

HONORABLE MENTION:

Abstract #2673

Sibling Relative Risk and Heritability of Sjögren's Syndrome: A Nationwide Population Study in Taiwan

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Background/Purpose: Although familial aggregation has been found in many autoimmune diseases, the evidence for familial aggregation in Sjögren's syndrome is lacking. The aims of this study was to estimate familial relative risk (RR) and heritability of Sjögren's syndrome in the general population of Taiwan.

Methods: Using data from the National Health Insurance Research Database in Taiwan, we conducted a nationwide cross-sectional study of 11,665,669 men and 11,332,220 women in 2010. We identified individuals with a full sibling affected by Sjögren's syndrome and compared the prevalence of the disease between individuals with and without an affected sibling. The identification of sibling of each individual was determined using the NIHRD registry for beneficiaries. This specifies relationships between the insured person who paid the insurance fee and his/her dependents, allowing first-degree relatives (father, mother, son, daughter, brother, sister, twin) to be identified directly. Full siblings were identified as individuals who shared the same parents. The marginal Cox proportional hazard model with an equal follow-up time for all subjects was used to estimate sibling relative risk (RR) and the 95% confidence interval (CI). This model was used to account for shared environment and case clustering within families with robust variance. The heritability of Sjögren's syndrome were estimated by multifactorial polygenic threshold which presumes a single, normally distributed disease liability resulting from a large number of unspecified genes and environmental factors, each with small and additive influences.

Results: There were 12,091 (men, 1,264; women, 10,827) patients with Sjögren's syndrome in the general population of Taiwan in 2010 (unadjusted prevalence = 0.53 per 1000). The mean age of patients with Sjögren's syndrome was 57.4 ± 14.1 years. Individuals with an affected sibling with Sjögren's syndrome had a higher prevalence of Sjögren's syndrome (5.03 per 1,000 people) than those without (0.53 per 1,000 people). The risk of Sjögren's syndrome in individuals with an affected sibling was 15.51 (95% CI, 5.85–41.12) times greater than that in individuals without an affected sibling. The heritability of Sjögren's syndrome was 0.54 (95% CI, 0.32–0.80).

Conclusion: This is the first population-based study to demonstrate that Sjögren's syndrome clustered within families. The results suggest a significant genetic contribution to the development of Sjögren's syndrome.