Factors Associated with Kidney Damage among Thais with Lupus Nephritis

Wimonwan Lertwongpaopun, Fongcum Tilokskulchai*, Siriorn Sindhu, Anirut Pattaragan, Teeradej Chai-Aroon

Abstract : Kidney damage is a serious, irreversible, adverse change to the kidney, including anatomical, physiological, or functional damage. Thus, screening for and management of factors associated with kidney damage are necessary to initiate early intervention to prevent or minimize permanent damage to the kidneys. This descriptive cross-sectional study investigated the factors associated with kidney damage among Thais with lupus nephritis. Data collection took place between July 2012 and June 2013 at the auto-immunology, allergy, and rheumatology clinic of a large university hospital located in Bangkok, Thailand. The participants consisted of 140 persons with lupus nephritis. Data were obtained through a Personal Data Form, the Disease Activity Record, the Thai Depression Inventory, the Self-Management Questionnaire, and a Clinical Data Form and were analyzed by descriptive statistics; t-test and Cohen's *d* effect size and chi-square. Findings indicated that disease duration, depression, disease activity, and self-management are associated with kidney damage among Thais with lupus nephritis, significantly. Cohen's *d* effect size indicated that disease activity had the largest effect, followed by self-management, depression and disease duration, respectively. In terms of self-management, Cohen's *d* indicated that nutrition had the largest effect, then avoiding risk factors such as fatigue, sun, stress, and infection. Disease activity and depression could be diminished by good self-management. Thus, nurses should provide self-management support emphasising a balanced diet, and minimizing exposure to risk factors, which will delay kidney damage.

Pacific Rim Int J Nurs Res 2016; 20(4) 309-319

Keywords: Disease Activity, Kidney Damage, Lupus Nephritis, Self-Management, Thailand

Introduction

Lupus nephritis (LN) is an inflammation of the kidney caused by systemic lupus erythematosus (SLE), and can be very grave, often requiring immediate medical treatment to prevent permanent damage. The principal goal of therapy in lupus nephritis is to normalize renal function or, at least, to prevent the progressive loss of renal function, which is a costly

*Wimonwan Lertwongpaopun, RN, PhD. (Candidate), Faculty of Nursing, Mahidol University, Thailand. **E-mail:** wimonwan@g.swu.ac.th*
***Correspondence to: Fongcum Tilokskulchai*,** RN, PhD., Associate Professor, Faculty of Nursing, Mahidol University, Thailand.*
***E-mail:** fongcum.til@mahidol.ac.th*
***Siriorn Sindhu,** RN, D.N.Sc., Associate Professor, Faculty of Nursing, Mahidol University, Thailand.*
***Anirut Pattaragan,** M.D., Associate Professor, Dip.Thai Board of Pediatric Nephrology, Faculty of Medicain Siriraj Hospital, Mahidol University, Thailand.*
***Teeradej Chai-Aroon,** D.Sc., Assistant Professor, Faculty of Social Sciences and Humanities, Mahidol University, Thailand.*

condition to treat. The average hospitalization charge among person with SLE was greater for lupus nephritis compared to those without lupus nephritis ($US43,100 versus $US28,500) especially for lupus nephritis with kidney failure, transplant, and end-stage kidney disease.[1] In many cases, treatment is effective in completely or partially controlling lupus nephritis, resulting in fewer complications. Up to 60% of adults with SLE suffer from varying degrees of renal involvement, and severe lupus nephritis (World Health Organization class III and above) progresses to end-stage kidney disease (ESRD) within 15 years of diagnosis in 10% to 30% of people with lupus nephritis develop kidney failure necessitating hemodialysis or kidney transplant.[2] When lupus attacks the kidneys, the damage can be life-threatening. Kidney damage is a key predictor of mortality in lupus nephritis[3]; however, little is known about the factors associated with kidney damage among this population. In order to provide effective intervention, knowing associated factors related to kidney damage are necessary.

Review of Literature

The mechanisms underlying kidney damage in lupus nephritis are not completely understood. However, autoimmune disease is under genetic control, so organ resistance to damage indicates the need to personalize therapeutic strategies in the treatment of lupus nephritis to minimize side effects and prevention of flares in the maintenance phase of the disease become more important.[4] Kidney damage is an irreversible abnormal kidney structure or function persisting greater than 3 months, initially without decreased GFR, which over time can lead to decreased GFR. Proteinuria is an early and sensitive marker of kidney damage in many types of chronic kidney disease. Other markers may include evidence of pathologic abnormality which detected by renal biopsy and structural abnormalities which shown on imaging studies.[4] The extant literature outside of Thailand suggests that multiple factors including disease duration[5,6], disease activity[7], depression[9,10] and self-management[12,13,14] have been shown to influence the development of kidney damage in persons with lupus nephritis.

Disease duration: The individuals with long term disease duration may have long-term scars in their kidneys and have received more treatments which affect their kidney functions. The cumulative damage assessed by Systemic Lupus International Collaborating Clinics/American College of Rheumatology Damage Index (SDI) was increased at a rate of 0.13 per year.[5] The cumulative incidence of end stage renal disease after 1, 5, and 10 years was 3.5%, 15%, and 17%, respectively.[6] In addition, the extent of kidney damage depends on the disease activity.

Disease activity is the exacerbation of the disease after remission. The more exacerbated, the more likely to cause kidney damage. This exacerbation is determined by 10 symptoms: neurological disorder, renal disorder, vasculitis, haemolysis thrombocytopenia, myositis, arthritis, mucocutaneous disorder, serositis, fever/fatigue, and leucopenia/lymphopenia.[7] The higher the frequency of symptoms, the higher disease activity or "active disease". There is a highly significant correlation of high disease activity with cumulative kidney damage particularly in those with the first years of lupus nephritis are an active critical period which can lead to severe damage[8], this highlights the necessity of aggressive treatment, tight-organized follow-ups and more patient compliance with the physician orders. Due to the possible rapid deterioration of the disease and the restrictions of lifestyle restrictions to manage their illness, they significantly impact on the social functioning, leading to anxiety and depression, preventing ability to cope, and adjustment.[8]

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration.[9] These problems can become chronic

or recurrent and lead to substantial impairments in an individual's ability to take care of his or her everyday responsibilities.[10] In some cases, depression is a result of the emotional drain of coping with a chronic medical condition that requires a wide range of adjustments and sacrifices. In other cases, lupus medication, especially steroid medications like prednisolone, and other physiological factors, can trigger depression.[11,12] Some people with lupus have mild but noticeable changes in behavior such as unusual feelings of fear or lack of fear, or loss of interest or curiosity. More commonly, the fatigue and pain of lupus is draining to the point that a person changes his or her outlook on life. Individuals with lupus nephritis are overwhelmed with having a disease and require a targeted, sensitive, and flexible approach for self-managing their conditions.

Self-management represents an ideological shift away from patients as passive recipients of treatment to empowered individuals who are partners in the effective management of their health.[13] They do this by performing a range of activities they consider to enhance their health and well-being. From this perspective self-management also involves the tasks people do to navigate health services and to take an active part in their treatment planning such as shared decision-making.[14] Self-management in person with lupus nephritis involves monitoring fluid retention, managing medications and modifying diet, exercise and fluid habits. Effective self-management improves health outcomes, slows disease progression and delays renal replacement therapy.[15] A prospective randomized controlled trial found that there were fewer hospitalization events for a self-management group than non-self-management group.[16]

There are both physical and psychological factors that might affect the deterioration of lupus nephritis to kidney damage. However, there is no single report reviewing factors associated with kidney damage among Thais with lupus nephritis. To address this gap, we examined the clinical (disease duration, disease activity), psychological (depression), and self-management factors associated with kidney damage among Thais with lupus nephritis. Study findings may help to inform clinical management and patient education approaches to reduce the prevalence of this preventable lupus nephritis co-morbidity.

Methods

Design

A descriptive cross-sectional design was used to investigate the factors associated with the development of kidney damage among people with lupus nephritis. Data collection was carried out in the autoimmunology, allergy, and rheumatology clinic of a large university hospital located in Bangkok, Thailand. Data collection took place between July 2012 to June 2013.

Ethical consideration

Ethical Considerations: Approval to conduct the study was obtained from the Committee on Human Rights related to Research involving Human Subjects, Faculty of Medicine Ramathibodi Hospital, Mahidol University, ethical clearance number MURA 2011/547. Each potential participants received an information sheet describing: the purpose of the study; what would be involved in participating; confidentiality and anonymity issues; and that involvement was voluntary. Participants could withdraw at any time without repercussions, and still receive regular treatment from the hospital. Individuals consenting to take part in the study were asked to sign a consent form.

Sample and Setting

Potential participants were identified via a review of the medical records of patients with lupus nephritis. Inclusion criteria were: aged 15 to 60 years old; confirmed diagnosis of lupus nephritis by rheumatologists for ≥ 1 year; able to speak Thai; and able to provide informed consent. Those requiring renal replacement therapy were excluded. A total of

160 potential participants meeting eligibility criteria based on medical chart review and 140 (87.50%) agreed to participate. Reasons for non-participation were: lack of interest, not enough time to complete the survey, and health status.

The sample size was determined according to Yamane[17], as this was necessary for a given combination of precision, confidence levels, and variability. The prevalence of lupus nephritis in Thailand has never been studied. Based on a study on the epidemiology of systemic lupus erythematosus in Asia, the prevalence rates usually fall within 30–50/100,000 population[18] and lupus nephritis affects more than 60% of people with systemic lupus erythematosus.[19] Based on these data, it was estimated that there are currently 200,339 people with lupus nephritis in Thailand. The sample size for ±10% precision levels where confidence level was 95% and p=.5 is 100 respondents. However, the sample size of this study was increased to 140 in case of incomplete questionnaire responses.

Study Measures

Measures used in this study were *Demographic characteristics, Kidney damage, Disease duration, Disease Activity, Depression and Self-Management.*

Demographic characteristics: Demographic questions were used to obtain participant's age, education, occupation, income, and method of payment for medical services.

Kidney Damage: A chart review was conducted to obtain laboratory results of urinalysis. Proteinuria persisting more than three months prior to this study was determined as kidney damage.

Disease duration: was measured in full months from the time the patient was diagnosed with lupus nephritis until when data was obtained.

Disease Activity: This was measured by the frequency of abnormal symptoms recorded in the preceding 12 months by the physician in the progress note of the medical record. It contained 10-main clinical symptoms: neurological disorder, renal disorder, vasculitis, haemolysis thrombocytopenia, myositis, arthritis, mucocutaneous disorder, serositis, fever/fatigue, and leucopenia/lymphopenia.[7] This record produced a picture of disease activity in the past year, with higher frequency representing higher disease activity.

Depression: The Thai Depression Inventory (TDI) is a self-rated instrument used for measuring the severity of depressive symptoms in the past 14 days. The TDI contains 20 items such as "How much is your hopelessness?", with each item score ranging from none (0) to extremely (3), therefore the total score ranges from 0–60. The internal reliability and concurrent validity in a previous study were good (Cronbach alpha = 0.858; r=0.72).[20] The Cronbach's α coefficient of the Thai Depression Inventory in this study was 0.857.

Self-Management: The Self-Management Questionnaire (SMQ) represents all daily decisions a person makes to attain the greatest possible physical functioning and mental outlook to positively manage his/her chronic illness. The SMQ was adapted from the Self-care Behavior Questionnaire by Tantisak[21], the Relapse Prevention Behavior Questionnaire by Urairat et al.[22], with copyright permission and through information obtained from a literature review. The SMQ is a 42-item, 4-point Likert scale from 1 (never) to 4 (routinely), with score ranged from 42-168, the higher score indicated higher self-management. A score between 42–104 indicates poor self-management, 105–147 moderate self-management, and between 148-168 good self-management. This questionnaire includes six dimensions: health communication, nutrition, stress reduction, physical activity, managing medications, and avoiding risk factor. A sample item is "See doctor if had abnormal sign," Content validity was evaluated by 3 experts, 2 who are nurse instructors, and a registered nurse working more than 20 years with people diagnosed with SLE. The Content Validity Index (CVI) of the overall questionnaire was .89. A CVI was calculated for each dimension:

health communication (.90), nutrition (.96), stress reduction (.90), physical activity (.78), managing medications (.80), and avoiding risk factor (.89). The reliability of the SMQ was tested on 30 participants with lupus nephritis. The coefficient alpha of the 42-items of the questionnaire was 0.977, while the actual study was 0.92. The coefficient-alpha of each dimension was: health communication (.896), nutrition (.884), stress reduction (.930), physical activity (.907), managing medications (.818), and avoiding risk factor (.879).

Data Collection

Prior to data collection, permission was obtained from the hospital director to approach potential participants located in the outpatient clinics. The head nurse and staff in the relevant clinics were informed about the goals and procedures associated with the research study. The medical records for patients on the daily appointment rosters were searched by the principal investigator (PI) for eligibility. The potential participants were then individually approached at the time of their scheduled medical appointment. Prior to data collection, the PI approached and informed them about the study goals, procedures and potential risks associated with the study. Those who agreed to participate then completed an informed consent form. Data collection took place via the self-administered questionnaire in a private room located in the outpatient clinic waiting area. Survey completion took approximately 40 minutes. Following data collection, participants were given a small gift as a token of appreciation.

Data Analysis

Descriptive statistics were used to analyze characteristics of the participants and examine the distribution of demographic variables. T-tests were used to examine the differences in the disease duration,

disease activity, depression, and self-management dimensions between lupus nephritis participants with and without kidney damage. The effect size of the independent variable was examined by using Cohen's d. The significant level of the hypothesis testing was at .05. Chi-square test was conducted to examine the differences of self-management in six dimensions between lupus nephritis participants with and without kidney damage. The effect size of each self-management item was examined by using Cramer's V.

Results

Demographic characteristics

There were 140 participants with lupus nephritis. Of these, 97 (69.3%) were diagnosed with kidney damage and 43 without kidney damage (30.7%). As shown in Table 1, participants with and without kidney damage differed on the type of residence, household income, lupus nephritis class, and frequency of hospital admissions. Participants with kidney damage living outside Bangkok had lower household monthly income, were more likely to be categorized in lupus nephritis class IV, and were admitted to the hospital 2-3 times during last 1 year. Participants without kidney damage living in Bangkok and suburbs had higher income, were more likely to be in Lupus nephritis class II, and rarely were admitted to the hospital. There were no different characteristics of marital status and health care utility in both groups and most participants were single and had health cover under the Universal Coverage Scheme.

Factors associated with kidney damage among participants with lupus nephritis

As shown in Table 2, there were statistically significant differences in disease duration, disease activity, depression, and self-management scores among individuals with and without kidney damage. Individuals with kidney damage had a longer disease duration (t = 5.917), higher depression scores (t =

6.748), more disease activity (t = 13.669), and a lower self-management score (t = −7.598) than those without kidney damage.

      Cohen's d was used to examine which independent variables had the most significant effect on kidney damage, results indicated that disease activity, depression, and self-management had a moderate significant effect on kidney damage. Disease activity had the largest effect size (Cohen's d = 2.319), followed by self-management (Cohen's d = 1.289), depression (Cohen's d = 1.145), and disease duration (Cohen's d = 1.004), respectively.

Table 1 Comparison of demographic and clinical characteristics between participants with and without kidney damage. (N=140).

Characteristics		Kidney damage		p −value
		Yes n (%)	No n (%)	
Total		97 (100.0)	43 (100.0)	
Residence	Bangkok and suburbs	32 (33.0)	34 (79.1)	.000*
	Other	65 (67.0)	9 (20.9)	
Marital status	Single	62 (63.9)	23 (53.5)	.328
	Married	35 (36.1)	20 (46.5)	
Educational level	Primary school	8 (08.2)	0 (00.0)	n.a.
	High/Vocational school	32 (33.0)	18 (41.9)	
	Bachelor degree	57 (58.8)	22 (51.2)	
	Higher than bachelor degree	0 (00.0)	3 (07.0)	
Lupus nephritis	LN class 2	5 (05.2)	33 (76.7)	.000*
	LN class 3	42 (43.3)	10 (23.3)	
	LN class 4	50 (51.5)	0 (00.0)	
Admission	Never	31 (32.0)	41 (95.3)	.000*
(Per year)	1 time	28 (28.9)	2 (04.7)	
	2−3 times	38 (39.2)	0 (00.00)	

* p<.05

n.a. = not applicable

Table 2 The differences and effect size of related variables among individuals diagnosed with lupus nephritis with and without kidney damage.

Characteristics	Kidney amage	N	Mean	S.D.	t	Sig. (2−tailed)	Cohen's d
Disease duration (month)	yes	97	84.96	73.684	5.917	.000**	1.004
	No	43	36.98	20.523			
Disease activity	Yes	97	4.81	3.238	13.669	.000**	2.319
	No	43	0.23	0.427			
Depression	Yes	97	19.93	4.438	6.748	.000**	1.145
	No	43	16.26	2.001			
Self-management	Yes	97	122.38	10.404	−7.598	.000**	1.289
	No	43	135.47	6.548			

** p<.05

Self-management

There were statistically significant differences in all six dimensions of self-management among the participants with and without kidney damage: health communication (t = -2.948, p<.05); nutrition (t = -14.712, p<.05); physical activity (t = -2.058, p<.05); stress reduction (t = -4.763, p<.05); managing medications (t = -3.188, p<.05); and avoiding risk factor (t = -8.046, p<.05). A Cohen's d indicated that the degree of all six dimensions of self-management among those with kidney damage

was lower than those without damage. Cohen's d indicated that nutrition had the largest effect size (Cohen's d = 2.496) followed by avoiding risk factors (Cohen's d = 1.365), and both had a moderate effect on kidney damage. Particularly, Cohen's d indicated that stress reduction (Cohen's d = 0.808), managing medications (Cohen's d = 0.541), and health communication (Cohen's d = 0.500), respectively had an effect size at a significant level, while physical activity (Cohen's d = 0.349) had the lowest effect size.

Table 3 Differences and effect size of self-management score among individuals diagnosed with lupus nephritis with and without kidney damage.

Characteristics	Kidney damage				t	Sig. (2-tailed)	Cohen's *d*
	Yes (N = 97)		No (N = 43)				
	Mean	S.D.	Mean	S.D.			
(a) Health communication	29.80	3.115	31.40	2.518	-2.948	.004**	0.500
(b) Nutrition	24.98	2.217	29.35	1.270	-14.712	.000**	2.496
(c) Physical activity	8.92	1.412	9.42	1.118	-2.058	.042**	0.349
(d) Stress reduction	25.53	4.146	28.86	2.949	-4.763	.000**	0.808
(e) Managing medications	17.28	1.718	18.21	1.264	-3.188	.002**	0.541
(f) Avoiding risk factor	15.88	1.900	18.23	1.445	-8.046	.000**	1.365

**p<.05

Discussion

The rate of kidney damage among individuals with lupus nephritis in this study was 69.3%. Most participants with kidney damage were in lupus nephritis class IV, while most participants without kidney damage were in class II. This finding is congruent with the Classification of Glomerulonephritis in Systemic Lupus Erythematosus Revisited[23] in that lupus nephritis class IV are focal proliferative nephritis, while lupus nephritis class II is based on a finding of mesangial proliferative.

Our study found that factors associated significantly with kidney damage are disease duration, depression, disease activity, and self-management. Participants with kidney damage had longer disease duration, higher depression score, more disease activity,

and a lower score of self-management than those without kidney damage.

Disease duration: Individuals with kidney damage had longer disease duration (mean 86.96 months or about 7 years) than those without kidney damage (mean 36.98 months or about 3 years). Chambers et al.[24] followed 232 patients for at least 10 years and found that 90% did not have damage at year 1 post-diagnosis. However, by year 10, 50% had accrued some damage. Urowitz et al.[25] conducted research to describe the course of disease activity and the development of damage during the first 5 years of SLE. Their results indicated that damage accumulation occurred slowly among individuals with SLE; and those who accumulated damage within the first year of disease were at an increased mortality risk. Therefore, the longer time since onset allowed comorbidities to

appear due to the disease itself or possible adverse effects of treatments during its progression. After the long disease duration, most patients presented deteriorated disease damage.

Disease activity: Within 12 months the frequency of symptoms ranged from 0–12. Individuals with kidney damage had more frequent disease activity (mean =4.81) or active disease than those without kidney damage (mean=0.23). Active disease activity can occur in different organs especially kidneys where it can cause serious damage. If the disease course become aggressive and unresponsive to established therapies such as corticosteroids, azathioprine and cyclophosphamide, toxicity associated with prolonged use of these drugs can contribute to increased kidney damage.[26] Parikh et al.[27] found that renal activity may be an independent predictor of incident and progressive chronic kidney disease (CKD).

Depression: Participants in the kidney damage group had a higher score of depression (mean=19.93, with 31% mild to moderate depression) than those without damage (mean=16.26 and 2% of mild to moderate depression). Individuals with kidney damage had to undergo lifestyle and dietary restrictions to manage their illness which impacted on their social functioning, leading to anxiety and depression, decreasing ability to cope, and adjustment. Beckerman et al.[28] found that the more chronic the symptoms, the more likely depression would arise, and the more frequent the disease activity, the more intense the emotional distress.

Self-management: Self-management scores of participants in both groups were at a moderate level (mean = 122.38–135.47 [range 42–168], respectively). Participants with kidney damage had a lower score of self-management (mean=122.38) than those without damage (mean=135.47). Among individuals with lupus nephritis a diet with moderate protein and salt restriction is the major nutrition issue which can reduce the burden on kidneys, promote a beneficial protective effect against tissue damage, and suppress

inflammatory activity. As a major concern, this is followed by avoiding risk factors, especially sun protection. Similar findings have been reported by Sohng[29] who found that it is important in self-management to reduce fatigue and depression, and improve coping skills and self-efficacy in persons with systemic lupus erythematosus. Individuals with lupus nephritis experience various changes in physical and emotional functions because of the unpredictability of symptoms, the effects of the treatment, and the uncertain prognosis. Daily life activities of patients are often impaired; thus self-management is important to prevent active disease and kidney damage.[29]

There were statistically significant differences in all six dimensions of self-management among participants with and without kidney damage. Cohen's d indicated that nutrition and avoiding risk factors had a moderate effect on kidney damage. Particularly, nutrition had the larger effect size, follow by avoiding risk factors, stress reduction, managing medications, and health communication. When participants were asked what the most important activity in self-management they should do, frequent answers were what they could eat and what they should avoid. Actually, all participants responses were similar. They all knew what they should do and what they should avoid; however, the important question was "Can they really do this?". In addition, emotion was an important factor affecting participants' clinical status such as problems from husband, and stress from work. In interviews, it was found that when participants tried to do appropriate self-management, sometimes the disease still attacked.

Limitations

The study included a small sample of the target population from only one institution and this may limit the generalization of all patients with lupus nephritis in different contexts. In addition, collecting data from medical record retrospectively is particularly

problematic because it needs to rely on others for accurate recordkeeping.

Conclusions and Implications for Nursing Practice

The results found associations between disease duration, disease activity, depression, self-management and kidney damage in participants with lupus nephritis. Among the associated factors, disease duration is the factor that we cannot control, while disease activity and depression can be diminished by good self-management. The key to living a good life for those with lupus nephritis is knowledge about the condition, understanding what the limitations are and making the absolute most of what they have. Health care providers and family members should encourage and support individuals with lupus nephritis, enabling them to perform the appropriate self-management to prevent kidney damage.

Nurses should provide information that enables individuals to expand their health knowledge to influence their self-management. Nursing support can range from advice on the use of sun protection when undertaking outdoor activity or scheduling outdoor activities for early morning, late afternoon or early evening to avoid peak sun exposure. Other interventions such as offering advice on a balanced diet, smoking cessation, and adequate exercise and rest, all help to manage disease activity. Especially, food is very important for the individual with lupus nephritis, they should eat a high protein, low salt diet, which is very difficult to do, especially for those who do not cook at home by themselves, since Thai food always contains salt in its ingredient. Nurses should reiterate that adherence to treatment is necessary to delay progression; however, minimizing exposure to precipitating factors such as fatigue, sun, stress, and infection, will become more important. During exacerbation, individuals will become abruptly ill.

Nurses should detect and record the abnormal symptoms and response to therapy. Depression may occur in the trap of feeling tired, worried and overwhelmed. Nurses should become competent in the use of various stress reduction techniques and relaxation programs to help people overcome depression and stress.

Further studies are required, especially longitudinal studies of individuals that track the changes correlated with kidney damage among lupus nephritis.

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ปัจจัยที่มีความสัมพันธ์กับความเสียหายของไตในผู้ป่วยโรคไตอักเสบลูปัส

วิมลวรรณ เลิศวงศ์เผ่าพันธุ์ ฟองคำ ติลกสกุลชัย* ศิริอร สินธุ อนิรุธ ภัทรากาญจน์ ธีรเดช ฉายอรุณ

บทคัดย่อ: การทำลายของไต คือ การที่ไตเกิดการเปลี่ยนแปลงอย่างถาวรทั้งกายวิภาค สรีรวิทยา และการทำหน้าที่ การค้นหาและจัดการปัจจัยที่ทำให้เกิดการทำลายของไต จึงมีความจำเป็นสำหรับ บุคลากรทางสาธารณสุขที่ควรตระหนักและให้การช่วยเหลือเพื่อป้องกันและลดการทำลายของไต การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อหาปัจจัยที่มีความสัมพันธ์กับการทำลายของไตในคนไทยที่มีไตอัก เสบลูปัส ทำการวิจัยระหว่างเดือนกรกฎาคม 2555 – เดือนมิถุนายน 2556 ณ คลินิกผู้ป่วยนอกโรค ภูมิคุ้มกัน ภูมิแพ้ และโรคข้อ ในโรงพยาบาลมหาวิทยาลัยแห่งหนึ่งในกรุงเทพมหานคร กลุ่มตัวอย่าง เป็นผู้ที่ได้รับการวินิจฉัยว่ามีไตอักเสบลูปัส จำนวน 140 คน เก็บรวบรวมข้อมูลโดยใช้แบบสอบถาม ข้อมูลส่วนบุคคล, แบบบันทึกความถี่ของอาการกำเริบ, แบบวัดภาวะซึมเศร้า, แบบสอบถามการ จัดการตนเอง และแบบบันทึกข้อมูลทางคลินิก ทำการวิเคราะห์ข้อมูลด้วยสถิติพรรณนา การทดสอบ ที การทดสอบไคสแควร์ และขนาดอิทธิพลโคเฮ็น ผลการวิจัยพบว่าระยะเวลาการดำเนินโรค ภาวะ ซึมเศร้า Disease activity และการจัดการตนเองมีความสัมพันธ์กับการทำลายของไต ในผู้ที่ได้รับการ วินิจฉัยว่ามีไตอักเสบลูปัส โดยพบว่า Disease activity มีขนาดอิทธิพลต่อการเกิดความเสียหายของ ไตมากที่สุด รองลงมา คือ การจัดการตนเอง ภาวะซึมเศร้า และระยะเวลาการดำเนินโรค ตามลำดับ ในด้านการจัดการตนเอง พบว่าโภชนาการมีขนาดอิทธิพลสูงที่สุด รองลงมา คือ การหลีกเลี่ยงปัจจัย เสี่ยง เช่น ความอ่อนล้า แสงแดด และการติดเชื้อ ซึ่ง Disease activity และภาวะซึมเศร้าสามารถลด ลงได้ด้วยการจัดการตนเองที่ดี ดังนั้นพยาบาลควรสนับสนุนให้มีการจัดการตนเอง โดยเน้นการรับ ประทานอาหารที่เหมาะสม และลดการสัมผัสกับปัจจัยกระตุ้น ซึ่งจะช่วยชะลอการทำลายของไตได้

คำสำคัญ : ความเสียหายของไต ไตอักเสบลูปัส การจัดการตนเอง

วิมลวรรณ เลิศวงศ์เผ่าพันธุ์, RN, PhD. (Candidate), *คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล* **E-mail:** *wimonwan@g.swu.ac.th*
ติดต่อที่: ฟองคำ ติลกสกุลชัย, RN, PhD., *รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล* **E-mail:** *fongcum.til@mahidol.ac.th*
ศิริอร สินธุ, RN, D.N.Sc., *รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัย มหิดล*
อนิรุธ ภัทรากาญจน์, M.D., *รองศาสตราจารย์ คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล*
ธีรเดช ฉายอรุณ, D.Sc., *ผู้ช่วยศาสตราจารย์ คณะสังคมศาสตร์และมนุษยศาสตร์ มหาวิทยาลัยมหิดล*