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Reduced incidence of Crohn's disease in systemic sclerosis: a nationwide population study

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Abstract

Background: To date, there has been no studies to evaluate the incidence of Crohn's disease in systemic sclerosis patients. The goals of this study were to evaluate the incidence of Crohn's disease and its relationship with sex and age in patients with systemic sclerosis.

Methods: We enrolled patients with systemic sclerosis and controls from Taiwan's Registry of Catastrophic Illness Database and National Health Insurance Research Database. Every systemic sclerosis patient was matched to at most three controls by sex, age, month and year of initial diagnosis of systemic sclerosis. The standardized incidence ratio (SIR) of Crohn's disease in systemic sclerosis patients, and 95 % confidence interval (95 % CI) were calculated. Cox hazard regression was used to calculate the hazard ratio (HR).

Results: The study enrolled 2,829 patients with systemic sclerosis and 8,257 controls. Male and female patients with systemic sclerosis both had lower rates of incident Crohn's disease (SIR: 0.18, 95 % CI = 0.05–0.62; SIR: 0.10, 95 % CI = 0.05–0.21, respectively). The risk of incident Crohn's disease in systemic sclerosis was still lower than in controls when we stratified the patients according to their ages. In Cox hazard regression, the hazard rates of Crohn's disease were lower in systemic sclerosis patients after adjusting for genders and ages (HR: 0.12, 95 % CI = 0.06–0.21, $p < 0.001$).

Conclusions: Systemic sclerosis is associated with decreased incidence of, irrespective of sex and age of the patients.

Background

Systemic sclerosis is a multisystem autoimmune disease characterized by endothelial dysfunction, widespread obliterative vasculopathy, and excessive collagen deposition in affected organs, culminating in tissue fibrosis [1]. Immunologically, it is associated with autoantibodies [1]. Clinically, it is divided into a limited form and a diffuse form [1]. Besides its own morbidity, there is an increasingly number of reports showing coexisting medical diseases such as systemic lupus erythematosus [2] and autoimmune thyroid disease associated with systemic sclerosis [3]. However, there are also studies pointing to a

reduced risk of autoimmune diseases, such as inflammatory bowel disease, in association with systemic sclerosis [4].

Crohn's disease is a type of inflammatory bowel disease. Several studies have varied conclusions about whether systemic sclerosis implies a greater risk of Crohn's disease. For example, in one study [5], the risk of Crohn's disease differed across two databases in systemic sclerosis patients. Another study showed reduced risk of inflammatory bowel disease in the family members of patients with systemic sclerosis [4]. Besides conflicting results in the literature, previous studies focused on the prevalence of Crohn's disease instead of the incidence of Crohn's disease. In addition, the relationship of age and sex in regards to Crohn's disease incidence in systemic sclerosis needs to be further elucidated. Thus we conducted this study to explore the incidence of Crohn's disease and its relationship with sex and age in systemic sclerosis patients.

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