

APOLIPOPROTEIN E4: NEUROPSYCHOLOGICAL OUTCOME FOLLOWING TRAUMATIC BRAIN INJURY

RESEARCH CENTER: Department of Neurosciences,
Psychiatric Clinic, and
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CURRENT STATUS OF PROJECT: Ongoing

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INTRODUCTION

Three most common polymorphisms in apolipoprotein E [apoE2, apoE3 and apoE4] can influence neuron repair after traumatic brain injury (TBI). TBI can be obtained from any blow to the head while remaining relatively still. These single nucleotide polymorphisms differs at R158C (apoE2) and C112R (apoE4) on exon 4, chromosome 19. It is mostly expressed in the brain.

ApoE4 acts as a neurodegenerative gene and apoE3, a neuroprotective gene. Studies show that a more negative outcome in TBI patients with apoE4 usually occurs in comparison to patients without apoE4.

OBJECTIVES

1. To detect apolipoprotein E4 gene polymorphism among population in the East Coast of Malaysia.
2. To determine quantitative scores of neuropsychological tests among population in the East Coast of Malaysia.
3. To associate polymorphism of apolipoprotein E4 gene and neuropsychological tests' scores using statistical analysis.
4. To obtain the allele frequency of apolipoprotein E4 in the sample population of East Coast of Malaysia.

METHODOLOGY

40 closed head injury subjects (mild-moderate TBI) will be recruited and tested with 5 selected neuropsychological tests, 6 weeks and 6 months post injury to quantify level of recovery. Blood is obtained for genotyping. Subjects with major neurological, cognitive and/or psychiatric disorders and less than 8 years of education are excluded. 40 matched controls (parameters: age, sex, education level) will also be recruited, tested and screened for type of apoE in blood.

EXPECTED OUTCOME

1. ApoE4 has no negative effect on the outcome of patient post injury.
2. The frequency of apoE polymorphisms is similar with other studies.