

## INTISARI

**Latar Belakang:** Zat alkohol terbanyak disalahgunakan di dunia dan salah satu faktor gangguan fungsi hati melalui sifat polimorfisme gen enzim ALDH2. Sedikitnya penelitian hubungan polimorfisme gen ALDH2 dengan kadar enzim transaminase, mendorong penulis meneliti hal ini pada populasi yang banyak mengonsumsi alkohol di Indonesia, yaitu di etnis NTT.

**Tujuan:** Mengidentifikasi genotip ALDH2 pada Etnis NTT dan hubungannya dengan peminum alkohol serta kadar enzim transaminase.

**Metode:** Sebanyak 55 responden etnis NTT memenuhi kriteria inklusi dilibatkan dalam penelitian. Setelah responden menandatangani *inform consent*, diwawancara dan diambil sampel darah darahnya. Sampel darah kemudian dilakukan isolasi DNA, pemeriksaan kadar DNA, elektroforesis, RFLP, penentuan polimorfisme menggunakan enzim MboII, dan pemeriksaan kadar enzim transaminase (sgot, sgpt, dan ggt). Perilaku minum berdasarkan rutinitas, frekuensi, volume, dan durasi menggunakan kuesioner. Analisis statistik menggunakan *chi square* lalu dilakukan uji korelasi, dan menghitung ODDS Ratio.

**Hasil:** Dari 55 subyek penelitian, mayoritas *genotype* ALDH2\*1 oleh 29 subyek (52,7%), ALDH2\*2 oleh 17 subyek (30,9%) dan ALDH2\*1/\*2 oleh 9 subyek (16,4%). Peminum alkohol 38 orang (69,1%) sedangkan bukan peminum alkohol 17 orang (30,9%). Subyek ALDH2\*2 berisiko terjadinya peningkatan sgot sebesar 0,54 kali (OR=0,54) dan sgpt sebesar 1,16 kali (OR=1,16), subyek ALDH2\*1/\*2 berisiko terjadinya peningkatan sgpt sebesar 1,08 kali (OR=1,08). Subyek ALDH2\*1 peminum alkohol berisiko terjadinya peningkatan sgpt 0,52 kali (OR=0,52) dan subyek ALDH2\*2 peminum alkohol berisiko terjadinya peningkatan sgpt sebesar 0,70 kali (OR=0,70) dan ggt sebesar 1,4 kali (OR=1,4). Tidak terdapat proporsi bermakna antara polimorfisme ALDH2 dengan sgot dan sgpt, perilaku minum minuman beralkohol, maupun tingkat konsumsi alkohol pada populasi peminum alkohol ( $p>0,05$ ), namun bermakna dengan ggt ( $p=0,045$ ).

**Kesimpulan:** Polimorfisme gen ALDH2 adalah ALDH2\*1, ALDH2\*2, dan ALDH2\*1/\*2, dengan ALDH2\*1 (52,7%) terbanyak di etnis NTT. Polimorfisme ALDH2 terdapat proporsi bermakna dengan ggt (OR=1,4), namun tidak bermakna dengan sgot (OR=0,52), dan sgpt (OR=0,70).

**Kata Kunci :** Polimorfisme ALDH2, *Aldehyde Dehydrogenase*, etnis NTT, kadar enzim transaminase.

## ABSTRACT

**Background:** Alcohol is the most abused in the world and one of the factors for impaired liver function is the polymorphism of the ALDH2 enzyme gene. The lack of research on the relationship between the polymorphism of the ALDH2 gene and levels of the transaminase enzyme, prompted the authors to examine this in a population that consumes a lot of alcohol in Indonesia, namely the ethnic group of NTT.

**Objective:** To identify ALDH2 genotype in NTT ethnicity and its relationship with alcohol consumption and transaminase enzyme levels.

**Methods:** A total of 55 ethnic NTT respondents who met the inclusion criteria were included in the study. After the respondents signed the informed consent, they were interviewed and their blood samples were taken. The blood sample was then isolated from DNA, examined for DNA levels, electrophoresis, RFLP, determination of polymorphism using the MboII enzyme, and examination of levels of transaminase enzymes (sgot, sgpt, and ggt). Drinking behavior based on routine, frequency, volume, and duration using a questionnaire. Statistical analysis using chi square then performed a correlation test, and calculated the ODDS Ratio.

**Results:** From 55 research subjects, the majority of genotypes were ALDH2\*1 by 29 subjects (52.7%), ALDH2\*2 by 17 subjects (30.9%) and ALDH2\*1/\*2 by 9 subjects (16.4%). Alcohol drinkers 38 people (69.1%) while non-alcoholic drinkers 17 people (30.9%). ALDH2\*2 subjects were at risk of increasing sgot by 0.54 times (OR=0.54) and sgpt by 1.16 times (OR=1.16), ALDH2\*1/\*2 subjects at risk of increasing sgpt by 1.08 times (OR=1.08). ALDH2\*1 subjects who drink alcohol are at risk of increasing sgpt 0.52 times (OR=0.52) and ALDH2\*2 subjects who drink alcohol are at risk of increasing sgpt by 0.70 times (OR=0.70) and ggt by 1.4 times (OR=1.4). There was no significant proportion between ALDH2 polymorphism with sgot and sgpt, drinking behavior of alcoholic beverages, and level of alcohol consumption in the alcohol drinking population ( $p>0.05$ ), but significant with ggt ( $p=0.045$ ).

**Conclusion:** ALDH2 gene polymorphisms are ALDH2\*1, ALDH2\*2, and ALDH2\*1/\*2, with ALDH2\*1 (52.7%) being the most in NTT ethnicity. ALDH2 polymorphism has a significant proportion with ggt (OR=1.4), but not significant with sgot (OR=0.52), and sgpt (OR=0.70).

**Keywords:** ALDH2 polymorphism, Aldehyde Dehydrogenase, NTT ethnicity, transaminase enzyme levels.