

**eTable 1.**

			CIS and RRMS acute ON eyes (n=44)			NMOSD and ION acute ON eyes (n=8)		
			n	Mean ± SD	Median (Q1 – Q3)	n	Mean ± SD	Median (Q1 – Q3)
Inclusion (M <sub>0</sub> )	MRI	Length*	43	12.48 ± 6.03	11.2 (9.65 – 13.65)	8	12.05 ± 6.03	10.5 (7.57 - 14.92)
	OCT	GCIPL	44	1.89 ± 0.16	1.91 (1.78 – 2.00)	8	1.88 ± 0.26	1.98 (1.81 – 2.12)
		pRNFL	44	107.48 ± 24.68	102 (93 – 113.5)	8	88.50 ± 47.17	81 (93.75 – 122)
		INL	44	0.96 ± 0.07	0.97 (0.91 – 1.01)	8	1.06 ± 0.10	0.96 (0.94 – 1.01)
	Vision	LCMVA	39	0.96 ± 0.23	1.10 (0.80 – 1.10)	7	1.10 ± 0.21	1.10 (0.77 – 1.10)
End of study (M <sub>12</sub> )	MRI	Length	42	15.80 ± 9.01	13 (10.30 – 19.60)	8	18.60 ± 7.11	13 (10.5 – 18.85)
	OCT	GCIPL	42	1.67 ± 0.20	1.68 (1.54 – 1.81)	8	1.81 ± 0.28	1.69 (1.54 – 1.76)
		pRNFL	42	84.16 ± 14.83	88 (77.5 – 93.5)	8	79.0 ± 10.20	77 (72 – 88.5)
		INL	42	0.98 ± 0.08	0.98 (0.91 – 1.04)	8	1.08 ± 0.11	0.99 (0.93 – 1.07)
	Vision	LCMVA	42	0.67 ± 0.21	0.60 (0.50 – 0.80)	8	0.79 ± 0.24	0.86 (0.73 – 1.07)

Values are reported as Mean ± Standard Deviation (SD) and Median (first quartile [Q1] – third quartile [Q3]). LCMVA values are reported in LogMAR unit; GCIPL and INL volumes are reported in mm<sup>3</sup>; pRNFL thickness is reported in μm. Abbreviations: CIS, clinically isolated syndrome; RRMS, relapsing remitting multiple sclerosis; ON, optic neuritis; NMOSD, neuromyelitis optica spectrum disorders; ION, isolated optic neuritis; MRI, magnetic resonance imaging; OCT, optical coherence tomography; GCIPL, ganglion cell + inner plexiform layer; pRNFL, peripapillary retinal nerve fiber layer; INL, inner nuclear layer; LCMVA, low contrast monocular vision acuity (2.5%).

**eTable 2.** Associations between optic nerve lesion length at 12 months and retinal thickness/volumes or visual disability at 12 months

	Eyes with acute ON (n=52)			All eyes with optic nerve lesions (n=64)		
	Estimate	Standard Error	p value	Estimate	Standard	p value
GCIPL volume (mm <sup>3</sup> ) at M12	-0.014	0.003	<b>&lt;0.0001</b>	-0.016	0.003	<b>&lt;0.0001</b>
pRNFL thickness (μm) at M12	-0.899	0.189	<b>&lt;0.001</b>	-0.941	0.159	<b>&lt;0.001</b>
INL volume (mm <sup>3</sup> ) at M12	+0.004	0.001	<b>0.0028</b>	+0.003	0.001	<b>0.0044</b>
LCMVA 2.5%	+0.016	0.003	<b>&lt;0.0001</b>	+0.015	0.003	<b>&lt;0.0001</b>

LCMVA (2.5%) are indicated in LogMAR unit. Abbreviations: ON, optic neuritis; GCIPL, ganglion cell + inner plexiform layer; pRNFL, peripapillary retinal nerve fiber layer; INL, inner nuclear layer; LCMVA, low contrast monocular vision acuity (2.5%).