dry eye
 - Previous eye surgery
- Baseline & post-treatment year-1
- Children were assigned into three groups as follows:
 - Atropine monotherapy (0.01%)
 - Ortho-K monotherapy
 - Combination therapy
- Uncorrected (UDVA) and corrected (CDVA) distance visual acuities
- Manifest refraction
- Corneal tomography and keratometry (Pentacam, Oculus GmbH, Weztlar, Germany)
- Axial length (AL) (IOLMaster, Carl Zeiss Meditec AG, Jena, Germany)

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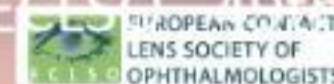
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Results

- Fifty-eight eyes of 29 children Mean age: 12.6± 2.5 (range: 8-18) years
- Atropine: 14 patients // Ortho-K: 8 patients // Combination treatment: 7 patients

	BASELINE				YEAR-1			
	Atropine	Ortho-K	Combination	p	Atropine	Ortho-K	Combination	p
UDVA (logMAR)	1.23±0.52	1.11±0.39	1.17±0.35	0.993	1.26±0.55	0.14±0.20*	0.21±0.34*	<0.001
CDVA (logMAR)	0.00±0.00	0.00±0.00	0.00±0.00	1.000	0.00±0.00	0.00±0.00	0.00±0.00	1.000
MRSE (D)	-3.72±1.54	-4.13±1.32	-5.52±1.25	0.003	-4.16±1.75*	-0.80±0.98*	-1.33±1.99*	<0.001
AL (mm)	24.78±0.95	24.77±0.61	25.60±0.63	0.017	25.03±1.01*	25.03±0.55*	25.55±0.61	0.140

* Significantly different compared to baseline

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Results

- Inhibition of AL elongation;
 - Ortho-K ≈ Combination > Atropine
- UDVA increase;
 - Ortho-K ≈ Combination > Atropine

No sight-threatening complication or serious adverse events was observed in any patients eye.

	Atropine	Ortho-K	Combination
AL elongation (mm)	0.35±0.29 (0.33;0.02-1.39)	0.16±0.20 (0.22;0.05-0.42)	0.01±0.21 (0.04;0.01-0.26)

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Discussion



- **Ortho-K therapy**
 - 32% - 63%
 - 2 years follow-up [2,3].
- Lin et al. [4] & Lyu et al. [5]
 - Ortho-K versus Atropine (0.125% and 0.02%)
 - Ortho-K is superior to atropine in AL inhibition
- In our study, **Ortho-K monotherapy** was superior to 0.01% atropine monotherapy in slowing down AL elongation over a one year follow-up.

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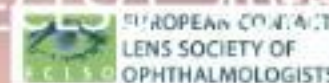
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Discussion

- **Atropine** has been shown to control myopia progression in a dose-dependent manner.
 - The Low-concentration Atropine for Myopia Progression (LAMP) Study [3]:
 - 0.01%-0.05%
 - 0.05% highest efficacy
 - Tsai et al. [6]
 - Low-dose: 0.01%-0.05%
 - Moderate-dose: 0.1%-0.25%
 - High-dose: 0.5%-1%
 - Efficacy: High>Moderate>Low
 - %1 at op'ne > Ortho-K
 - Greater rebound effect
 - Anisocoria
 - Loss of accommodation [6,7].
 - In our study, 0.01% atropine monotherapy was **inferior** to Ortho-K in slowing the elongation of AL in one year follow-up.

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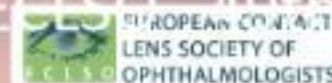
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Discussion

- The synergistic effect of **Ortho-K combined with atropine** has been observed in previous studies
 - Wan et al. [9]
 - Larger pupil diameter leads to lower myopic shift in the peripheral retina
 - Vincent et al. [10]
 - Increased pupil diameter increases high-order aberrations
 - Hoa et al. [11]
 - Increase in subfoveal choroidal thickness (SFChT) effectively retard AL elongation
- In our study, **combined use of Ortho-K and 0.01% atropine ophthalmic solution** was more effective in slowing myopia progression and AL elongation than monotherapy with Ortho-K lenses or 0.01% atropine ophthalmic solution at 1 year follow-up.

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Discussion

- **Limitations**

- Retrospective

- Number of patients

- No placebo group

- 0.01% concentration

- Randomized controlled studies with larger number of patients are required to establish the safety and efficacy of combination treatments in myopia management.

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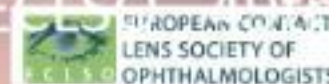
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