



Title	Effect of Gene Polymorphisms and Ethanol Consumption on Micronucleus Frequency in Human Reticulocytes- A Preliminary Study
Author(s)	吳, 传城
Citation	大阪大学, 2010, 博士論文
Version Type	
URL	https://hdl.handle.net/11094/54232
rights	
Note	著者からインターネット公開の許諾が得られていないため、論文の要旨のみを公開しています。全文のご利用をご希望の場合は、大阪大学の博士論文についてをご参照ください。

The University of Osaka Institutional Knowledge Archive : OUKA

<https://ir.library.osaka-u.ac.jp/>

The University of Osaka

氏名	吳傳城
博士の専攻分野の名称	博士(医学)
学位記番号	第23607号
学位授与年月日	平成22年3月23日
学位授与の要件	学位規則第4条第1項該当 医学系研究科予防環境医学専攻
学位論文名	Effect of Gene Polymorphisms and Ethanol Consumption on Micronucleus Frequency in Human Reticulocytes-A Preliminary Study (遺伝子多型とエタノール消費におけるヒト網状赤血球の小核頻度の影響 -予備研究)
論文審査委員	(主査) 教授 森本 兼義 (副査) 教授 磯 博康 教授 的場 梁次

論文内容の要旨

〔目的〕

Previous studies suggested that alcohol drinking be genotoxic on peripheral lymphocytes. In the present study, we intend to observe the association of alcohol drinking with the genotoxic effect on hematopoietic stem cells in vivo.

〔方法ならびに成績〕

We investigated 156 healthy Japanese males in a cross-sectional study. Lifestyles including alcohol drinking behavior and cigarette smoking status were investigated with a self-completed questionnaire. Polymorphisms of ADH1B and ALDH2 were identified with polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) method. Micronucleus in the transferrin-positive reticulocytes (MN-RET) was detected with a single-laser flow cytometer. Associations between the genetic polymorphisms, lifestyle factors and MN-RET frequency were statistically analyzed.

We found a significant difference in the mean frequencies of MN-RET between habitual drinkers and non-habitual drinkers ($P = 0.043$), and between the ALDH2 *1/*1 and ALDH2 *2/*2 genotype ($P = 0.015$). The ADH1B *2 and ALDH2 *2 haplotype was estimated to have a significantly higher influence on the MN-RET frequency compared with ADH1B *2 and ALDH2 *1 haplotype ($P = 0.00035$), and alcohol drinking frequency played a significant role in the MN-RET frequency on the background of ADH1B *2 and ALDH2 *1 haplotype ($P = 0.012$).

〔総括〕

The present study suggested a possible association of ADH1B and ALDH2 polymorphism with genotoxic effects of alcohol drinking on the hematopoietic stem cells.

論文審査の結果の要旨

[目 的]

Previous studies suggested that alcohol drinking be genotoxic on peripheral lymphocytes. In the present study, we intend to observe the association of alcohol drinking with the genotoxic effect on hematopoietic stem cells *in vivo*.

[方法ならびに成績]

We investigated 156 healthy Japanese males in a cross-sectional study. Lifestyles including alcohol drinking behavior and cigarette smoking status were investigated with a self-completed questionnaire. Polymorphisms of ADH1B and ALDH2 were identified with polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) method. Micronucleus in the transferrin-positive reticulocytes (MN-RET) was detected with a single-laser flow cytometer. Associations between the genetic polymorphisms, lifestyle factors and MN-RET frequency were statistically analyzed.

We found a significant difference in the mean frequencies of MN-RET between habitual drinkers and non-habitual drinkers ($P = 0.043$), and between the ALDH2 *1/*1 and ALDH2 *2/*2 genotype ($P = 0.015$). The ADH1B *2 and ALDH2 *2 haplotype was estimated to have a significantly higher influence on the MN-RET frequency compared with ADH1B *2 and ALDH2 *1 haplotype ($P = 0.00035$), and alcohol drinking frequency played a significant role in the MN-RET frequency on the background of ADH1B *2 and ALDH2 *1 haplotype ($P = 0.012$).

[総 括]

The present study suggested a possible association of ADH1B and ALDH2 polymorphism with genotoxic effects of alcohol drinking on the hematopoietic stem cells.

学位に値するものと認める。