

Two-year OCT follow up in Ofatumumab patients shows retinal preservation over non-antiCD20 treatments in Multiple Sclerosis

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BACKGROUND

OCT detects thinning of the ganglion cell layer (GCL) in MS, which correlates with **visual acuity, brain atrophy, and disability**.

GCL is a strong biomarker of neurodegeneration, linking **structural changes to functional outcomes in MS**.

Ofatumumab (OFA) is a fully human anti-CD20 therapy with strong efficacy on inflammatory activity. Its neuroprotective potential is still under investigation.

OBJECTIVE

To longitudinally evaluate OCT measures of retinal integrity in MS patients under Ofatumumab treatment, compared with a control group of patients under non-anti-CD20 therapies.

METHODS

Design: Participants starting OFA therapy underwent **OCT and EDSS assessments at baseline and at 24-months follow-up**.

Retrospectively enrolled MS patients treated with non-anti-CD20 DMTs (OTH), were evaluated at a **24-months interval with OCT and EDSS assessments**. We excluded eyes affected by optic neuritis, to measure retinal changes independent of local inflammation.

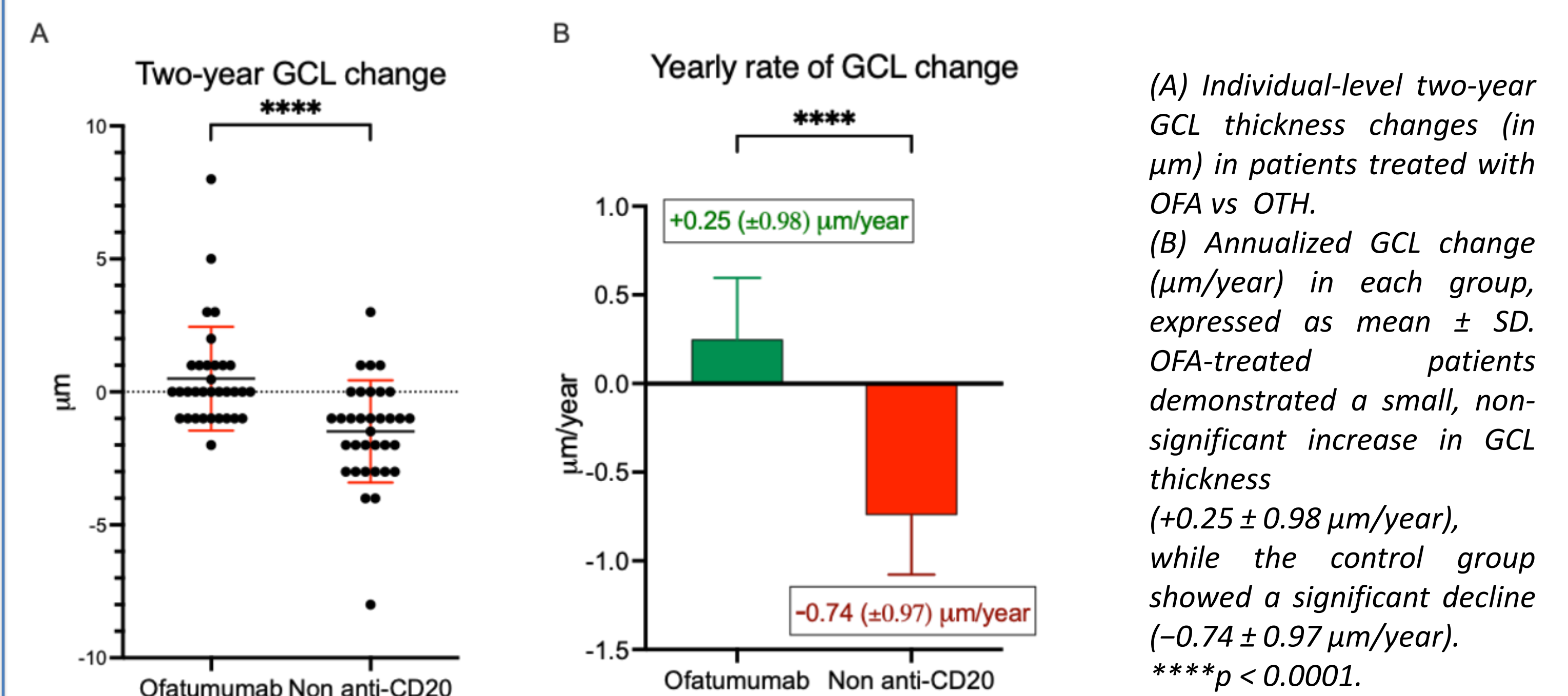
- Analyses:**
- A **linear mixed-effects model** was fitted including fixed effects for time, treatment group (OFA vs. OTH), and their interaction (time × treatment), with a random intercept for each subject to account for repeated measures.
 - **Multivariate linear regression** to identify independent predictors of GCL change. Covariates were based on biological plausibility and clinical relevance, including treatment group (OFA vs. OTH), age, sex, baseline GCL thickness, EDSS at inclusion, and disease duration.

RESULTS

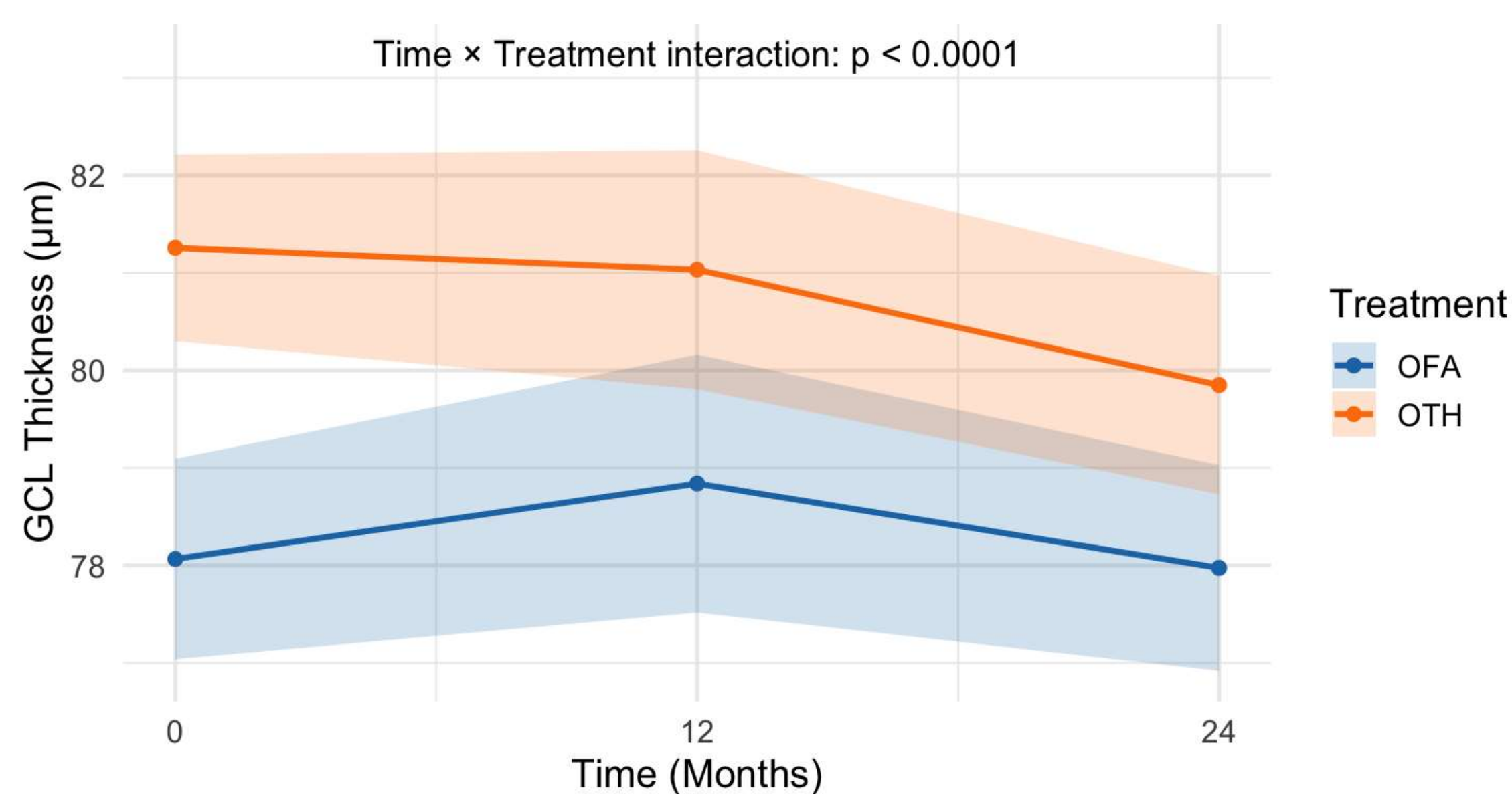
BASELINE FEATURES

Variable	Ofatumumab	Non-anti-CD20	P value
Age	36.44±11.92	32.27±7.96	0.21
Female Sex	14/25 (56%)	18/22 (81%)	0.06
Disease duration	6.2 ± 6.27	2.1±3.7	0.01
Baseline EDSS	1.5 (1.5-2.0)	1.0 (1.0-1.5)	0.01
Baseline GCL	78.07±6.96	81.26±5.98	0.03
Baseline RNFL	90.15 ±10.46	97.00±8.43	0.001
Baseline tRNFL	62.78±10.75	71.72±11.81	<0.001

TWO-YEAR CHANGE

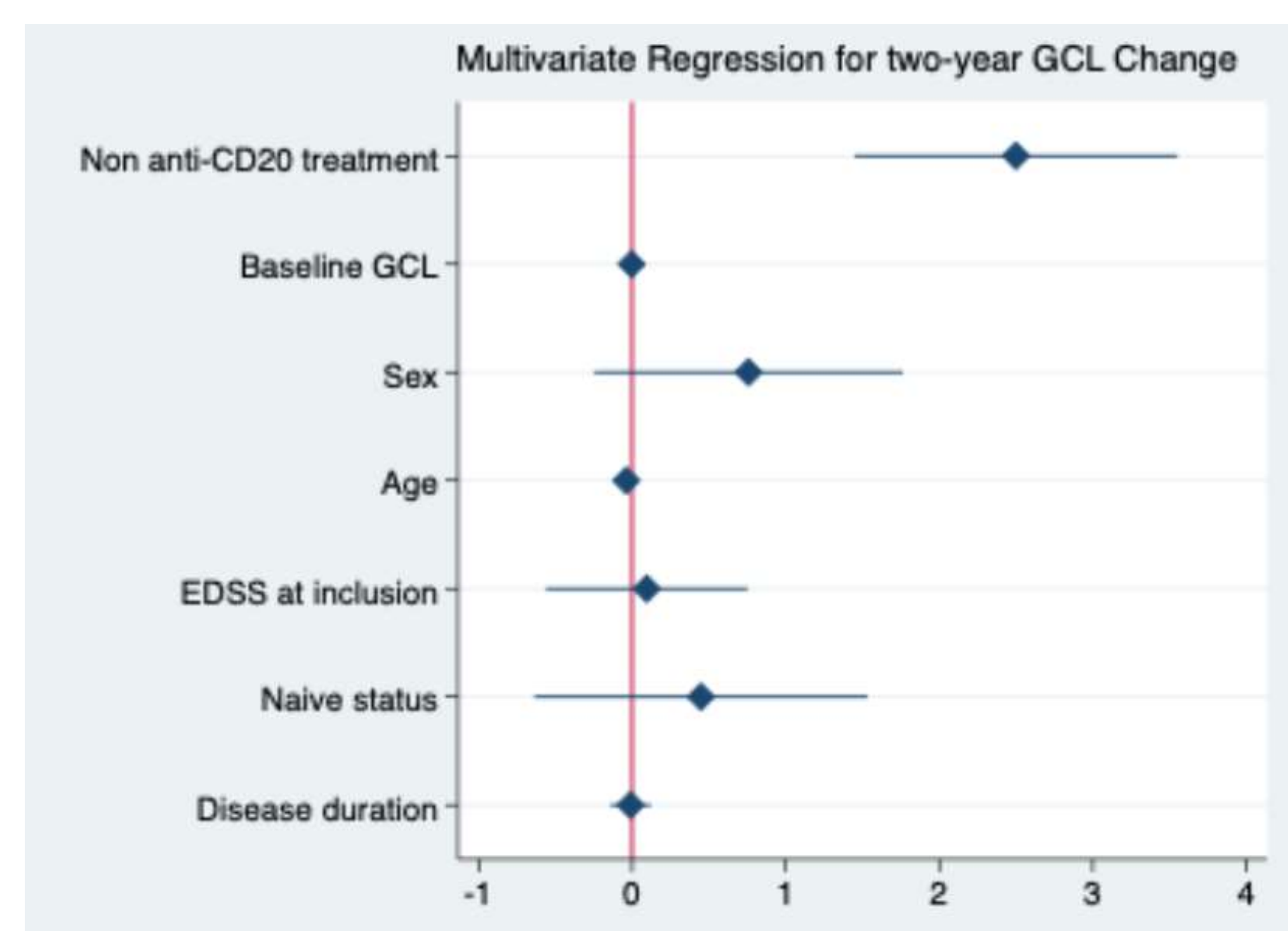


LONGITUDINAL GCL THICKNESS



Line plot illustrating mean GCL change over 24 months for patients treated with OFA vs OTH. The Ofatumumab group showed minimal change, whereas the control group exhibited significant decline over time. Shaded areas represent 95% confidence intervals.

Predictors of two-year GCL change



Forest plot showing adjusted regression coefficients and 95% confidence intervals for predictors of annual GCL thickness change. Ofatumumab treatment was significantly associated with reduced GCL thinning. Other covariates were included based on clinical relevance but did not reach statistical significance.

CONCLUSIONS

- **Retinal integrity was preserved** in OFA patients after two years of follow up, compared with a group of MS patients treated with non antiCD20 drugs, independent of baseline differences and confounders.
- These results suggest a **potential neuroprotective effect of B-cell depletion in MS** and support the **utility of OCT as a sensitive biomarker** in treatment monitoring.

References:

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