Supplementary Material

Neurofilament Light Chain in Cerebrospinal Fluid as a Novel Biomarker in Evaluating Both Clinical Severity and Therapeutic Response in Niemann-Pick Disease, Type C1

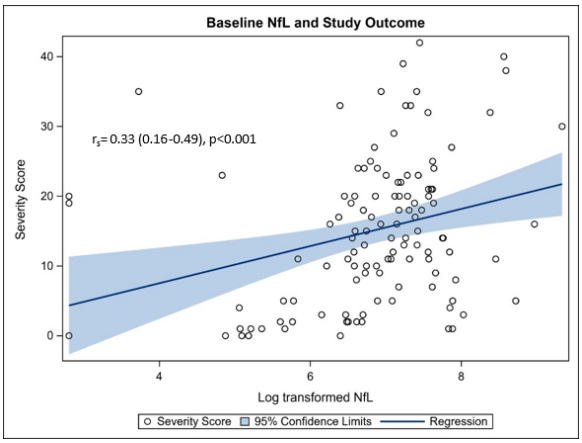
Agrewal et al.

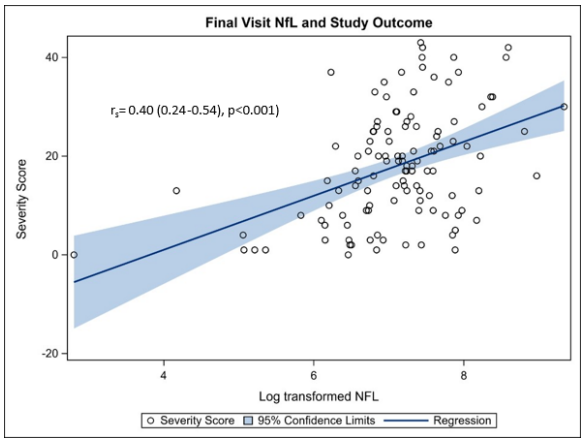
Supplementary Table 1. NIH and Rush Demographics

	NIH Cohort (n = 94)	*Rush Cohort (n = 21)*	*p-value*
Age in years, Mean ± SD	*15 ± 14.6*	*14.1 ± 15.2*	*0.81*
Males, n (%)	*41 (44)*	*14 (67)*	*0.09*
Duration of neurologic symptoms in years, Mean ± SD	*7.2 ± 7.2*	*7.0 ± 6.4*	*0.92*
Total NIH Severity Score, Mean ±SD	*15 ± 11*	*16 ± 11*	*0.62*
On miglustat, n (%)	*43 (46)*	*9 (43)*	*0.81*
On adrabetadex, n (%)	*3 (3)*	*0 (0)*	*1.0*

Supplementary Figure 1: Correlation between NfL levels and various outcome measurements at baseline visit and last visit. A. NPC Neurological Severity Score. B. ASIS. C. Five-Domain Score. D. Ambulation. E. Fine Motor. F. Speech. G. Swallowing. H. Cognition. I. Eye Movement. J. Hearing. K. Memory. L. ASHA-NOMS. M. PAS. For completeness of this figure, graphs from figure 2 are duplicated here.

A





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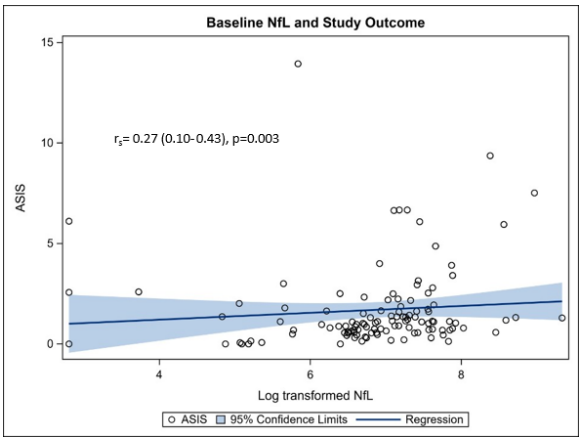

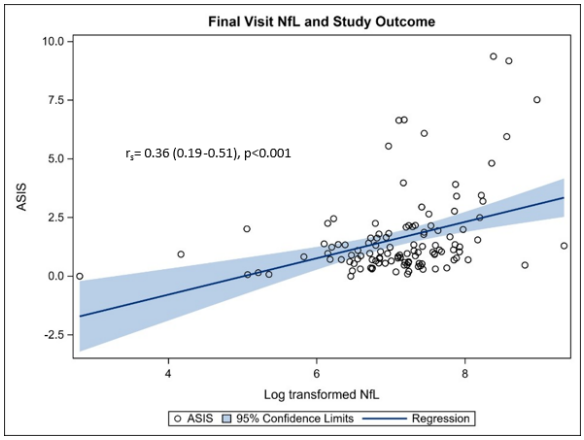

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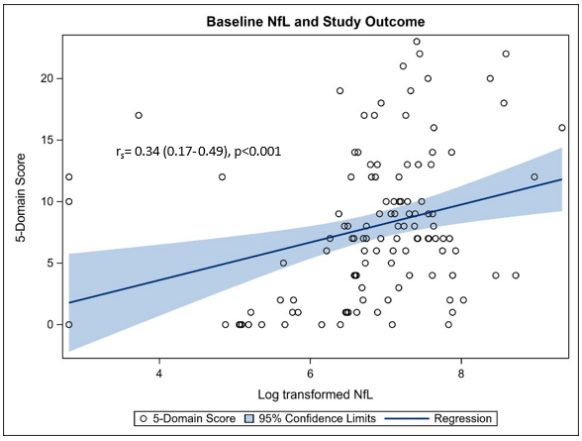

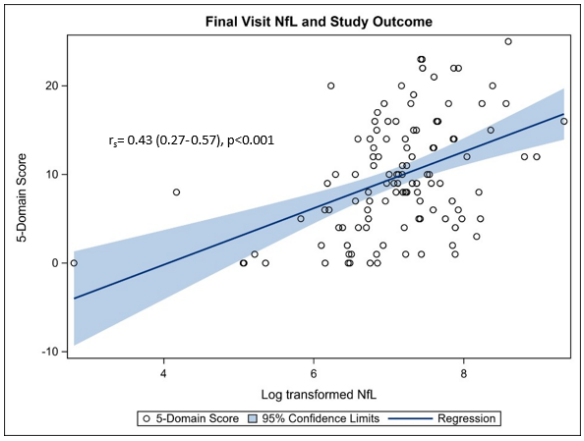

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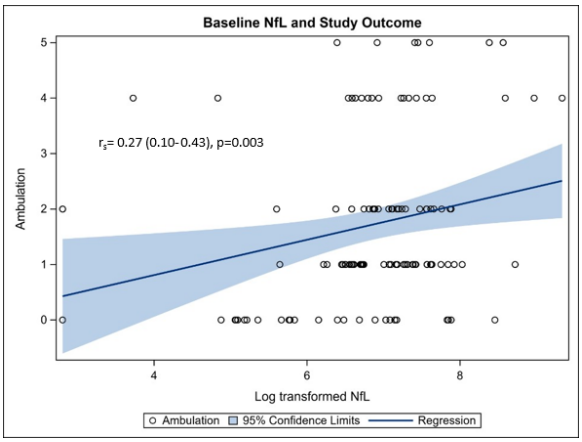
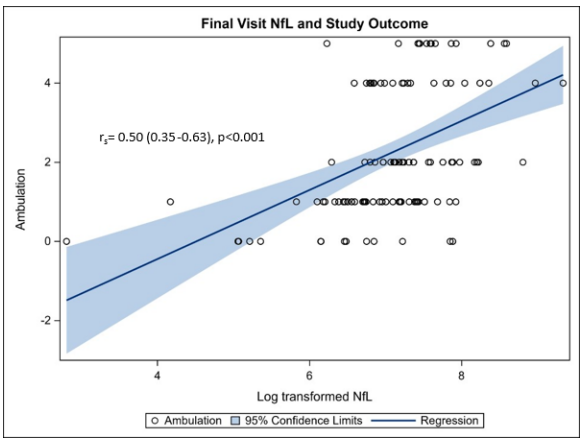
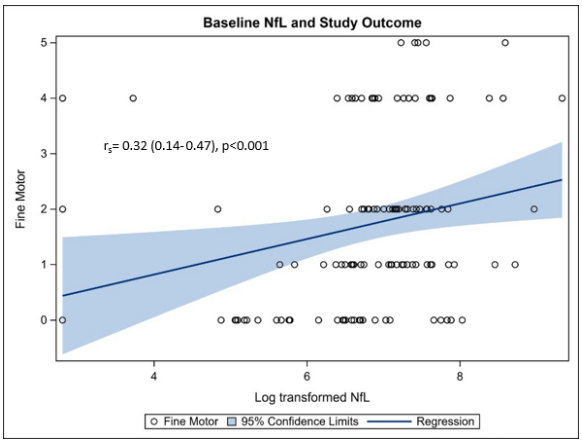
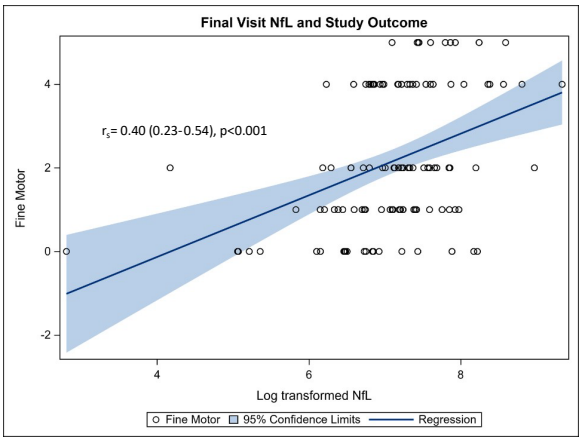

Baseline NfL and Study Outcome
r_s= 0.27 (0.10-0.43), p=0.003
Ambulation
Log transformed NfL
Ambulation 95% Confidence Limits Regression

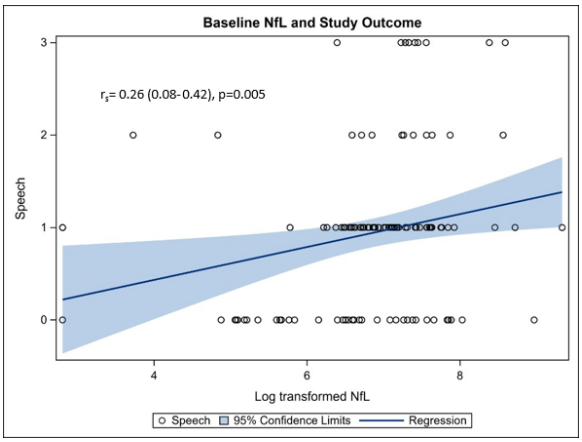

Final Visit NfL and Study Outcome
r_s= 0.50 (0.35-0.63), p<0.001
Ambulation
Log transformed NfL
Ambulation 95% Confidence Limits Regression

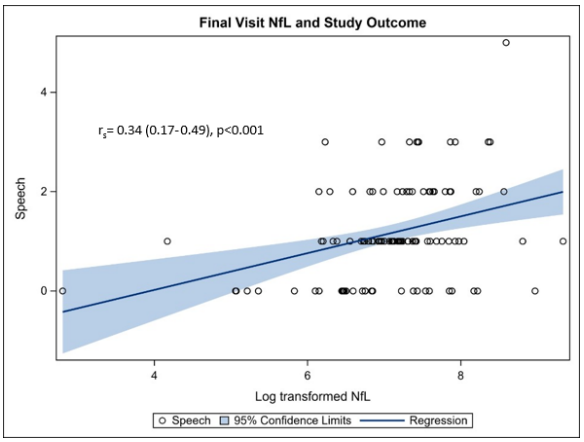
E


Baseline NfL and Study Outcome
r_s= 0.32 (0.14-0.47), p<0.001
Fine Motor
Log transformed NfL
Fine Motor 95% Confidence Limits Regression

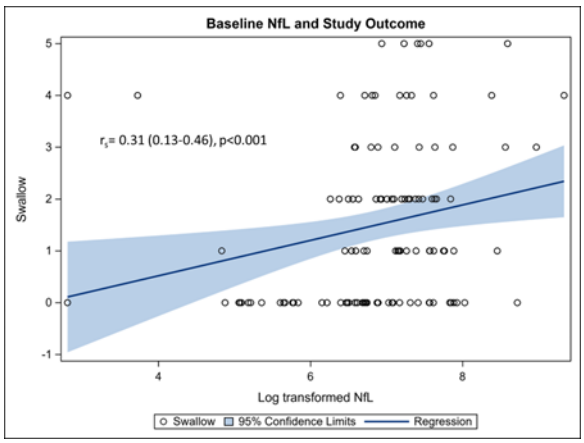

Final Visit NfL and Study Outcome
r_s= 0.40 (0.23-0.54), p<0.001
Fine Motor
Log transformed NfL
Fine Motor 95% Confidence Limits Regression

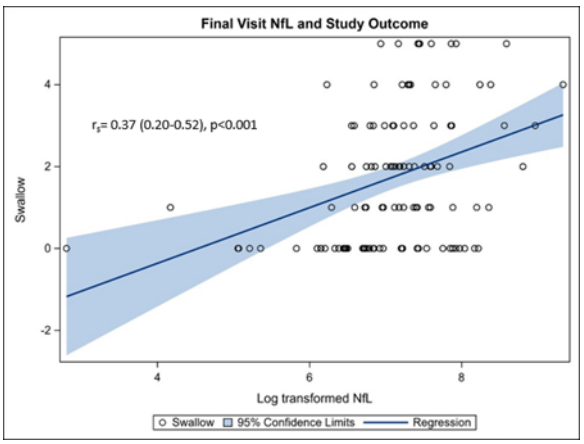
F


Baseline NfL and Study Outcome
r_s= 0.26 (0.08-0.42), p=0.005
Speech
Log transformed NfL
Speech 95% Confidence Limits Regression

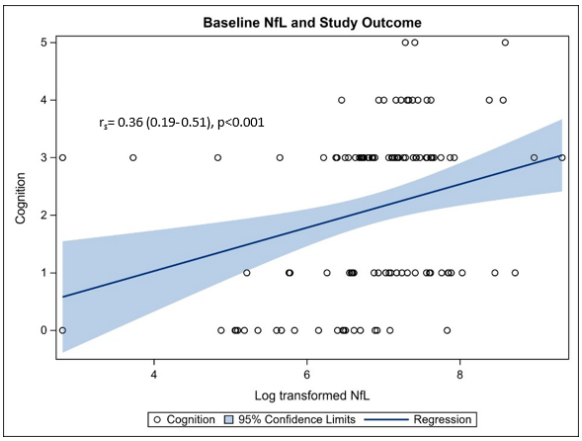

Final Visit NfL and Study Outcome
r_s= 0.34 (0.17-0.49), p<0.001
Speech
Log transformed NfL
Speech 95% Confidence Limits Regression

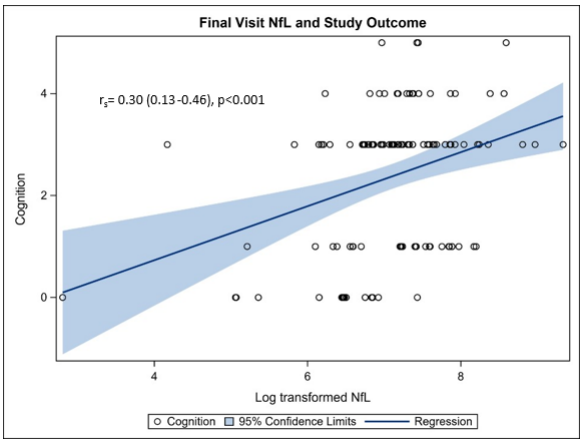
G


Baseline NfL and Study Outcome
r_s= 0.31 (0.13-0.46), p<0.001
Swallow
Log transformed NfL
Swallow 95% Confidence Limits Regression

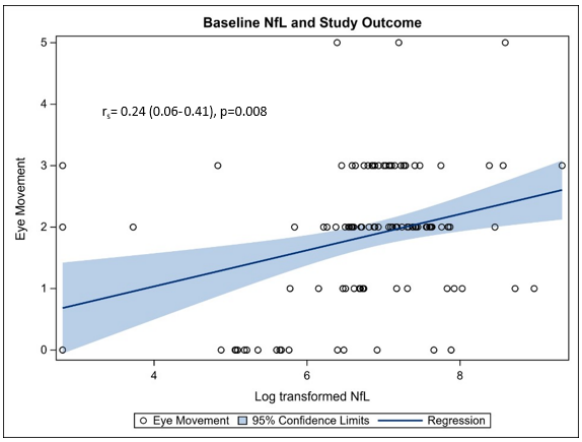

Final Visit NfL and Study Outcome
r_s= 0.37 (0.20-0.52), p<0.001
Swallow
Log transformed NfL
Swallow 95% Confidence Limits Regression

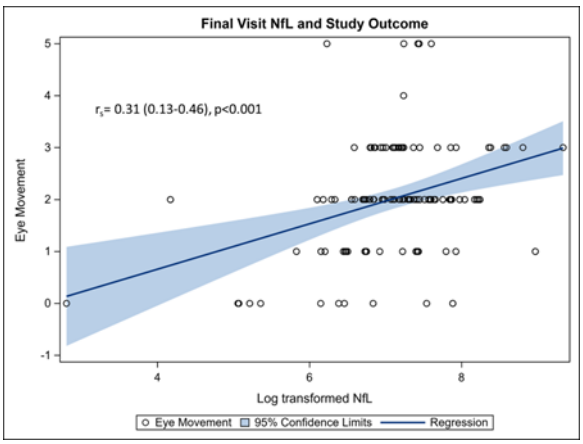
H


Baseline NfL and Study Outcome
r_s= 0.36 (0.19-0.51), p<0.001
Cognition
Log transformed NfL
Cognition 95% Confidence Limits Regression

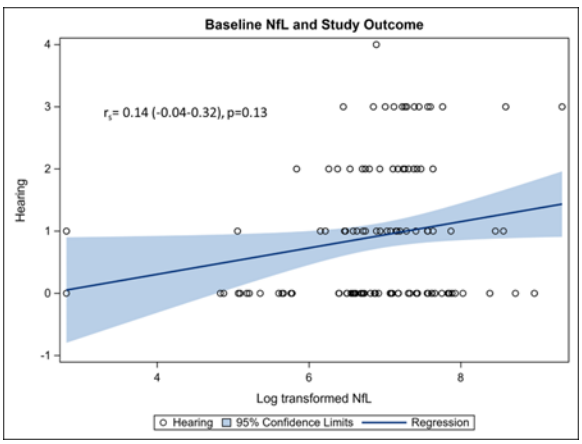

Final Visit NfL and Study Outcome
r_s= 0.30 (0.13-0.46), p<0.001
Cognition
Log transformed NfL
Cognition 95% Confidence Limits Regression

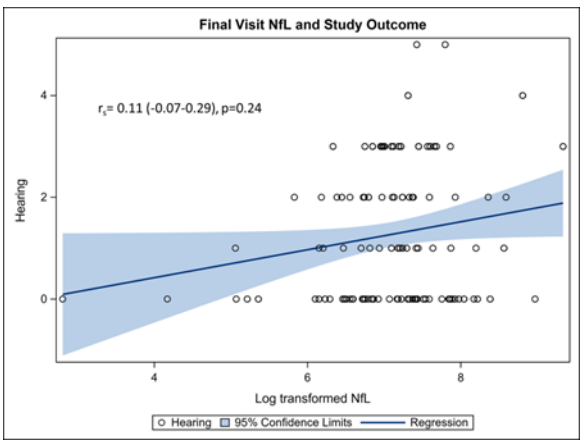
I


Baseline NfL and Study Outcome
r_s= 0.24 (0.06-0.41), p=0.008
Eye Movement
Log transformed NfL
Eye Movement 95% Confidence Limits Regression

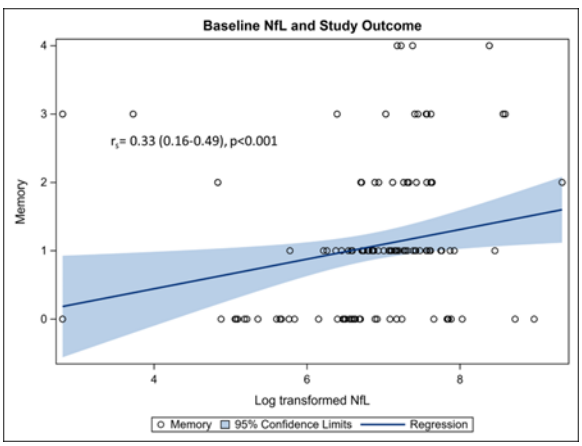

Final Visit NfL and Study Outcome
r_s= 0.31 (0.13-0.46), p<0.001
Eye Movement
Log transformed NfL
Eye Movement 95% Confidence Limits Regression

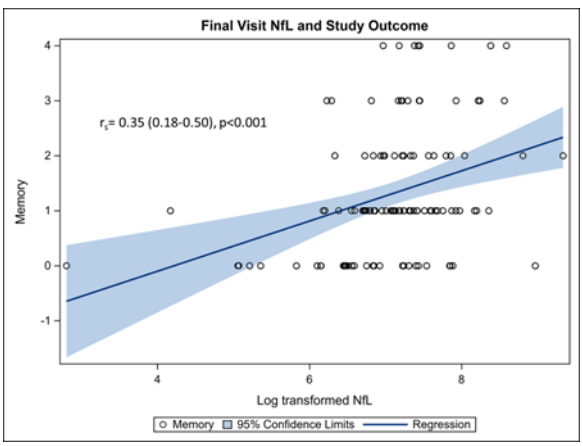
J


Baseline NfL and Study Outcome
r_s= 0.14 (-0.04-0.32), p=0.13
Hearing
Log transformed NfL
Hearing 95% Confidence Limits Regression

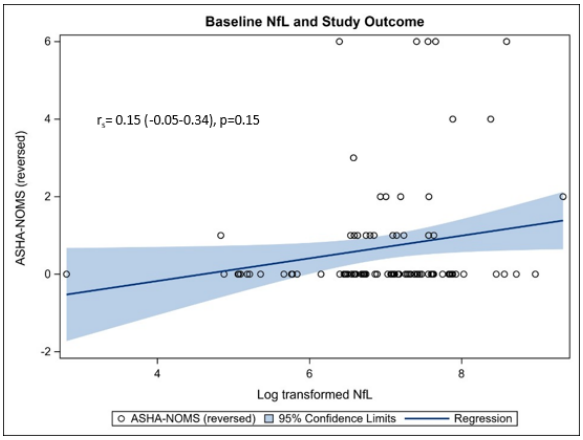

Final Visit NfL and Study Outcome
r_s= 0.11 (-0.07-0.29), p=0.24
Hearing
Log transformed NfL
Hearing 95% Confidence Limits Regression

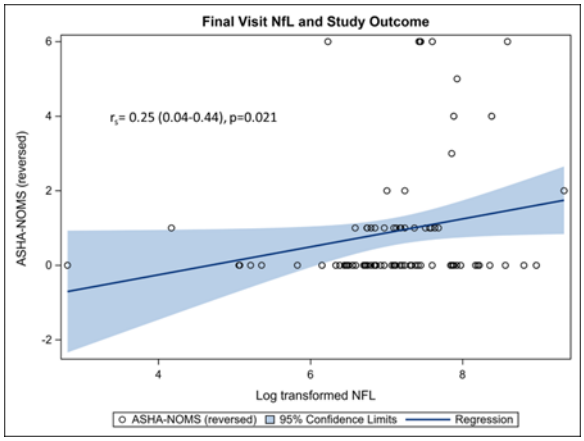
K


Baseline NfL and Study Outcome
r_s= 0.33 (0.16-0.49), p<0.001
Memory
Log transformed NfL
Memory 95% Confidence Limits Regression

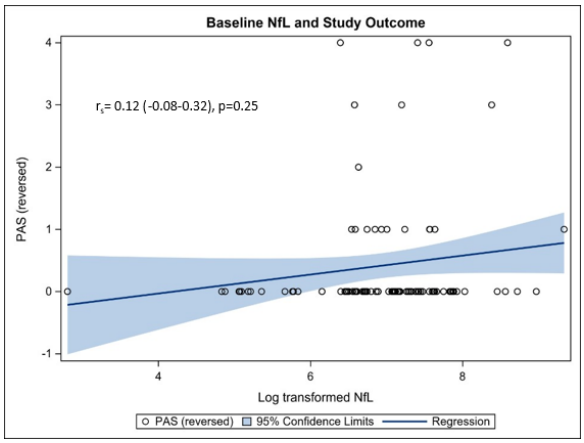

Final Visit NfL and Study Outcome
r_s= 0.35 (0.18-0.50), p<0.001
Memory
Log transformed NfL
Memory 95% Confidence Limits Regression

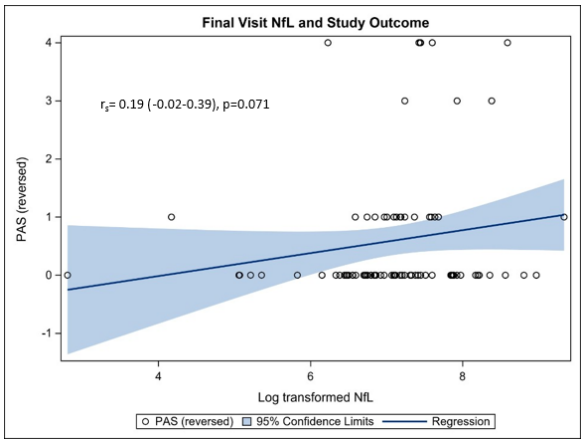
L


Baseline NfL and Study Outcome
r_s= 0.15 (-0.05-0.34), p=0.15
ASHA-NOMS (reversed)
Log transformed NfL
ASHA-NOMS (reversed) 95% Confidence Limits Regression


Final Visit NfL and Study Outcome
r_s= 0.25 (0.04-0.44), p=0.021
ASHA-NOMS (reversed)
Log transformed NFL
ASHA-NOMS (reversed) 95% Confidence Limits Regression

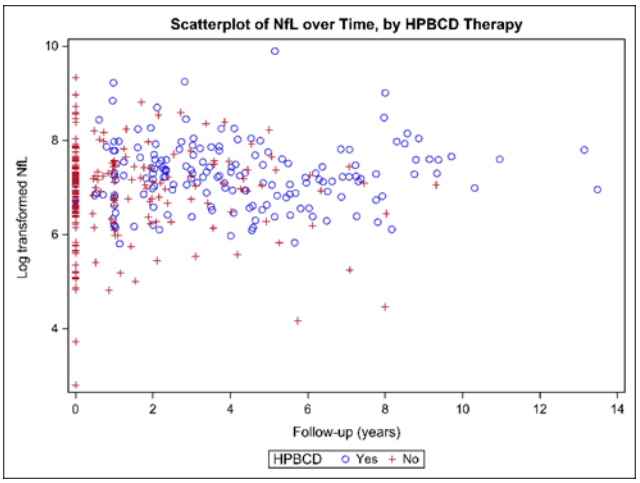
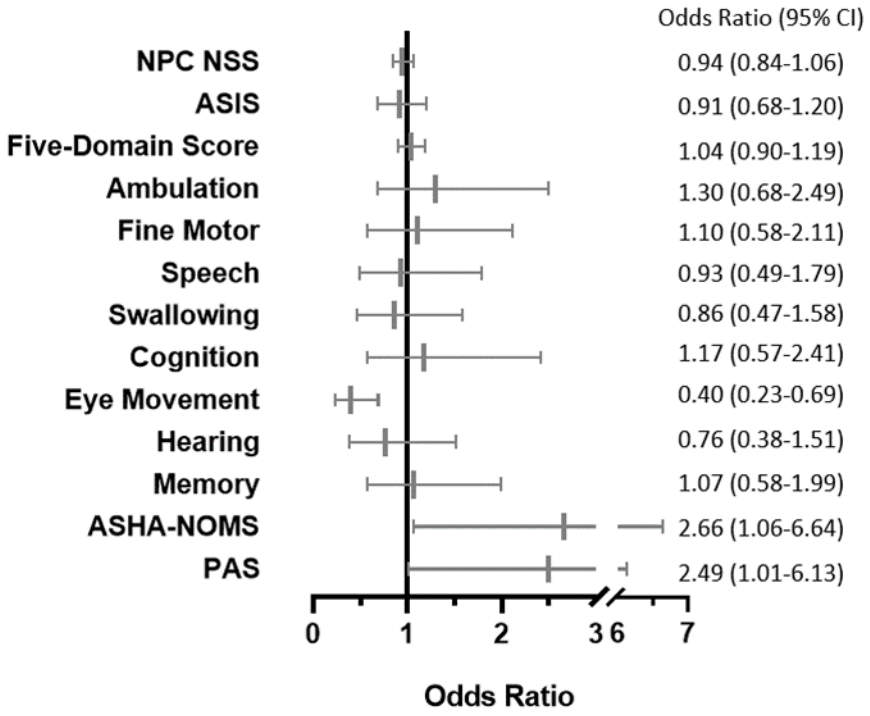
M


Baseline NfL and Study Outcome
r_s= 0.12 (-0.08-0.32), p=0.25
PAS (reversed)
Log transformed NfL
PAS (reversed) 95% Confidence Limits Regression


Final Visit NfL and Study Outcome
r_s= 0.19 (-0.02-0.39), p=0.071
PAS (reversed)
Log transformed NfL
PAS (reversed) 95% Confidence Limits Regression

Supplementary Figure 2: Covariate effects of treatments on various NPC outcome measurements. Results are from final reduced models of NfL and outcome measurements; where an association was not observed between the covariate and outcome, results from the full model are shown. A: Decreased CSF NfL levels were not observed in individuals being treated with adrabetadex. B: HPβCD therapy as a forest plot and table.

A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