INTISARI

Latar Belakang: Kerentanan individu untuk menjadi pecandu alkohol, terutama etanol mungkin disebabkan oleh variasi genotip (polimorfisme) enzim ADH3, merupakan salah satu enzim yang memetabolisme alkohol.
Tujuan Penelitian: Penelitian ini bertujuan untuk mengetahui distribusi variasi genotip enzim ADH3 pada non-peminum alkohol suku Jawa di Yogyakarta.
Metode Penelitian: Penelitian ini merupakan penelitian deskriptif analitik, dengan rancang *cross sectional*. Sampel DNA diambil dari darah pada 51 non-peminum alkohol suku Jawa di Yogyakarta dengan *Wizard® Genomic DNA Purification Kit*. Amplifikasi DNA sampel dengan menggunakan metode *polymerase chain reaction.* Genotip ADH3 ditentukan dengan metode *restriction fragment length polymorphism* (RFLP) dengan enzim restriksi SspI.
Hasil: Frekuensi genotip ADH3*1, ADH3*2, dan ADH3*1/ 3*2 secara berurutan sebesar 2%, 84,3%, dan 13,7%. Pada wanita genotip ADH3*2, adalah 62,7%, pada pria adalah 21,6%. Satu sampel memiliki genotip ADH3*1, proporsinya 2%. Pada genotip ADH3*1/ 3*2 persentase pria dan wanita adalah 2% dan 11,7%. Pada genotip ADH3*2, frekuensi yang untuk rentang umur ≤20, 21-30, 31-40, 41-50, 51-59, dan ≥60 secara berurutan adalah 4%, 9,8%, 9,8%, 25,5%, 13,7%, 21,6%. Pada genotip ADH3*1, satu sampel berasal dari subjek berumur 31-40 tahun. Pada genotip ADH3*1/ 3*2, 7,6% berada pada rentang umur 31-40, 4% pada rentang umur 41-50 dan 2% pada rentang umur 51-59. Hasil uji statistik jenis kelamin dan tipe variasi genotip ADH3 memberikan nilai *Chi square* hitungan 3,023 < 5.991 *Chi square* tabel, *p* 0,221 > 0,05 sehingga tidak signifikan, nilai Φ 0,250 menunjukkan korelasi sangat lemah. Uji statistik usia dan tipe variasi genotip ADH3 memberikan nilai *Chi square* hitungan 13,5521 < 18,307 *Chi square* tabel, *p* 0,194 > 0,05 sehingga tidak signifikan, nilai Φ 0,458, menunjukkan korelasi cukup kuat.
Kesimpulan: Frekuensi genotip ADH3*1, ADH3*2, dan ADH3*1/ 3*2 pada non-peminum alkohol suku Jawa secara berurutan sebesar 2%, 84,3%, dan 13,7%. Analisis statistik menunjukkan tidak ada perbedaan proporsi antar jenis kelamin maupun usia dengan tipe variasi genotip ADH3. Hubungan antara variasi genotip ADH3 dengan jenis kelamin sangat lemah, sedangkan dengan usia cukup kuat.
Kata Kunci: *alcohol dehydrogenase 3, gen polymorphism, alcoholism, alcohol*

ABSTRACT

Background: Susceptibility of a person to became alcohol addict, especially ethanol may be caused by genotype variations (polymorphism) of ADH3 enzyme, which is one of enzymes in alcohol metabolism.

Objective: This study aims to know the distribution of ADH3 enzyme genotype variation in Javanese non-alcohol drinker in Yogyakarta.

Samples and Methods: This is a descriptive analytic study with cross sectional study design. DNA samples were taken from blood of 51 Javanese non-alcohol drinker in Yogyakarta by using *Wizard® Genomic DNA Purification Kit*. Amplification of DNA samples was carried out by using polymerase chain reaction method. ADH3 genotypes were determined by using Restriction Fragment Length Polymorphism (RFLP) method with SspI restriction enzyme.

Results: It has been found out that 84,3% of the samples were having ADH3*2 genotype variation. ADH*1 and ADH3*1/ 3*2 were 2% and 13,7% respectively. In ADH3*2 genotype variation, 62,7% were female, while male were 21,6%. A sample was detected having ADH3*1 genotype variation, thus the proportion was 2%. In ADH3*1/ 3*2 genotype variation, the percetage of male and female was 2% and 11,7%. Frequency of ADH3*1/ 3*2 genotype variation, according to age range of ≤20, 21-30, 31-40, 41-50, 51-59, and ≥60 is 4%, 9,8%, 9,8%, 25,5%, 13,7%, 21,6% respectively. ADH3*1 genotype variation, one sample came from a subject with age range 31-40 years. In ADH3*1/ 3*2 genotype variation, 7,6% was in age range of 31-40 years, 4% of 41-50 years dan 2% of 51-59 years. Statistical test for sex and genotype variation of ADH3 gave Chi square calculation of 3,023 < table of 5.991, *p* 0,221 > 0,05 showed insignificance, Φ of 0,250 showed very weak correlation. Statistical test of and genotype variation of ADH3 gave *Chi square* calculation of 13,5521 < table of 18,307, *p* 0,194 > 0,05 showed insignificance, Φ of 0,458 showed strong enough correlation.

Conclusion: Frequency of genotype variation of ADH3*1, ADH3*2, and ADH3*1/ 3*2 in Javanese non-alcohol drinker in Yogyakarta was 2%, 84,3%, and 13,7% respectively. Statistical analysis show no proportion difference between sex or age with ADH3 genotype variation. Correlation between ADH3 genotype variation with sex is very weak, correlation with age is strong enough.

Key words: alcohol dehydrogenase 3, gen polymorphism, alcoholism, alcohol.