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Wen J[1], Ho C[2], Wu M[1]
1. *Department of Obstetrics and Gynecology, Chi-Mei Medical Center, Tainan, Taiwan,* ***2.*** *Department of Medicine Research Chi Mei Medical Center,Tainan,Taiwan*

THE RISKS OF INTERSITITAL CYSTITIS AMONG PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A POPULATION-BASED COHORT STUDY

Hypothesis / aims of study

Interstitial cystitis (IC), otherwise known as painful bladder syndrome, is a clinical syndrome consisting of suprapubic pain related to bladder filling and accompanied by other symptoms such as urinary frequency, urgency, nocturia, and dyspareunia in the absence of proven infection or other obvious pathology[1]. Although the etiology of interstitial cystitis remain unclear, existing studies has suggested that autoimmune disorder may contributed as one of the possible causes. Correlation of IC with some autoimmune diseases was suggested but few studies to date have been focused on the association of IC and systemic lupus erythematosus (SLE). Therefore, we conducted a population-based cohort study investigating the incidence of IC among patients with SLE in Taiwan.

Study design, materials and methods

This is a population-based retrospective cohort study. The participants in the study group (the SLE group) and the comparison group for this study were obtained from a random sample of approximately one million enrolees (approximately 5% of Taiwan's population) as a representative cohort from the National Health Insurance (NHI) Research Database (NHIRD) in Taiwan[2]. The primary outcome was a endpoint of being diagnosed as IC/BPS with the ICD-9 CM code 595.1. The subjects were followed up until the end of 2011.

The participants in the study group (the SLE group) were women beyond 18 years old and newly diagnosed as systemic lupus erythematosus with the ICD-9 CM code 710.0 and possessed IC card for severe illness approved by National Health Insurance Administration, Ministry of Health and Welfare[2] in Taiwan during 2001-2008. Comparison group consisted of individuals randomly selected from the NHIRD at the year of 2000, who were not diagnosed with SLE and assembled by matching a SLE subject with 8 non-SLE subjects in terms of gender and age (±30 days). None of participants either in the study group or in the comparison group had ever received a diagnosis of IC since the inauguration of the NHI program. The incidence rate of IC was calculated and the effect of SLE on the incidence of IC was estimated by adjusting age and comorbidities including diabetes mellitus, hypertension, hyperlipidemia, and renal diseases.

Results

This study included 7240 subjects with SLE and matched 57920 subjects without SLE. The age distributions were comparable with a mean age of 35.5 years. There was no significant differences in the distribution of the insurable income. Co-morbidities such as hypertension, hyperlipidemia and chronic renal diseases were more prevalent in the SLE group the in the control group and the prevalence of diabetes mellitus was comparable.

The incidence rate of IC was 7.44 per 10000 person-years in the SLE group and 3.29 per 10000 person-years in the comparison group overall. The incidence rate of IC in the three age categories, 18-29, 30-44, ≧45 years, are 5.74, 6.85, and 10.40 per 10000 person-years separately among the SLE group and 2.12, 3.32 and 4.65 per 10000 person-years in the comparison group. After adjustment for the other variables, SLE and older age are statistically significant risk factors of developing IC (aHR 2.45 in SLE group, 95% CI=1.67~3.58, aHR 2.07 in age group □45 years, 95% CI= 1.37~3.13) (Table 1). Kaplan-Meier survival curves was shown as Fig.1

Interpretation of results

The incidence rate of IC was significantly higher in the SLE group than in the comparison group overall (IR 7.44 vs 3.29 per 10000 person-years, IRR 2.26, p< 0.0001). The incidence rate of IC escalated as age increased in both groups. SLE and older age are statistically significant risk factors of developing IC. Kaplan-Meier survival curves shows that the SLE group was more likely to develop BPS/IC than the control group with significant higher cumulative incidence rate (p<0.0001)

Table 1. Crude and Adjusted hazard ratios of Cox proportional hazard regressions and 95% confidence interval for the development of IC during the follow-up period for study cohort.

Cohort	Crude HR (95% CI)	Adjusted HR (95% CI)
SLE	2.268*(1.571-3.275)	2.452*(1.676-3.587)
Age (years)		
18-29	1.000	1.000
30-44	1.474(0.992-2.190)	1.479(0.995-2.197)
≧45	2.086*(1.419-3.068)	2.071*(1.370-3.132)
DM	1.649(0.811-3.353)	1.218(0.563-2.633)
HTN	1.582(0.958-2.610)	1.053(0.599-1.853)
Renal	1.242(0.461-3.347)	0.628(0.224-1.765)
Hyperlipidemia	1.627(0.720-3.673)	1.082(0.451-2.5933

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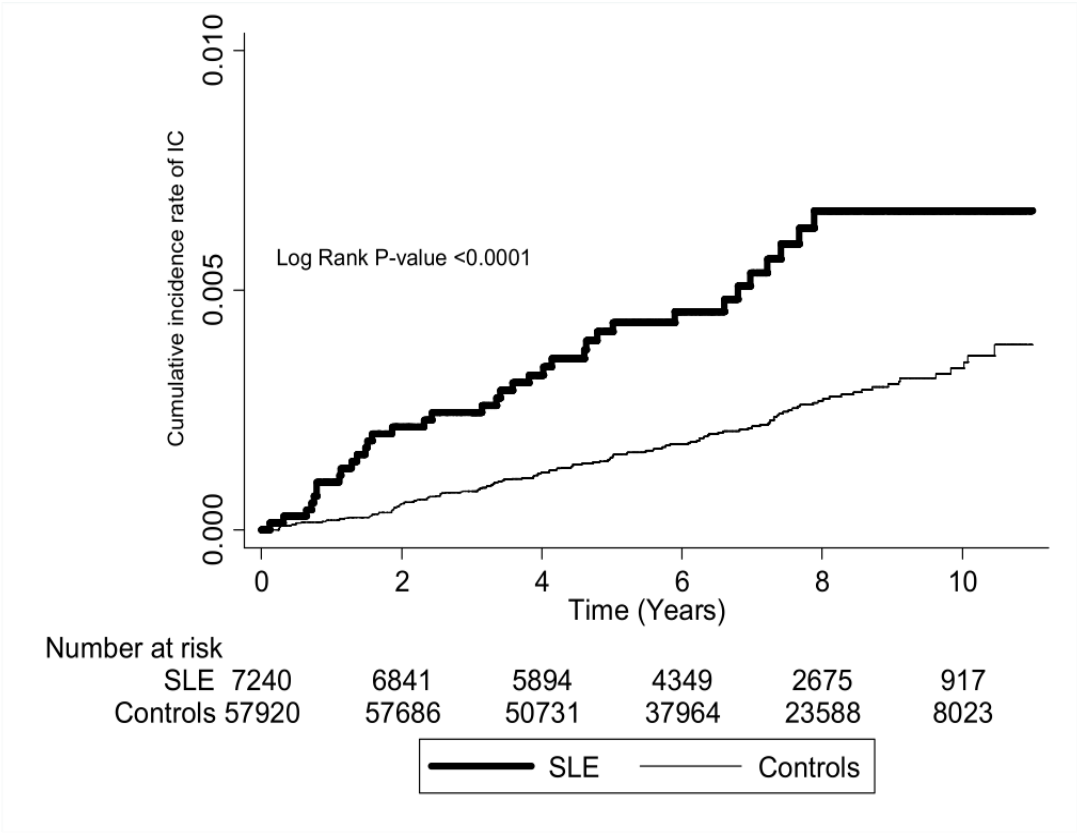
Cohort	Crude HR (95% CI)	Adjusted HR (95% CI)

*p-value <0.05
adjusted by age, comorbidities, geographic region, and income



Concluding message

To the best of our knowledge, this is the first population-based cohort study investigating the incidence of IC among patient with SLE[3]. Our result demonstrated significant higher risk of IC among patient with SLE than general population and supported the postulation of interstitial cystitis being as a disease origin from autoimmune disorder.

References

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