The risk factors responsible for acute rheumatic fever (ARF) are complex, in part, because group A streptococcus (GAS) infection is a prerequisite for this disease. We attempted to differentiate socioeconomic from genetic risk factors by studying subjects in a Hawaii pediatric cardiology clinic who qualified for Medicaid. This ethnically diverse group was unique because they maintained a low socioeconomic but generally healthy lifestyle with more limited risks than those living in extremely impoverished conditions.

Methods: Questionnaires were administered to consenting subjects in the clinic, who were divided into those diagnosed with ARF (n=26) and those with other (primarily congenital) heart diseases (n=41).

Results: The socioeconomic status of the ARF and non-ARF groups was lower than that of the Hawaii population in general, and little differences were noted between the groups. The ARF group, however, had slightly larger household sizes and more children than the non-ARF group. The greatest difference was in ethnicity. By the Fisher exact test, the number of Polynesians belonging to the ARF group was significantly greater than all other ethnicities ($p=.005$). Polynesians had an odds ratio >4.80 of developing ARF, which increased to 6.33 when number of children per household was considered.

Conclusion: The potential contribution of genetic predisposing factors for developing ARF was analyzed in subjects living in a homogeneously low socioeconomic level relative to the general Hawaii population. Polynesians were at highest risk when compared to other ethnicities living in similar socioeconomic conditions. (Ethn Dis. 2006;16:357–361)

Key Words: Acute Rheumatic Fever, Epidemiology, Ethnicity, Risk Factors

To determine some of the factors for these prevalence rates, we analyzed Medicaid subjects who were enrolled in a pediatric cardiology clinic serving families in Hawaii. The socioeconomic conditions of this group were expected to be relatively homogeneous, lower than the average family in Hawaii but not as impoverished as in developing countries, where overwhelming disease, malnutrition, inadequate health care, and immunocompromised status may mask more subtle host factors. Hawaii offers a unique environment in which to institute this study because of its multiethnic population, nearly universal healthcare, mild climate, and acute awareness of the high ARF incidence. Questionnaires were administered to two groups, those diagnosed with ARF and those with other heart conditions.

MATERIALS AND METHODS

Subject Population

Consecutive ARF case-patients and congenital heart disease cohort control-patients enrolled in the pediatric cardiology clinic were recruited at Kapiolani Medical Center for Women and Children, which is the only pediatric tertiary-care hospital in Hawaii. Subjects were divided into the case group, who had been diagnosed with ARF using the modified Jones criteria by one of two pediatric rheumatologists, or the control group with non-ARF heart conditions (primarily congenital in nature). Identical surveys for both groups were administered by using a structured interview process investigating economic, living, and educational conditions of the

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