A Survey of Patients with Neuropathic Pain at Siriraj Pain Clinic

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Objective: *To examine the profile and treatment pattern of patients with neuropathic pain attending Siriraj Pain Clinic.*

Material and Method: *A 2-year retrospective study of the prevalence of neuropathic pain, characteristics of the patients and the use of medical treatment. Records of all the patients that attended Siriraj Pain Clinic from September 1, 2002 until September 30, 2004 were reviewed.*

Results: *One thousand three hundred and thirty patients' records were reviewed. Five hundred and three patients were diagnosed as having neuropathic pain. The prevalence of neuropathic pain at Siriraj Pain Clinic during the survey period was 37.8%. The average age of neuropathic pain patients was 54 years. The most common type of neuropathic pain was peripheral type, nerve compression in particular. The most common concomitant illness was malignant tumor. The majority of patients (71.8%) had one pain location and the most common site was the lower extremity. The main descriptions of neuropathic pain were radiating, electric shock-like, burning, numbing and shooting. Oral medication was the most common method (79%) of pain-relief treatment. Almost all of the patients (93%) had received more than one type of oral medication. The most commonly used medicine was TCA (77.1%), followed by gabapentin (35%), carbamazepine (34%) and tramadol (24.3%). Most of the pain-relief medicines prescribed at this clinic were under the recommended doses for the treatment of neuropathic pain.*

Conclusion: *Characteristics and treatment patterns of neuropathic pain at Siriraj Pain Clinic are similar to those seen in other pain clinics elsewhere in the world. The high prevalence of neuropathic pain in the clinic indicates that this type of pain syndrome is increasingly critical to our clinical practice. More educational programs on neuropathic pain and management are needed for Thai healthcare professionals.*

Keywords: *Neuropathic pain, Medical treatment, Siriraj Pain Clinic*

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Neuropathic pain is increasingly recognized as an important health problem. It has been shown to affect psychological health, social and economic well-being, and quality of life[1,2]. Neuropathic pain is a common condition and it may be caused by or associated with certain underlying conditions. There are no concrete global epidemiological data on general neuropathic pain and only a limited number of prevalence studies of neuropathic pain and most of them studied neuropathic pain with specified underlying diseases such as diabetic painful neuropathy, postherpetic neuralgia and trigeminal neuralgia. Studies of the prevalence give estimates of diabetic neuropathy at approximately 34% of diabetic patients and the prevalence of painful neuropathy at 11-20%[3]. A lifetime prevalence of postherpetic neuralgia in the UK reported by McDonald was 70 per 100,000 and the prevalence of trigeminal neuralgia ranged between 0.4-70 per 100,000[4]. Bowsher et al. stated that the prevalence of neuropathic pain affected up to 1% of the entire British population[5]. This conclusion, however, is likely to be an underestimation. Bowsher also reported that neuropathic pain accounted for more than 25% of patients attending a large, regional pain clinic in the south of England. In a similar review study of patients referred to a Danish pain center, 37.7% had neuropathic pain[2]. In Thailand at present, there are inadequate local epi-

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demiological data on the prevalence, characteristics of patients with neuropathic pain and the pattern of clinical practice in this condition. This lack of information has concealed the severity of the problem and its implication on society. Consequently, little attention is focused on this area of health care locally. The objective of the present study was to examine the profile and treatment pattern of neuropathic pain patients attending the Siriraj Pain Clinic, one of the pain consultation and management providers in Thailand. This clinic, staffed by anesthesiologists, provides out-patient and in-patient consultations in pain management. Siriraj Hospital, a large university hospital, serves as a referral center for patients from all over the country.

Material and Method

This is a two-year retrospective study of the prevalence of neuropathic pain, characteristics of the patients and the use of medical treatment. All patients attending Siriraj Pain Clinic from September 1, 2002 until September 30, 2004 were reviewed. Detailed information from patients with neuropathic pain was collected. Diagnosis of neuropathic pain was based on physicians' knowledge and expertise. The data were obtained from the clinic records. Data collected include the patients' demographic profiles, history of co-existing medical diseases, pain diagnosis, pain locations, duration and severity of pain (a numeric rating scale was routinely used at this clinic), treatment modality and improvement of pain evaluated at two weeks after initiation of treatment, which is the routine follow-up period.

Statistical analysis

Descriptive and explorative statistical analyses were used. For categorical variables, absolute and percentage frequencies were counted. For continuous variables, the mean, standard deviation range and median were given. The analyses of pain before and after treatment were also done according to the relevant topics by Wilcoxon's signed-rank test. A p-value of less than 0.05 was considered significant.

Results

From 1 September 2002 and 30 September 2004, 1330 patients attended the Siriraj Pain Clinic: 37.8% (503) of patients were diagnosed as having neuropathic pain and 62.2% (827) were diagnosed as having non-neuropathic pain. Data of neuropathic pain patients were extracted and analyzed. The demographic and clinical characteristics of neuropathic pain patients are presented in Table 1. The proportion of female patients was slightly higher than male patients (53.3% vs 46.7%). The average age of the patients was 54 years. The median (range) of acute neuropathic pain was 1 (0.25-5) month and the median (range) of chronic neuropathic pain was 24 (2-360) months. The most common type of neuropathic pain was peripheral type (62.2%), followed by central type (27.4%) and mixed type (10.3%). The most common type of peripheral neuropathic pain was nerve compression (69.3%). More than half of the patients (53.1%) had one or more concomitant illnesses and the most common illness was malignant tumor. The majority of patients (71.8%) had one pain location and the most common site was the lower extremity. The main descriptions of neuropathic pain in the present study were radiating, electric shock-like, burning, numbing and shooting.

The most common treatments were pain relief medications (79%). Fifteen percent received nerve block and only 6% were referred to physiotherapy. Among patients receiving pain relief medications, 93% received more than one type. The types of medication commonly prescribed by pain specialists for neuropathic pain relief are shown in Table 2. The most commonly used (as monotherapy or in combination) medicine was TCA (77.1%), followed by gabapentin (35%), carbamazepine (34%) and tramadol (24.3%).

Doses of medicines prescribed at this clinic varied from low doses to high doses as shown in Table 3. The commonly prescribed dose of TCA was 10 mg (69.1%) whereas gabapentin was commonly prescribed at 300 mg or lower (38.6%), carbamazepine at 200 mg (45%), tramadol at 200mg and morphine at 60 mg.

The improvement of pain scores before and after treatment was recorded. Even though the pain scores were not recorded completely in every case, the number was large enough for a statistical analysis. The difference between pain scores before and after treatment was statistically significant. The data are shown in Table 4.

Discussion

The present retrospective study was based on the recorded data. The study design had its natural limitations, including the incompleteness of information and non- unified pain diagnosis. However, the volume of data was large enough to reflect the profiles of neuropathic pain patients and the treatment pattern.

The prevalence of neuropathic pain at Siriraj Pain Clinic was 37.8% which is higher than reported in other studies[4,6-8]. The reason may be that the authors

Table 1. Demographic data and characteristics of neuropathic pain (n = 503)

	Number	Percent	Mean (SD)	Median	(Min, Max)
Gender (cases)					
Male	235	46.7			
Female	268	53.3			
Age (yrs)	488		53.5 (17.1)	54	(15, 93)
Duration of pain prior to this visit (months)	432		24.1 (45.0)	7	(0.25, 360)
Acute	187	43.3	1.9 (1.5)	1	(0.25, 5)
Chronic	245	56.7	41.0 (54.0)	24	(2, 360)
Diagnosis (cases)					
Chronic pain	315	62.6			
Neuropathic	92				
Mixed	223				
Acute pain	188	37.4			
Neuropathic	44				
Mixed	144				
Type of neuropathic pain (cases)					
Peripheral	313	62.2			
Central	138	27.4			
Both	52	10.3			
Type of central neurogenic pain (n = 190)					
Myelopathic pain	112	22.3			
Deafferentation	48	9.5			
Phantom limp pain	22	4.4			
Not specify	8	1.6			
Type of peripheral neurogenic pain (n = 365)					
Nerve compression / nerve infiltration	253	50.3			
BPI	46	9.1			
Post-herpetic neuralgia	22	4.4			
Trigeminal neuralgia	10	2.0			
Complex regional pain syndrome	10	2.0			
Diabetic neuropathy	9	1.8			
Fibromyalgia	3	0.6			
Others	12	2.4			

included neuropathic pain from all causes so the accumulated number was higher than neuropathic pain from each underlying disease. Another possible reason is that this clinic is a referral center and tends to have chronic and severe pain cases, especially terminal cancer cases. Most of the terminal cancer cases frequently have concomitant tumor invasion of nervous tissue, radiation-induced nerve damage and chemotherapy-related neuropathy. The survey of cancer pain by Caraceni et al[9] showed a 39.7% prevalence of neuropathic pain, which is similar to the finding in the present study.

The result of the demographic characteristics of neuropathic pain patients in the present study shows the median age at around middle age, and more women than men were suffering from the condition. Most of the neuropathic pain was chronic in nature. The present study confirms the already known characteristics of chronic pain patients in other countries: middle age was the most commonly affected age and women were 1.2-1.6% more likely to be affected than men[6,8,10,11]. Furthermore, they also found that educational level and socioeconomic status were also factors. Patients at the lower socioeconomic and educational level were associated with more reporting of chronic pain[8].

Neuropathic pain is not a single entity; it is a heterogeneous group of conditions that differs not only in etiology but also in location. In the present study, the authors found that malignant tumor was the most common concomitant condition with neuropathic pain. 71.8% of patients had only one pain location which was lower extremity. The finding was a little different from other studies. Most studies found that the anatomical sites of lesion causing neuropathic pain were

Table 1. (cont'd)

	Cases	Percent
No. of concomitant illnesses (n = 503)		
0	241	47.9
1	195	38.8
≥2	67	13.3
Concomitant illness (n = 503)		
Malignant tumor	177	35.2
Hypertension	58	11.5
Diabetes Mellitus	47	9.3
Cardiovascular disease	36	7.2
Gastrointestinal disorders	6	1.2
Psychiatric disorders	5	1.0
Others	34	6.8
No. of pain locations (n = 503)		
1	361	71.8
2	124	24.6
≥3	18	3.6
Location of pain (n = 503)		
Lower extremity	169	33.6
Back	144	28.6
Upper extremity	104	20.7
Head, neck	48	9.5
Trunk	44	8.7
Foot	42	8.3
Buttock	36	7.2
Face	34	6.8
Hand	23	4.6
Abdomen	18	3.6
Genitalia	2	0.4
Others (tongue)	1	0.2
Pain characteristic (n = 462)		
Radiating	155	33.5
Electric shock-like	128	27.7
Burning	100	21.6
Numbness	94	20.3
Shooting	83	18.0
Throbbing	23	5.0
Prickling	23	5.0
Sharp	10	2.2
Tearing	3	0.6
Others	100	21.6

multiple and those most commonly affected were the distal extremities[12,13]. They also reported that diabetes, immune deficiencies, malignant diseases, spine and ischemic disorders might all give rise to neuropathic pain[11,12]. The terms that patients commonly used to describe their neuropathic pain in the present study were radiating, electric shock-like, burning and numbing. A cold pain was never reported by patients in this survey. It is easy to see why. Thailand is located near the equator so the weather is quite warm all year round.

Table 2. Medical Treatments for patients with neuropathic pain (n = 503)

	Number (cases)	Percent
Paracetamol	9	1.8
Anti-depressants		
TCA	388	77.1
SSRIs	6	1.2
Venlafaxine	1	0.2
Anti-convulsants		
Gabapentin	176	35.0
Carbamazepine	171	34.0
Clonazepam	117	23.3
Oxcarbazepine	1	0.2
NSAIDs, COX II inhibitors		
NSAIDs	42	8.3
COX II	90	17.9
Rofecoxib	65	12.9
Celecoxib	25	5.0
Opioids		
Tramadol	122	24.3
Morphine	60	11.9
Tylenol with codeine	56	11.1
Nerve block	78	15.5

Patients, especially in Bangkok, rarely face a cold environment. However, the other pain descriptions found in the present study were the same as elsewhere[12,14,15]. Many patients with neuropathic pain exhibit persistent or paroxysmal pain that is independent of a stimulus. This stimulus-independent pain can be shooting, lancinating or burning. The results of the study conducted by Boureau et al provided evidence that six terms were significantly more frequently chosen by patients with neuropathic pain. These six terms were electric shock, burning, cold, pricking, tingling and itching. Of these, electric shock, burning, and tingling were the most common in the neuropathic pain patients (53%, 54%, and 48% respectively.)[15] These characteristics provide important support for clinical observations that these pain descriptions are particularly valuable in identifying patients with neuropathic pain. Recently, Bouhassira et al have developed and validated the Neuropathic Pain Symptom Inventory. It was a new self-questionnaire specifically designed to evaluate the different symptoms of neuropathic pain. The result showed that by using the specific pain descriptors such as burning, stabbing, cold, tingling and electric shocks, the questionnaire could diagnose patients with neuropathic pain with high sensitivity and specificity[16]. However, a study by Rasmussen et al reported that the use of pain descriptors could not

Table 3. Dosage of neuropathic pain medications

Drugs or dosage (mg/day)	N (cases)	Mean (SD) or cases	Percent	Median dose(mg/day)	Min-max (mg/day)
TCA	388	16.0 (10.7)		10	5-75
5-10		270	69.6		
20-25		72	18.6		
≥30		46	11.8		
Gabapentin	176	610.2(439.6)		600	100-2400
100-300		68	38.6		
400-600		54	30.8		
800-1000		27	15.3		
≥1200		27	15.3		
Carbamazepine	171	327.8 (173.4)		300	100-1200
100-200		82	48.0		
300-400		57	33.3		
≥450		32	18.7		
Clonazepam	117	1.18 (1.04)		1	0.25-8
0.25-0.5		43	36.8		
0.75-1.0		42	35.9		
≥1.25		32	27.3		
Celecoxib	25	380 (70.7)		400	200-500
200		3	12.0		
400		21	84.0		
500		1	4.0		
Rofecoxib	65	27.7 (12.4)		25	12.5-75
12.5		10	15.4		
25		44	67.7		
50		10	15.4		
75		1	1.5		
Tramadol	122	207.2 (101.6)		200	50-800
50-100		19	15.6		
120-150		16	13.1		
200-300		73	59.8		
≥400		14	11.5		
Morphine	60	49.7 (40.9)		40	10-300
10-25		17	28.3		
30-40		13	21.7		
50-60		25	41.6		
≥90		5	8.3		
Acetaminophen with codeine	56	99.7 (48.5)		120	15-240
Dose of codeine/ day					
15-45		6	10.7		
60-90		20	35.7		
120-150		25	44.7		
≥180		5	8.9		

distinguish between the three clinical categories: "definite neuropathic pain", "possible neuropathic pain" and "unlikely neuropathic pain"[17].

In general practice, pharmacotherapy remains the mainstay of neuropathic management. Over 90% of patients surveyed had been on more than one medication. This is not surprising given the complexity of neuropathic pain and its management. TCAs were received (mostly in combination with other drugs) by 77% of the patients in the present study, followed by anticonvulsants drugs (70%), which was not unexpected. The high usage of antidepressants and anticonvulsants not only reflects the nature of neuropathic pain, for which these groups of medications are more

Table 4. Severity of pain before and after treatment

Pain score (0-10)		n	Mean (SD)	Median	(Min, Max)	p-value[@]
Highest pain score in the past 24 hrs	Before	262	8.2 (2.1)	9	(0, 10)	
	After	263	6.1 (3.0)	6	(0, 10)	
	Before-After	156	1.9 (3.1)	1	(-6, 10)	<0.001
Lowest pain score in the past 24 hrs	Before	234	3.4 (2.6)	3	(0, 10)	
	After	236	2.7 (2.5)	3	(0, 10)	
	Before-After	128	0.7 (2.9)	0	(-7, 9)	0.0065
Difference in highest, lowest pain score	Before	230	4.8 (2.7)	5	(0, 10)	
	After	232	3.4 (2.6)	3	(0, 10)	
	Before-After	126	1.2 (3.2)	1	(-10, 10)	<0.001

[@] Wilcoxon's signed-rank test

effective, but also the complexity of chronic pain management where a combination therapy may be necessary to provide adequate pain relief. In general practice, pharmacotherapy remains the mainstay of neuropathic management. Medical therapies for neuropathic pain tend to involve drugs whose primary indication is not analgesia, such as anticonvulsants and antidepressants[18]. The available evidence for the efficacy of these drugs has been repeatedly reviewed. The most effective antidepressants used to treat neuropathic pain are TCAs, which have been used to manage neuropathic pain for over 30 years[7,19,20]. Unfortunately, TCAs are often associated with treatment-limiting adverse events. Anticonvulsants are also an important treatment option for managing neuropathic pain[18]. Gabapentin, initially investigated for the treatment of painful diabetic neuropathy and postherpetic neuralgia, has proved efficacious for a variety of neuropathic pain states. In Thailand at present, gabapentin (Neurontin) has been approved for the treatment of neuropathic pain from a broad range of underlying conditions. This drug has been recommended in some guidelines as a drug for the treatment of neuropathic pain[3,18-20]. Surprisingly, the result in the present survey showed that gabapentin was prescribed to only 35% of patients. The reasons may be its the high price and the lack of a generic.

Most of the pain relief medicines prescribed at this clinic were under the recommended doses for the treatment of neuropathic pain[20], especially gabapentin. Almost 70% of patients received gabapentin at the doses of 600 mg/day or lower, which was lower than the recommended dose at 1800-3600 mg/day[21]. Most patients seemed to have good clinical responses. The data of pain improvement at 2 weeks after the treatment showed a statistical significance in the differences of pain scores. The data also reflect the efficiency of this clinic.

Conclusion

The management of neuropathic pain is a critical issue in the care of patients of various underlying diseases. Pain affects the physical health and the mood and sleep of patients, which are considered factors of a good quality of life. The four main reasons that treatments for neuropathic pain fail are: inadequate diagnosis and lack of appreciation of the mechanisms involved, insufficient management of comorbid conditions, incorrect understanding or selection of treatment options, and the use of inappropriate outcome measures[22]. To provide optimal pain relief for patients, current treatment strategies need to address the multifactorial nature of this condition, including its heterogeneity and the presence of comorbid conditions. This requires a methodical and mechanistic approach to diagnosis, and a patient, flexible, interdisciplinary approach to treatment. Considering the high prevalence of neuropathic pain, the dissemination of knowledge and resources necessary to manage this condition must continue to be given a high priority, particularly in developing countries like Thailand where awareness of this condition is still low. More educational programs are needed for pain specialists, other specialists and general practitioners who see a lot of pain patients in their daily practice.

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อาการปวดทางระบบประสาทของผู้ป่วยที่คลินิกระงับปวดโรงพยาบาลศิริราช

พงศ์ภารดี เจาฑะเกษตริน

วัตถุประสงค์: *เพื่อศึกษาลักษณะและวิธีการรักษาอาการปวดทางระบบประสาทของผู้ป่วยที่คลินิกระงับปวดโรงพยาบาลศิริราช*

วัสดุและวิธีการ: *ศึกษาข้อมูลย้อนหลังที่รวบรวมจากเวชระเบียนของผู้ป่วยในคลินิกระงับปวดตั้งแต่วันที่ 1 กันยายน พ.ศ. 2545 ถึง 30 กันยายน พ.ศ. 2547*

ผลการศึกษา: *พบว่า 37.8% (503 ราย) ของผู้ป่วย1,330 รายที่ศึกษา มีอาการปวดทางระบบประสาท อายุเฉลี่ยขณะได้รับการวินิจฉัยเท่ากับ 54 ปี สาเหตุของอาการปวดทางระบบประสาทที่พบบ่อยที่สุด คือ การกดทับของปลายประสาท ซึ่งพบในผู้ป่วยที่วินิจฉัยมะเร็ง 71.8% ของผู้ป่วยที่มีอาการปวดทางระบบประสาทมีอาการปวดตำแหน่งเดียวและส่วนใหญ่เป็นที่ขา ลักษณะของความรู้สึกจะเป็นอาการปวดร้าวไปตามเส้น เสียวเหมือนถูกไฟช็อต แสบร้อน ชา และแปลบ 79% ของผู้ป่วยบำบัดอาการปวดด้วยยากิน 93% บำบัดด้วยยามากกว่า 1 ชนิด ยาที่ใช้รักษาได้แก่ TCA (77.1%) gabapentin (35%), carbamazepine (34%) และ tramadol (24.3%) ซึ่งส่วนใหญ่ใช้ในขนาดที่รักษาอาการปวดทางระบบประสาท*

สรุป: *ลักษณะและวิธีการรักษาอาการปวดทางระบบประสาทของผู้ป่วยที่คลินิกระงับปวดโรงพยาบาลศิริราช ไม่แตกต่างกับข้อมูลของคลินิกระงับปวดอื่นทั่วโลก การพบอาการปวดทางระบบประสาทค่อนข้างชุกในคลินิกดังกล่าว แสดงให้เห็นความสำคัญของความปวดชนิดนี้ที่มีปริมาณเพิ่มขึ้นในเวชปฏิบัติ และความจำเป็นที่จะพัฒนาให้แพทย์มีความรู้และเข้าใจความปวดชนิดนี้ต่อไปในอนาคต*