Apolipoprotein E Gene Polymorphism in Aging Population with Dementia in Nakhon Si Thammarat: A Preliminary Study of Southern Thai Ethnicity

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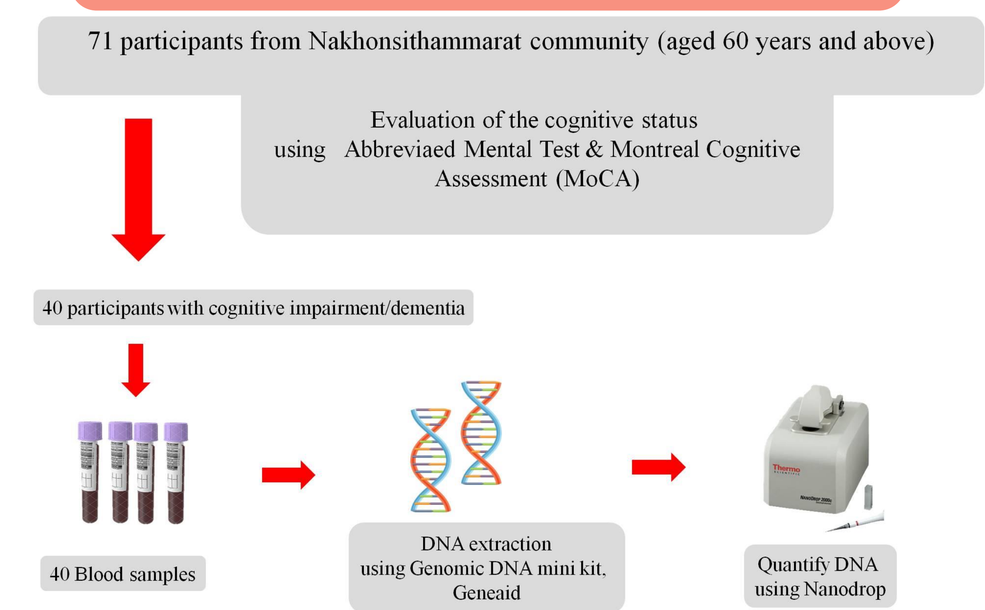
Introduction

As Thailand is entering an aging society, one of the important chronic diseases of Thai elderly population is dementia including Alzheimer's disease (AD). AD is a heritable and the most common type of senile dementia. In addition to the major genetic determinant of AD, the Apolipoprotein E (ApoE) genetic variants have been associated. The human ApoE gene is derived from the polymorphic combination of ApoE rs429358 and rs7412 that results in ApoE-ε2, ApoE-ε3 and ApoE-ε4 isoforms. The associations between ApoE genetic variants and the risk of AD have been demonstrated in numerous epidemiological studies in Caucasians but very less established in Asians, especially in Southern Thai population. We hereby assessed the distributions of these ApoE variants on aging population with cognitive impairment/dementia diagnosed in Nakhon Si Thammarat as a preliminary study for further study on the effects of these variants in all cause dementia among population.

Method



Data were described as means and standard deviations (SD). Categorical variables were described as percentages.

Result

Demographic character	Gender		Total (n = 40)
	Male (n= 8)	Female (n = 32)	
Gender, n (%)	8 (20)	32 (80)	**40 (100)**
Age, mean ± SD	72.67 ± 8.28	78.48 ± 7.93	**77.18 ± 8.27**
Genotype			
ApoE rs429358			
T/T, n (%)	6 (15)	26 (65)	**32 (80)**
C/T, n (%)	2 (5)	6 (15)	**8 (20)**
ApoE rs7412			
C/C, n (%)	8 (20)	27 (67.5)	**35 (87.5)**
C/T, n (%)	0 (0)	5 (12.5)	**5 (12.5)**

Initially, there were a total of 71 aging participants in the present study. Forty participants were included for data analysis due to the cognitive status evaluation criteria. As in a table , the mean age of the participants was 77.18±8.27 years; 20 and 80 % of the subjects were male and female, respectively. Within the 40 subjects, 32 subjects were detected with ApoE rs429358 T/T genotype (accounting for 80% of all subjects). Only 8 subjects were detected with ApoE rs429358 C/T genotype (accounting for 20% of all subjects). Among these, 35 subjects were of the ApoE rs7412 C/C genotype (accounting for 87.5% of all subjects) and 5 subjects were of the ApoE rs7412 C/T genotype (accounting for 12.5% of all subjects).

Conclusion

These results demonstrated that the ApoE rs429358 and rs7412 genotype C/T is accounting for 20% and 12.5% , respectively. There is no subject was detected with ApoE rs7412 T/T genotype and ApoE rs429358 C/C genotype which represent ApoE-ε2 and ApoE-ε4 variants of ApoE that are associated with the decreased and increased risk of AD compared with the individual carrying the more common ε3 allele, respectively.

References

- Senanarong V, Harnphadungkit K, Poungvarin N, et al. The Dementia and Disability Project in Thai Elderly: rational, design, methodology and early results. *BMC Neurol*. 2013;13:3. Published 2013 Jan 10. doi:10.1186/1471-2377-13-3.
- Zhen J, Huang X, Van Halm-Lutterodt N, Dong S, Ma W, Xiao R, Yuan L. ApoE rs429358 and rs7412 Polymorphism and Gender Differences of Serum Lipid Profile and Cognition in Aging Chinese Population. Front Aging Neurosci. 2017 Aug 2;9:248.

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