Frequency of HLA Polymorphisms in a Large Population Related to Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) Development Risk

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BACKGROUND

Specific human leukocyte antigen (HLA) variants are associated with an increased risk of developing SJS/TEN.[1] These risks are higher with certain medications such as carbamazepine, oxcarbazepine, phenytoin, and allopurinol.[1,2,3] CPIC and FDA provide pharmacogenomic guidance for patients with established HLA variants.[1,2,3,4]

METHODS

We analyzed carrier frequencies of 49,807 patient samples genotyped for HLA-A *31:01, HLA-B *15:02, HLA-B *57:01, and HLA-B *58:01 using the OneOme RightMed® Test, stratified by self-reported ethnicity and race.

RESULTS

Figure 1: Sample Population Self-Reported Race or Ethnicity

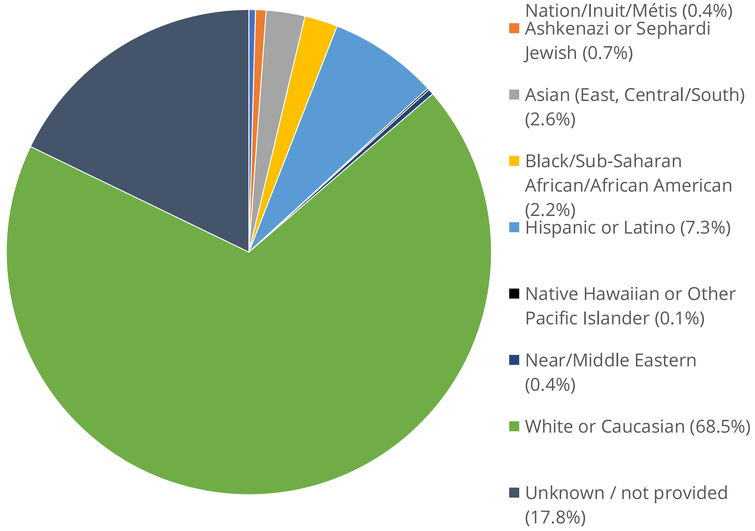


Figure 2: Observed HLA-A *31:01 Frequencies

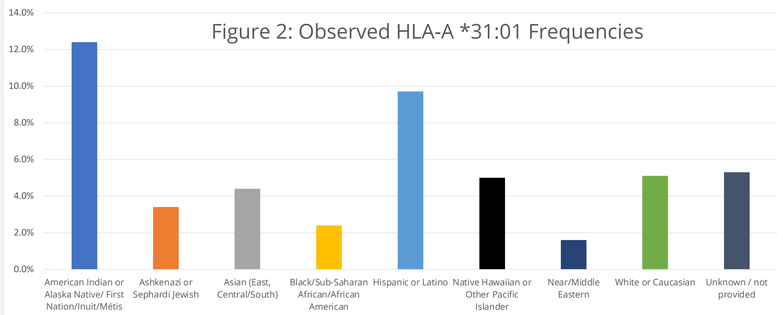


Figure 3: Observed HLA-B *15:02 Frequencies

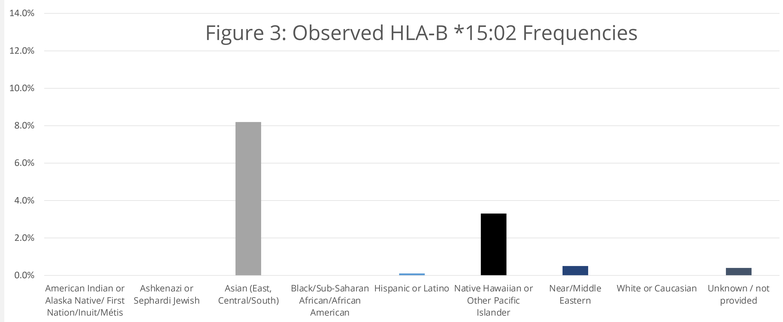


Figure 4: Observed HLA-B *57:01 Frequencies

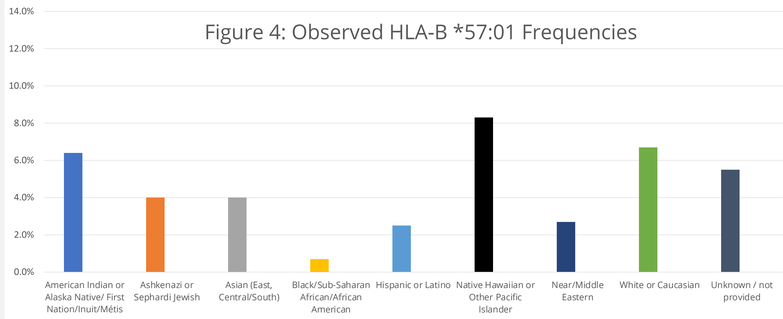
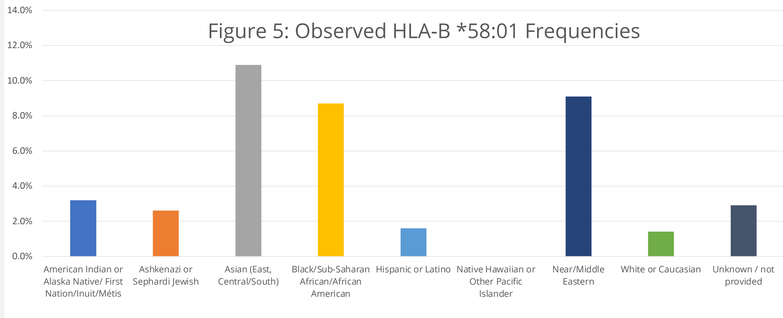


Figure 5: Observed HLA-B *58:01 Frequencies



CONCLUSIONS

We found a higher rate of clinically actionable variants than previously reported.[5,6] Approximately 1 in 7 patients had one or more positive HLA-A or HLA-B variants (n=49807).

11.1% Self-reported "White or Caucasian" patients with at least one positive variant in HLA-A or B.

16.4% Patients who self-reported Race or Ethnicity other than "White or Caucasian" with at least one positive variant in HLA-A or B.

1.5x Patients who self-reported Race or Ethnicity other than "White or Caucasian" were 1.5x more likely to have at least one positive variant in HLA-A or B

Given the FDA and CPIC both have guidance and dosing recommendations for patients testing positive for these variants, PGx testing is informative and should be used across all populations to help prevent severe adverse drug reactions especially in ethnicities other than "White or Caucasian".[1,2]

REFERENCES

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