

## Clinical Genetics

## AB086. HLA-B\*1502 and HLA-B\*5801 genotyping for the prevention of severe cutaneous adverse drug reactions in a Children's Hospital

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**Background:** Severe cutaneous adverse drug reactions (SCARs) are life-threatening. This includes Stevens-Johnson syndrome (SJS) and the more severe phenotype, toxic epidermal necrolysis (TEN). Clinical studies have shown that HLA-B\*1502 allele is strongly associated with carbamazepine (CBZ) induced SCARs in paediatric and adult epilepsy patients, whereas HLA-B\*5801 allele is strongly associated with allopurinol induced SCARs in treated gout and hyperuricemic patients.

**Methods:** Our hospital first offered HLA-B\*1502 and HLA-B\*5801 genotyping in 2014 and 2016, respectively. Genotyping was carried out using One Lambda-Micro SSP HLA Class I B Locus Specific Kit (SSP1B). Most results were returned within 24 hours.

**Results:** For HLA-B\*1502 test, 366 patients (median aged 7) were tested from year 2014 to June 2017. Forty-five (12.3%) patients were found to be positive for HLA-B\*1502.

Breaking down into 3 main ethnicities, Chinese, Malay, and Indian, the Malays were found to have the highest positive rate (19.7%), followed by the Chinese (13%). Only one of the 29 (3.4%) Indian patients tested were found to carry the HLA-B\*1502 allele. A relatively high positive rate (12.5%) was found in the "other" ethnic group, accounting for 1.4% of total Singapore's population. This group is made up of migrants from Indonesia, northern Malayan peninsula and other Southeast Asian regions. HLA-B\*5801 genotyping was only requested for adult patient from other hospitals. Only 17 patients (median aged 71) were tested during October 2016-June 2017. Seven (41%) patients were found to be positive for HLA-B\*5801. Chinese was found to have the highest positive rate (57.1%), followed by the Malays (50%).

**Conclusions:** This study helps to determine which ethnicity is more likely to suffer from SCARs and therefore the use of CBZ or allopurinol should be practiced with care. It has been shown that HLA-B\*1502 and HLA-B\*5801 testing are cost-effective in reducing morbidity due to administration of CBZ and allopurinol.

**Keywords:** HLA-B\*1502; HLA-B\*5801; SCARs; carbamazepine (CBZ); allopurinol

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