



June 2021
Volume 62, Issue 8

ISSUE

OPEN ACCESS

ARVO Annual Meeting Abstract | June 2021

Improvement in mixed-type dry eye patients after treatment with the QMR[®]-based electrotherapy device Rexion-Eye[®]

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Footnotes

Commercial Relationships **Alfredo Ruggeri**, Resono Ophthalmic (I), Resono Ophthalmic (P); **Alexandra Trivli**, None; **Georgios Dalianis**, None; **Chryssa Terzidou**, None

Support None

Investigative Ophthalmology & Visual Science June 2021, Vol.62, 1238. doi:



Abstract

Purpose : We investigated the efficacy of the low-power, high-frequency electrical current treatment administered by Rexion-Eye[®] in a cohort of 18 patients affected by mixed-type dry eye disease (DED) of medium to severe level.

Methods : 18 mixed type DED patients (17 female and 1 male; age range 42-81 years) were randomly recruited and treated. Therapy was administered with the Rexion-Eye[®] device (Resono Ophthalmic, Sandrigo, Italy), which applies, via an electrode mask worn over closed eyes, a weak alternate electrical current with a specific spectrum of frequencies (4-64 MHz, Quantum Molecular Resonance, QMR[®]). The treatment protocol provides for one 20-min session per week, for 4 weeks. Patients were examined at baseline and one month after the last treatment, by measuring: tear meniscus height (TMH), non-invasive tear break-up time (NIBUT), measured with IDRA (SBM Sistemi, Turin, Italy); Meibomian gland number (in lower eyelid) and quality of secretion; Ocular Surface Disease Index (OSDI) score; Schirmer's II test; ocular inflammation, by Oxford staining and by MMP9 (with InflammDry by Quidel, San Diego (CA), USA).

Results : Results are reported in Table 1 and 2. In this cohort of patients, all clinical endpoints markedly improved, with a limited improvement only in the Schirmer's II test. Clinical parameters related to inflammation especially showed a remarkable benefit, as evidenced by the reduction of MMP9 and Oxford staining and normalization of TMH. Subjective benefit (OSDI) was reported by patients and no adverse event was observed in any of them.

Conclusions : In accordance with previous studies, Rexion-Eye[®] proved to be very effective in improving subjective and objective ocular parameters. Of particular interest in this mixed-type DED patients cohort is the capability of Rexion-Eye[®] to normalize the clinical parameters affected by inflammation.

This is a 2021 ARVO Annual Meeting abstract.

	OSDI		Tear meniscus height		Oxford staining		Meibomian glands number		NIBUT		Schirmer's II test	
	before	after	before	after	before	after	before	after	before	after	before	after
MEAN	45,5	34,5	0,56	0,36	1,42	0,56	9,8	12,8	6,11	10,19	8,75	8,93
STD_DEV	21,9	23,8	0,38	0,21	1,00	0,73	3,5	2,3	3,15	4,98	5,15	5,72

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Table 1

Meibomian gland quality	before treat			
	clear	cloudy	toothpaste	TOTAL
after treat	0	7	9	16
clear	0	7	9	16
cloudy	0	5	13	18
toothpaste	0	0	2	2
TOTAL	0	12	24	

MMP9	before treat		
	POS	NEG	TOTAL
after treat	4	0	4
POS	4	0	4
NEG	8	6	14
TOTAL	12	6	

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Table 2

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