A Comorbidity study between fibromyalgia and painful bladder syndrome/Interstitial Cystitis —12 years population based matched Cohort Study

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Hypothesis / aims of study

Fibromyalgia and Painful Bladder Syndrome/Interstitial Cystitis (PBS/IC) are two diseases both with chronic pain. About 17.7% of the PBS/IC will have fibromyalgia by previous study. These two diseases have similar common characteristics, such as demographic characteristics; comorbidities; past history; risk factors; difficult to treat. However, the exact pathogeneses are still unknown. This study assumes that there is a causal relationship between the two diseases, and design a cohort study to explore if the risk of PBS/IC in fibromyalgia patients is higher than those patients without fibromyalgia in Taiwan.

Materials and methods

The cohort study used longitudinal health insurance database (LHID2010) of the Taiwan National Health Insurance in 2010. We define those who are first-time diagnosed of fibromyalgia during 2002 to 2013 fibromyalgia cohort. Patients without fibromyalgia were matched with age, sex and ten comorbidities acquired the non-fibromyalgia cohort. Prospective observe and compare the risk of PBS/IC during study period in these two cohorts. In addition, to analysis the duration from diagnosis of fibromyalgia to the occurrence of PBS/IC in these cases.

RESULTS & INTERPRETATION

In unmatched group, including 1,403 FM and 368,507 non-FM patients, the PBS/IC HR was 1.064 (95% CI, 0.813-1.393; p=0.651) in the FM cohort compared with non-FM cohort. In matched group, there were 23,751 patients in both FM and non-FM cohorts and the PBS/IC HR was 1.373 (95% CI, 0.866-2.177; p=0.178). The average year of developing PBS/IC in FM cohort and non-FM cohort were 3.71±2.53 (n=33) and 5.85±3.32 (n=50) years, respectively.

1. PBS/IC and FM have many similarities between the symptoms and pathogenesis, such as increased sensitivity of pain in the CNS and surrounding tissue, however, only inferences and lack of sufficient evidence. (1997, Clauw)
2. A questionnaire survey of 205 PBS/IC and 117 age-matched. PBS/IC were significantly more likely to have fibromyalgia at the same time (17.7% vs 2.6%, $p < 0.001$), and 20.2% of patients had multiple comorbidities at the same time, and their symptoms were more severe, also may be two way evolution (Nickle, 2010) -No common cause or pathogenesis in the two; at the same time, there is no two-way evolution between the two in this study.
3. In our study,326,732 patients (30% incidence) with "fibromyalgia" diagnosed by doctors from all departments, however, 31,565(3,1% incidence) were diagnosed by medical specialists, similar to epidemiological investigations (2-8%).
4. The number of samples before pairing was larger (n=695,239), which was close to the whole sample group (the external validity is better) . Although the number of samples was relatively small (n=47,520) in matched group , the pairing control of age, sex and 10 comorbidities due to the propensity score. It can avoid the influence of interference factors (the inherent validity is higher), which can represent the causal relationship between real diseases.
5. Limitation of study: ICD coding based for the dependent and confounding factors that maybe a diagnosis bias. PBS/IC patients may not go to undertake the treatment which is a detection bias. There may be a different results using another one million sample.

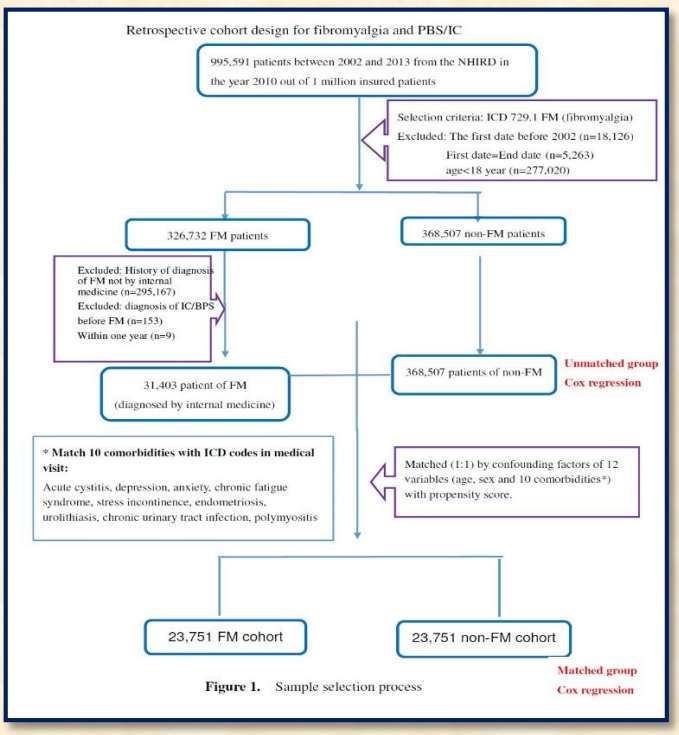

Figure 1. Sample selection process

Table 1. Demographics (including age, sex and 10 comorbidities) between the FM and non-FM cohorts (n=47,502) and Table2.Hazard ratio of PBS/IC in the FM cohort compared with the non-FM cohort

Variable	FM cohort (n=23,751)	Non-FM cohort (n=23,751)	p
Age (means ± sd; range)	46.11 ± 14.79	46.04 ± 15.41	0.609
Sex (F, %)	12,490 (52.6)	12,500 (52.6)	0.927
Acute cystitis	9,812 (41.3)	9,738 (41.0)	0.490
Depressive disorder	6,596 (27.8)	6,669 (28.1)	0.455
Anxiety state	55 (0.2)	58 (0.2)	0.851
Chronic fatigue syndrome	126 (0.5)	122 (0.5)	1.000
Stress incontinence	200 (0.5)	225 (0.6)	0.849
Endometriosis	8,627 (36.3)	8,650 (36.0)	0.529
Urolithiasis	190 (0.8)	199 (0.8)	0.684
chronic UTI	2 (0.01)	2 (0.01)	1.000
SLE	72 (0.3)	61 (0.3)	0.385
Polymyositis	267 (1.1)	254 (1.1)	0.597

Values are given as mean ± standard deviation (range) or n (%).UTI, urinary tract infection; SLE, ystemic lupus erythematosus

Table 2. Hazard ratio of PBS/IC in the FM cohort compared with the non-FM cohort

FM / non-FM	HR (95% CI)	p
Unmatched group (n=695,239)	1.064[a] (0.813-1.393)	0.651
Matched group (n=47,502)	1.373 (0.866-2.177)	0.178

([a]Adjusted confounders: age, sex, Acute cystitis, irritable bowel syndrome, depression, anxiety, stress incontinence, recurrent UTI, adhesion, chronic endometritis, chronic urinary tract infection, SLE, rheumatic arthritis.)

Table (1) and Table (2)

CONCLUSIONS

FM has no causal effect on PBS/IC in this twelve years' cohort study. The average year from diagnosis of FM to PBS/IC was 3.71±2.53 years.

REFREENCES

1.Lee M-H, et al. Clinical Characteristic Picture and Impact of Symptoms on Quality of Life of Interstitial Cystitis Patients in Taiwan. LUTS: Lower Urinary Tract Symptoms. 2014; 6(1):20-5.
2.Nickel JC, et al. Interstitial cystitis/painful bladder syndrome and associated medical conditions with an emphasis on irritable bowel syndrome, fibromyalgia and chronic fatigue syndrome. The Journal of urology. 2010;184 (4):1358-63.
3.Daniel Clauw, Daniel J. Fibromyalgia. JAMA. 2014-04-16, 311 (15): 1547–55