A comparative study between resting-state fMRI and plasma markers in subjects with mild cognitive impairment, on residents of Wuxi City, China.

long wang[1]

[1]Wuxi Mental Health Center,Wuxi,China

August 4, 2020

Abstract

From April 2018 to December 2019, we recruited 31 volunteers with mild cognitive impairment and 33 volunteers in the healthy control group from the residents of Wuxi City's community. Relevant researches on resting state functional magnetic resonance and human plasma markers were done respectively; Studies have shown that there are differences in brain function between the MCI group and the healthy control group, which is similar to previous studies[1]; It is worth noting that most plasma markers and cerebrospinal fluid, apolipoprotein gene E have no significant difference, Most previous studies of the same kind have shown anomalies[2], and we speculate that this difference may be related to ethnic or regional differences[3, 4]. Next, we will expand the sample size to further verify this guess

Tenglong Wang[1a] Zouqing Lin[2a]DongWang[3] Xingfu Zhao[1b] Zaohuo Cheng[1b]

[1]Wuxi Mental Health Center,Wuxi,China

[2]The affiliated Wuxi Mental Health Center of Nanjing Medical University, Wuxi, China

[3]Suzhou GuangJi Hospital,SuZhou, China

[a]These authors contributed equally to this work

[b]Corresponding authors: Xingfu Zhao(drzxf@ Hotmail.com). Zaohuo Cheng (zaohuocheng@ sina. Com).

To Editor,

From April 2018 to December 2019, we recruited 31 volunteers with mild cognitive impairment and 33 volunteers in the healthy control group from the residents of Wuxi City's community. Relevant researches on resting state functional magnetic resonance and human plasma markers were done respectively; Studies have shown that there are differences in brain function between the MCI group and the healthy control group, which is similar to previous studies[1]; It is worth noting that most plasma markers and cerebrospinal fluid, apolipoprotein gene E have no significant difference, Most previous studies of the same kind have shown anomalies[2], and we speculate that this difference may be related to ethnic or regional differences[3, 4]. Next, we will expand the sample size to further verify this guess. Annex Table 1.

Table 1 Demographic characteristics and within-group tests(*N=64*)

Project	**MCI**(31)	**NC**(33)	t/χ^2;	P value
Age(years)	68.79±4.87	68.88±4.92	0.08	0.94
Sex(female/male)	18/13	19/14	0.00	0.97
OPN	3.18±0.36	3.18±0.35	0.01	0.99

ComC4	10.46±2.06	10.67±1.25	0.54	0.59
NCAM	12.63±1.03	12.52±1.43	0.35	0.73
BDNF	8.61±1.43	8.50±1.44	0.30	0.77
PAI1-T	11.75±1.48	11.47±1.71	0.68	0.50
CathD	12.00±1.43	11.84±1.53	0.40	0.69
SAP	10.91±2.30	11.40±1.03	1.13	0.26
APOE	2.90±0.56	3.00±0.54	0.52	0.61
SOD1	5.70±0.86	5.49±0.71	1.09	0.28
SOD2	4.32±0. .71	4.11±0.64	1.28	0.21
AGT	3.66±1.07	3.59±1.19	1.26	0.80
Aβ-42	3.53±0.95	3.46±1.20	0.28	0.78

Note: (1) Inflammatory factors: OPN **:** osteopontin ; ComC4: complement ; (2) Nerve growth and repair: NCAM :nerve cell adhesion molecule ; BDNF :brain-derived neurotrophic factor ; (3) Glycolipoprotein metabolism: PAI1-T :plasmin activation inhibitor ; CathD: cathepsin-D ; SAP :serum amyloid P component ; APOE: apolipoprotein E genes(4) Stress response protein: SOD :soluble superoxide dismutase (SOD1, SOD2), AGT: angiotensin ; (5)Cerebrospinal fluid markers: Aβ-42.

Funding

This study was supported by the Social Development Project of Jiangsu Provincial Department of Science and Technology(BE2017624) and Youth Science and technology project of (KJXW2019048), and Social Development Key Projects in Jiangsu Province(BE2015615).

Conflict of Interests:

All authors declare that there is no conflict of interests regarding the publication of this paper.

References:

[1] Magalhães T N C,Weiler M,Teixeira C V L,et al. Systemic Inflammation and Multimodal Biomarkers in Amnestic Mild Cognitive Impairment and Alzheimer's Disease[J]. Molecular Neurobiology,2018,55(7): 5689-5697.

[2] Shen X,Niu L,Wang Y,et al. Inflammatory markers in Alzheimer's disease and mild cognitive impairment: a meta-analysis and systematic review of 170 studies[J]. Journal of Neurology, Neurosurgery & Psychiatry,2019,90(5): 590-598.

[3] Fang Y,Du N,Xing L,et al. Evaluation of hippocampal volume and serum brain-derived neurotrophic factor as potential diagnostic markers of conversion from amnestic mild cognitive impairment to Alzheimer disease: A STROBE-compliant article[J]. Medicine (Baltimore),2019, 98(30): e16604.

[4] Palmqvist S,Janelidze S,Stomrud E.et al. Performance of Fully Automated Plasma Assays as Screening Tests for Alzheimer Disease-Related-Amyloid Status[J]. JAMA Neurol,2019,76(9): 1060-1069.

Hosted file

`table.doc` available at https://authorea.com/users/348515/articles/473794-a-comparative-study-between-resting-state-fmri-and-plasma-markers-in-subjects-with-mild-cognitive-impairment-on-residents-of-wuxi-city-china