Chinese Preclinical Alzheimer's Disease Study (C-PAS): Design and Preliminary Findings

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Overview

01 Introduction of C-PAS cohort

02 Preliminary findings of C-PAS

03 Experiences and perspectives

Chinese Preclinical Alzheimer's Disease Study (C-PAS)

Why C-PAS?

- **AD in China**
  - China has a large number of AD patients and a heavy economic burden.
- **Drug development**
  - Early and accurate identification of patients with abnormal Aβ deposition (Aβ+) becomes increasingly important with the development of anti-Aβ drugs.
- **Go beyond ADNI**
  - Multidisciplinary collaboration and multi-omic data analysis, Asian cohorts

C-PAS design and recruitment

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Original Research

Chinese Preclinical Alzheimer's Disease Study (C-PAS): Design and Challenge from PET Acceptance

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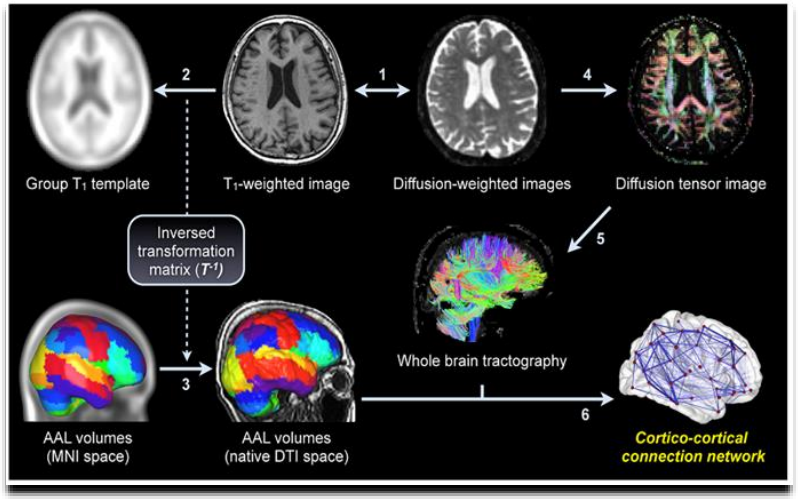
- A longitudinal study in Shanghai, China, starting in April 2019;
- Volunteers were recruited from Memory Clinics and local communities, including preclinical and prodromal AD (Cognitively normal, SCD, MCI, and dementia);
- The baseline participants with completion of Aβ PET scanning is expected to reach 2000.
- Participants in the non-demented groups were followed every two years, while those in the dementia group were followed up every six months. The follow-up will continue for 10 years.

Highlights of C-PAS

Multi-modal brain imaging:

- PET: amyloid/tau/FDG-PET;
- MRI(prisma 3.0T): structural(T1,T2), functional (BOLD), ASL, DTI;
- Retinal imaging: OCT, RNFL;
- Electroencephalograph(EEG).



Peripheral biomarkers:

- Blood tests: Aβ42, Aβ40,p-tau181,t-tau, NfL measured via SIMOA;
- Genetic testing: APOE,GWAS
- Urine tests: urinary metabolites, proteins and DNA;
- Fecal tests: gut microbes and their metabolites.

Neuropsychological tests :

- Global function and different cognitive domains(memory, language, attention, executive function…);
- “Aβ-sensitive” tests;
- Electronic assessment tools;
- Digital behavioral markers(gait, eye movement, speech…)

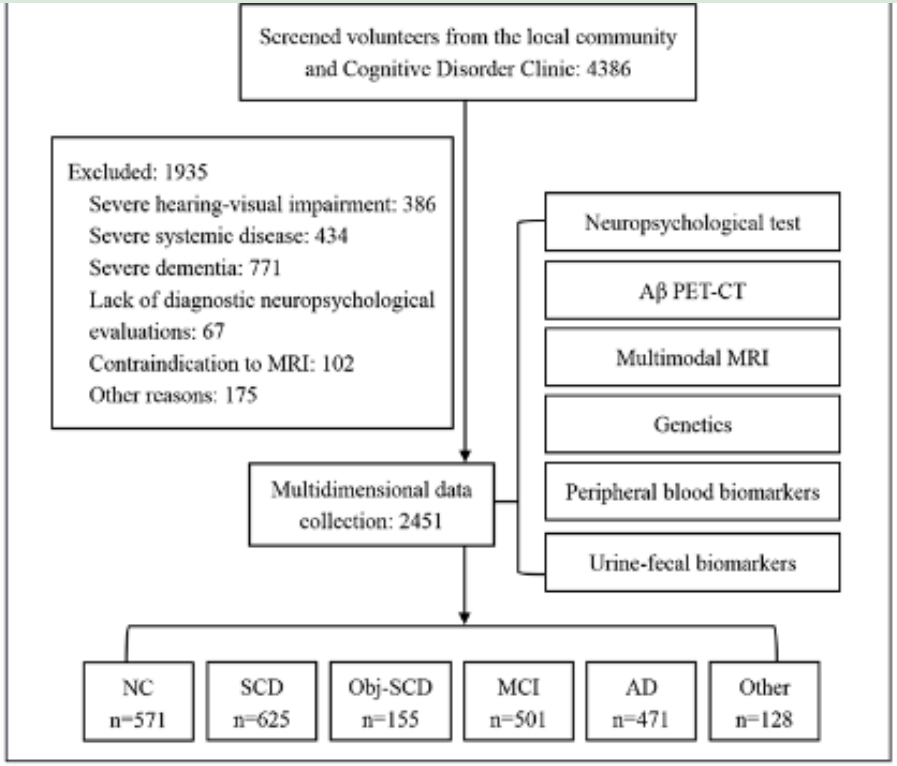
C-PAS demography and PET acceptance

Table 1. Demography, biomarkers, and basic assessments

	NC (n=571)	SCD (n=625)	Obj-SCD (n=155)	MCI (n=501)	AD (n=471)	P-value
Age (years)	59.31±14.05[abc]	62.82±9.59[bc]	66.08±6.44[a]	66.31±8.24[a]	70.86±7.95[abc]	<0.001
Gender (female, %)	358 (62.7%)[a]	455 (72.8%)	97 (62.6%)	326 (65.1%)	301 (63.9%)[a]	0.001
Education (years)	13.18±3.79[abc]	12.58±3.31[bc]	11.02±3.02[a]	11.06±3.36[a]	9.69±3.94[abc]	<0.001
PET acceptance (accept n, %)	167 (29.2%)[a]	241 (38.6%)	61 (39.4%)	173 (34.5%)	118 (25.1%)[abc]	<0.001
Florbetapir PET (positive/total, %)	53/167 (31.7%)[c]	80/241 (33.2%)[c]	27/61 (44.3%)	84/173 (48.6%)[a]	107/118 (90.7%)[abc]	<0.001
ApoE (e4 carrier/total, %)	84/462 (18.2%)	137/578 (23.7%)	25/152 (16.4%)	118/478 (24.7%)	225/440 (51.1%)[abc]	<0.001
Cognition						
MMSE					16.90±5.11[abc]	<0.001
MoCA-B					11.86±5.01[abc]	<0.001
ACE III					46.58±13.39[abc]	<0.001
Non-cognition						
ECOG					30.68±10.7[abc]	<0.001
FAQ					7.13±7.21[abc]	<0.001
ADL					24.68±7.22[abc]	<0.001

a. corrected P<0.05 comp
SCD, subjective cognitiv
State Examination. MoC
Activity Questionnaire.

CI group. NC, normal cognition.
r's disease. MMSE, Mini-Mental
day Cognition. FAQ, Functional

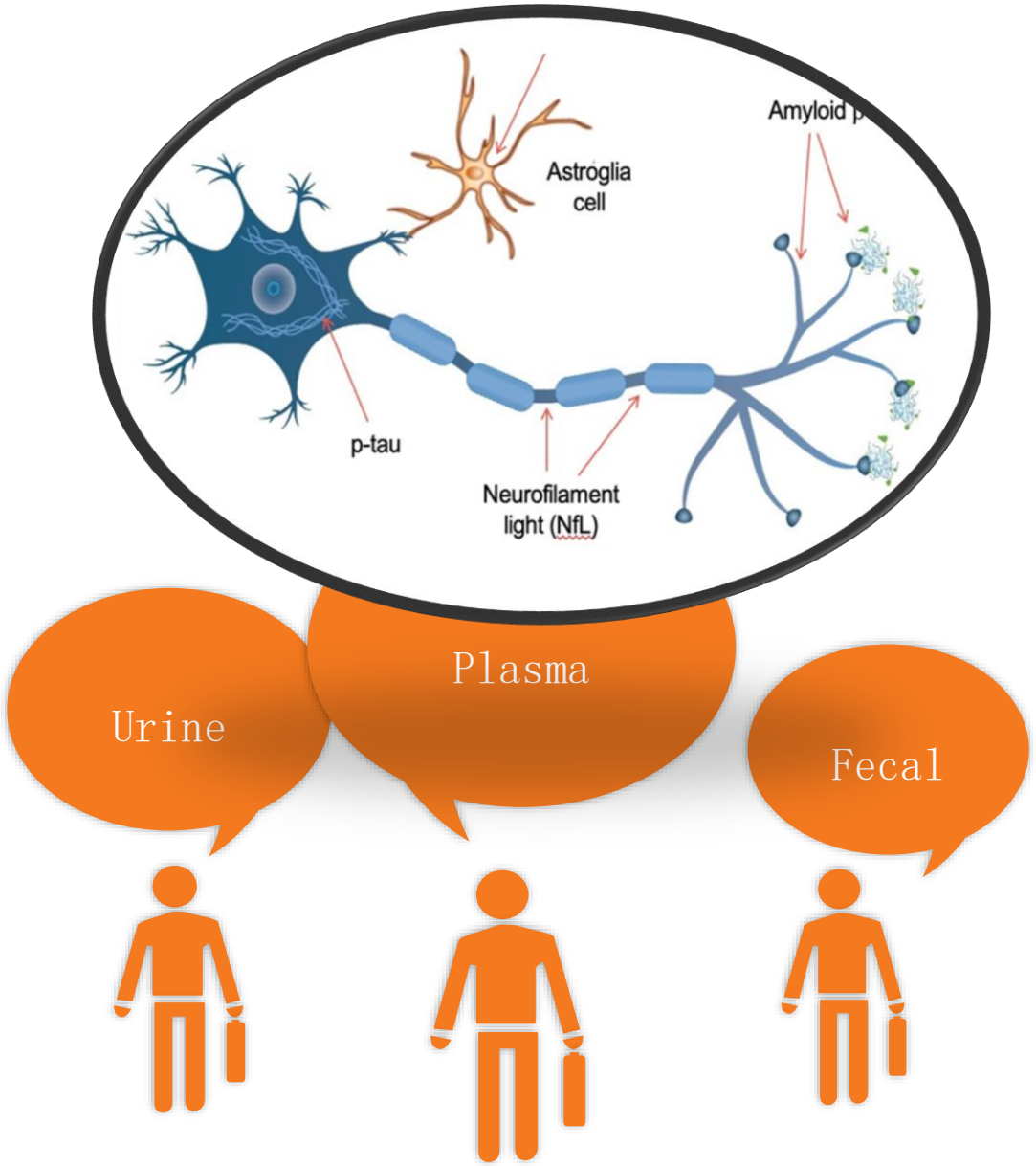


NC, normal cognition. SCD, subjective cognitive decline. Obj-SCD, objectively defined subtle cognitive decline, MCI, mild cognitive impairment. AD, Alzheimer's disease.

- From April 2019 to March 2022, we screened 4386 vollenteers and enrolled a total of 2451 participants.
- 817 participants (33.3%) underwent the amyloid PET scanning. Acceptance rates of the NC and AD group were lower than that that of the SCD, Obj-SCD, and MCI groups.
- Compared with ADNI cohorts, participants in C-PAS have younger age (mostly<80 years old) and lower APOE 4 carrier rates..

——Cui L, Huang L, Pan F-F, Wang Y, Huang Q, Guan Y-H, Lo C-YZ, Guo Y-H, Chan AS, Xie F, Guo Q (2023) Chinese Preclinical Alzheimer's Disease Study (C-PAS): Design and Challenge from PET Acceptance. The Journal of Prevention of Alzheimer's Disease.

C-PAS results from Peripheral biomarkers



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Thanks!

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