

Attrition in a tri-ethnic longitudinal neuroimaging study – the importance of baseline cerebrovascular health



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Brain health and diabetes status key predictors of attrition in longitudinal neuroimaging study

CONCLUSIONS

Longitudinal data needed for assessment of biomarkers progression

At risk of bias due to attrition

Aims: Assessment of predictors of attrition in a tri-ethnic neuroimaging study.

Statistical analysis:

Logistic regression with 3 models:

Model 1 – adjustment for age, sex and ethnicity

Model 2 – Model 1 + adjustment for HDL cholesterol, blood pressure, smoking

Model 3 – Model 2 + Brain volume, TIV, WMH volume

	Overall	Lost to follow-up	Coming back
Ethnicity (WC / SA / AC)	578 / 458 / 199 46.8 / 37.1 / 16.1	351 / 304 / 132 44.6 / 38.6 / 16.8	227 / 154 / 67 50.7 / 34.4 / 14.9
Sex (M / F)	954 / 281 77.2 / 22.8	608 / 179 77.3 / 22.7	346 / 102 77.2 / 22.8
Diabetes (No, Yes)	859 / 376 69.6 / 30.4	515 / 272 65.4 / 34.6	344 / 104 76.8 / 23.2
Smoking (Never, Ex, Current)	710 / 451 / 74 57.5 / 36.5 / 6.0	453 / 282 / 52 57.6 / 35.8 / 6.6	257 / 169 / 22 57.3 / 37.7 / 4.9
Age	69.55 (6.08)	70.82 (6.21)	67.32 (5.15)
HDL Cholesterol	1.38 (0.35)	1.37 (0.35)	1.38 (0.35)
Systolic Blood pressure	140.1 (17.44)	141.07 (18.20)	138.32 (15.89)
Diastolic Blood pressure	77.2 (9.48)	76.73 (9.62)	77.90 (9.17)
Brain volume	1075.5 (109.7)	1065.9 (109.4)	1092.4 (108.3)
WMH (mL)	5.29 [3.48; 9.48]	5.93 [3.69; 12.47]	4.51 [3.12; 6.87]
TIV (mL)	1368 (138)	1355 (139)	1376 (137)

Cerebrovascular health, diabetes diagnosis and age at baseline were strong predictors of attrition

Originally observed ethnic differences were explained by brain health and diabetes

No relationship found with hypertension, smoking or HDL cholesterol

Bias towards healthier individuals in longitudinal studies

METHODS

Population study:

SABRE study[1] – Tri-ethnic cohort with 1235 attending neuroimaging visit including T2 FLAIR

Clinical measures: HDL cholesterol, Systolic and diastolic blood pressure, diabetes status, smoking status, ethnicity

Image processing:

Brain volume and total intracranial volume (TIV) using GIF[2]

White matter hyperintensity volume using BaMoS[3]

All done using T2-FLAIR

Model 1

Model 2

Model 3

REFERENCES

1 - Tillin, T., et al (2012). Southall And Brent REvisited: Cohort profile of SABRE, a UK population-based comparison of cardiovascular disease and diabetes in people of European, Indian Asian and African Caribbean origins. International journal of epidemiology,41(1), 33-42.

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