

# Applicability of the case-parent design in the etiological research of Type 1 diabetes in Chile and other genetically mixed populations

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In case-control studies, spurious associations between Human Leukocyte Antigen (HLA) alleles and Type 1 diabetes could arise as a result of population stratification, if there are ethnic differences between cases and non-related controls. The Chilean population has several unique features which make it ideal for the study of the effect of stratification by ethnicity on genetic epidemiological research. The incidence rates of Type I diabetes in Chilean Aboriginal populations are very low compared to Caucasian populations, while the frequency of the alleles in HLA loci also vary across ethnic groups. In order to avoid the confounding effect of ethnicity, one possible remedy would be the use of cases and their parents in place of non- related controls. The case-parent design offers an adequate framework for the study of the association between HLA polymorphisms and Type 1 diabetes in the Chilean population and can also be applicable to other genetically mixed populations especially in the