**Type 1 Diabetes National Screening Pilot: Can we predict genetic risk of type 1 diabetes in Australian children?**

*Aims*

General population children were screened for genetic risk of type 1 diabetes (T1D) in the Australian Type 1 Diabetes National Screening Pilot. Factors associated with an increased risk of T1D were explored.

*Methods*

Newborns and infants (6-12months) were screened using a polygenic risk score via dried blood spots (newborns) or salivary swabs (infants). A score >90th centile was considered increased risk of T1D. Demographic details were collected including self-reported ancestry based on Australian Standard Classification of Cultural and Ethnic Groups (ASCEG) codes. Binary logistic regression was used to analyse factors associated with increased risk.

*Results*

3,990 children were eligible for screening. Samples were not returned for 16.6% (n=661) and 83.4% (n=3,329) were successfully screened and given an increased or low risk result.

Of the screened children (47.5% male, 7.8% sex unknown), 75.3% were low risk (n=3004) and 8.1% were increased risk (n=325).

Of the increased risk children, 37.8% (n=123) identified as Oceanian (includes Australian), 2.2% (n=7) Aboriginal/Torres Strait Islander (ATSI), 27.1% European (n=88), 4.9% (n=16) Middle Eastern, 4.6% (n=15) South Asian, 15.1% (n=49) East Asian, 4.3% (n=14) South American and 0.9% (n=3) African and 4.9% (n=16) Other. Ancestry was unknown in 17.5% (n=57). Family history of T1D was present in 17.2% (n=56) whilst 35.1% (n=114) had a family history of type 2 diabetes (T2D).

The probability of increased genetic risk for T1D was 86% higher with T1D family history (p< 0.001), 33% higher with T2D family history (p=0.043) and 51% higher with Oceanian ancestry (p=0.001). No other ancestries were statistically significant for increased risk.

*Conclusions*

This is the first study to explore increased genetic risk for T1D in the Australian general population across individuals with different ancestries. Whilst there was an association with self-reported Oceanian ancestry, further exploration with larger datasets, including validation against known T1D, is warranted.

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