Optic-Spinal Inflammatory Demyelinating Disease: (OS-IDD) patients in Siriraj Hospital

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Objective: *To study the demographic data of optico-spinal inflammatory demyelinating disease (OS-IDD) patients at Siriraj Hospital between January 1997 and October 2006*
Design: *Retrospective study of OS-IDD patients.*
Results: *There were 84 OS-IDD patients. Cerebrospinal fluid analysis revealed higher white blood cell count and neutrophilia in neuromyelitis optica (NMO) patients than those of multiple sclerosis (MS) patients. NMO had an average length of 4.1 segments of the cervical and 6.5 segments of thoracic cord involvement.*
Conclusion: *Among Thai OS-IDD patients, on the basis of clinical features, NMO was hardly differentiated from MS.*

Keywords: *Optico-spinal inflammatory demyelinating disease (OS-IDD), Multiple sclerosis, Neuromyelitis optica, Thai, Optic neuritis, Myelitis*

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Among Asian people, optic neuritis and myelitis are the manifestations of multiple sclerosis, which are more common than brainstem and cerebellar lesions[1,2]. In addition, neuromyelitis optica (NMO) or NMO's syndrome can also present with symptoms and signs of optico-spinal involvement[3-5]. Although, they usually are clinically indistinguishable, as treatment for each disorder may be different, differentiation of these two diagnoses is a necessity. Data upon the patterns of clinical presentation and imaging features of Thai patients with optic-spinal involvement[6-11] are quite limited, in contrast to those of western countries and other Asian countries[1,2,12-20]. However, it is assumed that the differences of clinical presentations, laboratory findings and magnetic resonance imaging (MRI) features between optico-spinal multiple sclerosis and NMO in Thai patients would be informative. It is also hoped that this information may help to distinguish the two conditions, especially in cases of Asian populations.

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Material and Method

Optico-Spinal Inflammatory Demyelinating Disease (OS-IDD) is defined as an inflammatory disease, regardless of other sites of involvement, which concern both the spinal cord and the optic nerve. This retrospective study was conducted on the OS-IDD patients who visited the MS clinic, Neurology Division, Department of Medicine, Siriraj Hospital, Mahidol University between January 1997 and October 2006.

The demographic data including patterns of clinical presentation, symptoms, and signs, duration between the optic and the spinal presentation, CSF profiles closet to the initial presentation, neuroimaging features, blood tests, and disability scale as expanded disability score scales (EDSS)[21], were collected for the present study. The MRI, reviewing by neuro-radiologists blinded to the clinical presentations, were combined to clinical diagnosis. Diagnosis of NMO by using the 1999 criteria (or "NMO 1999")[14], together with the 2006 criteria (or "NMO 2006")[15] and diagnosis of MS according to Revised McDonald criteria 2005[16] were appropriately assigned to each patient, and were labeled as final diagnosis. The present study was legitimately permitted by the written consents of every patient. Moreover, the present study was approved by the Siriraj Ethical Committee (SiEC Number 246/2549).

Statistic analysis

Data analysis was performed on SPSS 15.0 software. The statistical tests were done at an equal to 0.05 or at 95% confidence level. The sample t-tests and Mann-Whitney U Tests were used for length of spinal cord involvement analysis and the Chi-square tests for incidence of OCB analysis.

Results

Demographic data

Eighty-four out of 176 patients visiting the MS Clinic conformed to the definition of OS-IDD. The demographic data of these patients were analyzed and presented in Table 1. The average age for patients at onset of OS-IDD was 33.7 $\pm$ 12.6 years (14-72 years). The mode of the group was in the range of 21-40 years (64.3%). About 90.5% of the patients were females. Fifty-six percent of the patients primarily presented with optic neuritis (ON) and later on with myelitis. It was interestingly found that eight patients simultaneously had optic neuritis and acute myelitis. This finding was compatible with the classical NMO disease described in 1898. The mean for disease duration was 7.69 $\pm$ 5.51 years. While the average disease duration between the initial optic neuritis and the first subsequent myelitis was about 35.4 months. Among those who presented initially with myelitis, the average duration prior to the first subsequent optic neuritis was 40.5 months. The average numbers of optic neuritis attack prior to myelitis were 1.6 times, whereas the average numbers of myelitis attack prior to optic neuritis were 2.6 times (Table 1).

Classification of OS-IDD patients

In OS-IDD group, 34 patients were assigned to MS in accordance with Revised McDonald 2005 criteria. Fourty-three patients could be classified as NMO based on either 1999 criteria or 2006 criteria. However, seven OS-IDD patients provided insufficient clinical, laboratory, or MRI data, which was required for differentiating between NMO and MS. These patients were labeled as an unclassified group (Table 2).

Optic neuritis

Fifteen from 34 (44%) in the MS group initially had optic neuritis whereas about 67.4% of NMO group initially presented with optic neuritis.

Table 1. Demographic data of 84 OS-IDD patients

Parameters			Number (%)
Sex: Female: Male			76:8 (9.1:0.9)
Age of onset (year)			
0-20			10 (11.9)
21-40			54 (64.3)
41-60			18 (21.4)
61-80			2 (2.4)
Mean age of onset (years) (range)			33.7 (14-72)
Patterns of presentation			**Number (%)**
Optic neuritis preceeding myelitis			47 (56.0)
Myelitis preceeding optic neuritis			29 (34.5)
Optic neuritis and myelitis occurring simultaneously			8 (9.5)
Number of attacks	**Mean**	**Median**	**Range**
Optic neuritis preceeding myelitis	1.6	1	1-4
Myeltis preceeding optic neuritis	2.6	1	1-24
Duration between optic and spinal presentation (months)	**Mean**	**Median**	**Range**
Optic neuritis prior to myelitis (n = 46)*	35.4	21.4	0.4-144.6
Myelitis prior to optic neuritis (n = 28)*	40.5	11.9	1.9-267.8

* Missing data: one in each group

Marked visual acuity disturbance (VA < 20/200) was found in 86 of 168 eyes (51.2%). Typical presentation of ON with pain on eyes' movement were observed for less than half of those patients who had complete records (16.1%). Unfortunately, the data for 63.7% of the cases was unavailable.

Myelitis

Typical paraparesis, the most common type of weakness, was found in 26 of 43 cases (60.5.%) of the NMO group and 13 of 34 cases (30.2%) of the MS group. Others presented with monoparesis, triparesis, quadriparesis, or no self-reported records on weakness. Thirteen cases in the MS group and 18 in the NMO group had tonic painful spasm. Hypoesthesia, the most common compromising sensory symptoms was found in 92.9%.

The sites of involvement were localized to the thoracic cord, brainstem, and cervical cord in 48.8%, 36.9%, and 15.5% respectively. Spinal cord with brainstem involvement was observed in 11 patients (13.1%). Bowel and bladder dysfunctions were found, mostly at mild to moderate degree, in 53.5% of the NMO group and 35.3% of the MS group.

Investigations

Data was available in 81% for CSF analysis, 75% for MRI brain, 65.5% for MRI spinal cord (Table 3), and 42.9% for visual evoked potentials study (VEP). The duration from onset of symptom to the date of lumbar puncture was 26.6 $\pm$ 70.3 days. The average duration for MRI brain and spinal MRI were 117.0 days and 63.4 days, respectively.

Cerebrospinal fluid analysis

Data of CSF was available in 68 patients of all OS-IDD patients. There were only 5-10% of patients in the NMO groups whose CSF-WBC cell $\geq$ 50 cells/μL and neutrophils $\geq$ 5 cells/μL. These findings were major supporting evidences for the 1999 NMO diagnostic criteria. Fascinatingly, similar findings were also observed in the MS group as shown in Table 4. Nevertheless, CSF-WBC of patients in the MS group was slightly higher than that of the NMO group (23 vs. 20 cells/μL). Insignificant lower CSF-protein and CSF-sugar were found in the MS group. CSF oligoclonal bands (OCB) absent in three-fourths of the MS group and around 90% of the NMO group (Table 4).

Table 2. Diagnosis OS-IDD patients

Final diagnosis (number)	Sex (%)		Total (%)
	Female	Male	
MS (27)	30 (88.2)	4 (11.8)	34 (100)
All NMO (37)	40 (93.0)	3 (7.0)	43 (100)
NMO 1999 (23)	27 (93.1)	2 (6.9)	29 (100)
NMO 2006 (4)	5 (100)	0	5 (100)
NMO 1999+2006 (10)	8 (88.9)	1 (11.1)	9 (100)
Unclassified* (20)	6 (85.7)	1 (14.3)	7 (100)
Total (84)	76 (90.5)	8 (9.5)	84 (100)

NMO 1999: NMO patients based on NMO 1999 criteria, NMO 2006: NMO patients based on NMO 2006 criteria, NMO 1999+2006: NMO patients fulfilled NMO 1999 and NMO 2006 criteria
MS = multiple sclerosis
* Unclassified: insufficient data on either CSF profiles, brain or spinal MRI for assigning a final diagnosis

Table 3. Features of brain and spinal cord MRI

Brain MRI	Spinal cord MRI				Total (%)
	MS[1] (%)	NMO[2] (%)	Normal (%)	Not done[3] (%)	
Fulfill Barkhof criteria	3 (3.6)	7 (8.4)	2 (2.4)	6 (7.2)	18 (21.4)
Not fulfill Barkhof criteria	1 (1.2)	5 (6.0)	0	3 (3.6)	9 (10.7)
Normal	5 (6)	11 (13.1)	2 (2.4)	4 (4.8)	22 (26.2)
Unknown[3]	0	7 (8.4)	0	8 (9.6)	15 (17.9)
Not done	2 (2.4)	10	0	8	20 (23.8)
Total	11 (13.1)	40 (47.6)	4 (4.8)	29 (34.5)	84 (100)

MS[1]: Spinal cord lesion should not exceed 2 vertebral segments
NMO[2]: Spinal cord lesion at least 3 vertebral segments
Unknown[3]: Details not available

Table 4. Results of initial CSF analysis according to the assigned final diagnosis

CSF analysis	MS (%)	NMO's syndrome			
		All NMO (%)	NMO 1999 (%)	NMO 2006 (%)	NMO 1999 + 2006 (%)
Done	25 (73.5)	36 (83.7)	24 (82.8)	3 (60.0)	9 (100)
Not done	9 (26.5)	7 (16.3)	5 (17.2)	2 (40.0)	0
Total	34 (100)	43 (100)	29 (100)	5 (100)	9 (100)
WBC count					
Details not available	4	4	4	0	0
WBC < 50 cells/μL	19 (90.5)	29 (89.6)	18 (90.0)	3 (100)	8 (88.9)
WBC ≥ 50 cells/μL	2 (9.5)	3 (10.4)	2 (10.0)	0	1 (11.1)
WBC range (cells/μL)	1-270	0-120	1-120	3-40	0-76
Mean WBC ± SD	23.0 ± 59.0	20.8 ± 28.5	23.4 ± 32.1	17.0 ± 20.1	16.2 ± 23.6
Neutrophils count					
Details not available	4	6	5	0	1
Neutrophils ≥ 5 cells/μL	1 (4.8)	2 (6.7)	1 (5.3)	0	1 (12.5)
Neutrophils < 5 cells/μL	20 (95.2)	28 (93.3)	18 (94.7)	3 (100)	7 (87.5)
Neutrophils range (cells/μL)	0-243	0-65	0-65	0-2	0-7
Mean ± SD	11.8 ± 53.0	2.8 ± 11.9	3.9 ± 14.9	0.7 ± 1.2	0.9 ± 2.5
Protein					
Details not available	5	7	5	1	1
Protein range (mg/dL)	16-67	16-567	16-567	34-62	29-60
Mean ± SD	39.8 ± 13.5	57.1 ± 36.0	65.1 ± 122.2	48.0 ± 19.8	40.5 ± 10.9
Sugar					
Details not available	4	4	5	0	0
Sugar range (mg/dL)	34-86	31-135	53-135	45-98	31-97
Mean ± SD	60.4 ± 13.7	72.6 ± 22.1	78.2 ± 21.7	66.7 ± 27.8	62.9 ± 19.6
Patterns of OCB					
Details not available	3	5	3	0	2
Absent in both CSF and serum	16 (72.7)	25 (80.7)	17 (80.1)	3 (100)	5 (85.7)
Presence only in CSF	5 (22.7)*	4 (12.9)*	3 (14.3)	0	1 (14.3)
Presence in serum and CSF	1 (4.6)	2 (6.4)	1 (4.8)	0	1 (14.3)

NMO 1999: NMO patients based on NMO 1999 criteria, NMO 2006: NMO patients based on NMO 2006 criteria, NMO 1999 + 2006: NMO patients fulfilled NMO 1999 and NMO 2006 criteria
MS = multiple sclerosis
* The Chi-square tests did not shown statistic significant of OCB between MS and All NMO groups with p = 0.629

Magnetic resonance imaging (MRI)

For spinal MRI of OS-IDD patients, the average length of vertebral body segments was 4.2 ± 2.1 (range 1-8) for cervical cord lesions and 5.3 ± 3.4 (range 1-12) for thoracic cord involvement.

The clinical presentation of MS group commonly involved the thoracic cord, brainstem, or thoracic cord with brainstem. NMO 1999 patients presented mainly with the thoracic and cervical spinal levels. The features of spinal MRI lesions and the clinical presentation were compared as shown in Fig. 1.

Interestingly, half of the MS group had normal cervical cord MRI. Among those patients with cervical and thoracic MRI abnormality, the length of 1-2 segments were predominantly affected. On the contrary, among those patients with diagnosis of NMO, most had 3-5 spinal segments involvement.

Most of the NMO 1999 group had five segments in length of both cervical cord thoracic cord level of involvement. The length of the affected lesion in both cervical and thoracic cord level for the NMO 2006 group, in contrast, were relatively shorter in the cervical segments (4-5 segments) (Table 5).

The length of cervical cord involvement in the MS group and the NMO group were rather similar (Table 6). The distribution for the length of cervical

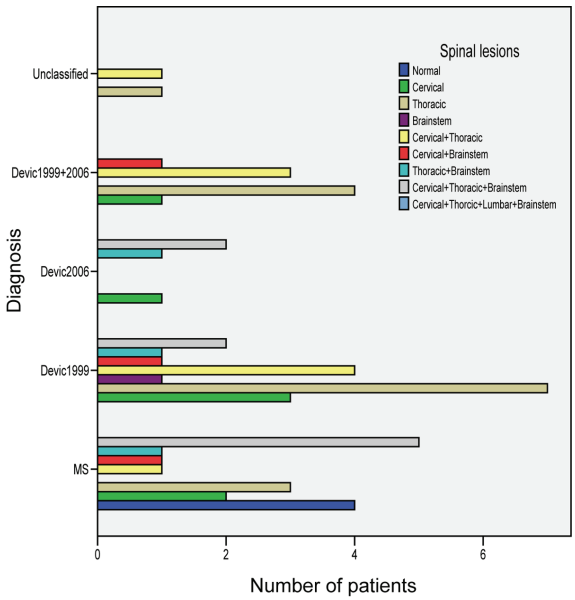

Fig. 1 MRI spinal lesions statisfied by diagnosis

lesions was a normal one, while that of the thoracic cord lesions was not. The test results from both Sample t-tests and Mann-Whitney U-test revealed that there was no statistical significant difference of the length of cervical lesions between the MS and the NMO group. However, the longer thoracic cord lesions were significantly observed in the NMO group, with a median of two segments for the MS group comparing with five segments for the NMO group (Sample t-tests: p-value = 0.036; Mann-Whitney U Tests: p-value = 0.006).

Ten OS-IDD patients (11.9%) fulfilled the Barkhof MRI criteria[22] for the diagnosis of MS as well as the diagnosis of NMO.

Among OS-IDD patients with available infection spinal MRI, it was found that 7/18 (38.9%) of the MS group had long spinal MRI lesions, on the contrary it was 96.4% (32/35 patients) in the NMO group. Table 1 about 35% (5/14) of the NMO 1999 group had brain MRI lesions conforming to the Barkhof criteria while none of the NMO 2006 had these MRI features (Table 7). One patient (2.3%) in the NMO group had a normal spinal MRI. Almost all of the patients in the unclassified group provided scarce information on MRI findings necessary for diagnostic classification.

Blood tests

Thirty-nine percents (21/54 patients) had positive antinuclear antibody (ANA). Anti-double strands DNS (Anti-DNA) was positive in 4.2% (2/44). Anti-thyroglobulin antibody were positive in 3/14 or antimicrosomal antibody in 3/12 patients while anti-neutrophil cytoplasmic antibodies (ANCAs) in 6/7 patients. None had suspected clinical presentation of Sjogren's syndrome.

Discussion

Optic nerve and spinal cord involvement can be found in multiple sclerosis (MS) as well as in neuromyelitis optica (NMO). Optic-spinal inflammatory demyelinating disease (OS-IDD) is defined in the present study and includes both MS and NMO. The present study revealed a higher prevalence in females, indistinguishable feature between MS and NMO regarding clinical presentation, CSF analysis, immune profiles, and MRI findings. Nevertheless, a subgroup of patients with long thoracic cord involvement had a higher chance of being NMO than MS.

It should be noticed here that most Thai patients with (OS-IDD) were female (90.5%). The female to male ratio of 9:1 in the presented OS-IDD study was higher than those previously reported in classic multiple sclerosis[1,17,18,20]. The ratio, however, was similar to that of Asian optic-spinal MS patients[2]. However, a family history of MS patients was not observed in the present study. The age at onset of 21 to 40 years is similar to previous studies[1,2,17,18,20,23]. Thirty-four were classified as patients of the MS group according to Revised McDonald criteria and 43 patients to the NMO group by referring to either the 1999, the 2006, or both criteria. Unfortunately, seven patients could not be diagnosed since the information on their laboratory investigations were missing and their MRI was not available for revision.

The mean for duration between the initial optic nerve involvement and the first subsequent spinal cord involvement was about two years, with one to two attacks of optic neuritis during this period. Vice versa, the duration between initial spinal cord involvement and the first subsequent optic neuritis was about one year shorter. The severity of visual impairment could not facilitate a differentiation between the two diseases. The CSF analysis was conducted on an average of seven days after the clinical onset. There was a tendency, though not significant, of having a higher number of WBC and higher protein content in the NMO group. All of the above mentioned CSF profiles were quite less abnormal than those of the study in Japanese optic-spinal MS patients[20]. These differences might be a result of the delay in CSF

Table 5. Length of the involved cervical and thoracic spinal segments by MRI

Length of cervical lesion	MS (%)	All NMO (%)	NMO 1999 (%)	NMO 2006 (%)	NMO 1999 + 2006 (%)	Total (%)
0	9 (47.4)	15 (42.9)	10 (47.6)	1 (20.0)	4 (44.4)	25 (46.3)
1	3* (15.8)	1 (2.9)	1 (4.8)	0	0	3 (5.6)
2	3 (15.8)	2 (5.8)	2 (9.6)	0	0	5 (9.3)
3	0	4 (11.6)	1 (4.8)	2 (40.0)	1 (11,1)	4 (7.4)
4	0	3 (8.6)	2 (9.6)	0	1 (11.1)	3 (5.6)
5	0	7 (20.0)	4 (19.2)	2 (40.0)	1 (11,1)	7 (13.0)
6	0	2 (5.8)	1 (4.8)	0	1 (11.1)	2 (3.7)
7	2 (10.5)	1 (2.9)	0	0	1 (11.1)	3 (5.6)
8	2 (10.5)	0	0	0	0	2 (3.7)
Total	19 (100)	35 (100)	21 (100)	5 (100)	9 (100)	54 (100)
Length of thoracic lesion	MS (%)	All NMO (%)	NMO 1999 (%)	NMO 2006 (%)	NMO 1999 + 2006 (%)	Total (%)
0	8 (42.1)	9 (25.7)	5 (24.0)	2 (40.0)	2 (22.2)	17 (30.4)
1	1 (5.3)	0	0	0	0	1 (1.8)
2	7 (36.8)	2 (5.8)	1 (4.8)	0	1 (11.1)	9 (17.9)
3	0	5 (14.3)	2 (9.6)	0	3 (33.3)	5 (9.3)
4	0	3 (8.6)	1 (4.8)	2 (40.0)	0	3 (5.6)
5	0	5 (14.3)	4 (19.2)	0	1 (11.1)	5 (9.3)
6	0	2 (5.8)	2 (9.6)	0	0	2 (3.7)
7	0	0	0	0	0	0
8	2 (10.5)	1 (2.9)	1 (4.8)	0	0	3 (5.6)
9	1 (5.3)	2 (5.8)	1 (4.8)	0	1 (11.1)	3 (5.6)
10	0	1 (2.9)	0	0	1 (11.1)	1 (1.9)
11	0	2 (5.8)	2 (9.6)	0	0	2 (3.7)
12	0	3 (8.6)	2 (9.6)	1 (20.0)	0	3 (5.6)
Total	19 (100)	35 (100)	21 (100)	5 (100)	9 (100)	54 (100)

NMO 1999: NMO patients based on NMO 1999 criteria, NMO 2006: NMO patients based on NMO 2006 criteria, NMO 1999 + 2006 : NMO patients fulfilled NMO 1999 and NMO 2006 criteria
MS = multiple sclerosis
* One patient of three had upper cervical lesion from MRI brain study

collection, which was done on average of seven days after symptoms onset.

The presence of oligoclonal bands (OCB) was found in only 20% of the OS-IDD patients who had available CSF analysis (9/44 patients). This result was similar to previous studies on optic-spinal MS in Japanese patients[19,20] but lower than the 27% figure in the Asian multicenter study[1]. This may be due to the incomplete data and the different patterns of clinical presentations. However, it may be concluded that OCB was less commonly found in optic-spinal inflammatory demyelinating disease than in classical MS. No significant difference in the presence of OCB was observed between the MS group and the NMO group (22.7% and 12.9% respectively).

Details were not available in 40% of brain MRI, and in 35% of spinal MRI. Only 65% provided complete MRI information. Sixteen patients (19.1%) satisfied a diagnosis of NMO, by imaging criteria (negative initial brain MRI and spinal lesions longer than 3 vertebral body segments), while 8.4% of patients fulfilled both the brain MRI for MS and the spinal cord MRI criteria for NMO. Five patients in the 43 NMO group (11.6%) had brain MRI findings that fulfilled the Barkhof criteria[22]. Consequently, both diagnosis, (Table 3) MS as well as NMO, might be assigned to the same patients. In 8% of OS-IDD patients. A quarter of OS-IDD patients had normal brain MRI features (22/84 patient). This corresponded to other previous studies[2.23]. The cervical and

Table 6. Length of spinal involvement by MRI

Level of cord involvement	Number of segments				SD	Range
	Independent sample t-test		Mann-Whitney U test			
Cervical cord (n)	Mean	p-value	Median	p-value		
MS (10)	3.9	1.0	2.0	1.0	3.1	1-8
All NMO (20)	4.2	0.770	4.5	0.548	1.5	1-7
NMO 1999 (11)	3.8	0.940	4.0	0.803	1.6	1-6
NMO 2006 (4)	4.0	0.953	4.0	0.566	1.2	3-5
NMO 1999 + 2006 (5)	5.0	0.479	5.0	0.457	1.6	3-7
Thoracic cord (n)	Mean	p-value	Median	p-value	SD	Range
MS (11)	3.6	1.0	2.0	1.0	3.0	1-9
All NMO (26)	6.2	0.036	5.0	0.006	3.4	2-12
NMO 1999 (16)	6.7	0.024	5.5	0.009	3.4	2-12
NMO 2006 (3)	6.7	0.191	4.0	0.080	4.6	4-12
NMO 1999 + 2006 (7)	5.0	0.378	3.0	0.064	3.2	2-10

NMO 1999: NMO patients based on NMO 1999 criteria, NMO 2006: NMO patients based on NMO 2006 criteria, NMO 1999 + 2006: NMO patients fulfilled NMO 1999 and NMO 2006 criteria
MS = multiple sclerosis, SD = standard deviation

Table 7. Feature of MRI brain and spine stratified by the diagnosis

Diagnosis	MS (34)	Devic 1999 (29)	Devic 2006 (5)	Devic 1999 + 2006 (9)	Unclassified (7)
MRI of Brain					
Full fill Barkhof criteria	13	5	0	0	0
Not full fill Barkhof criteria	3	1	1	4	0
Normal	7	8	3	4	0
No data#	12	15	1	1	7
MRI of spine					
Short segments*	8	2	0	0	1
Long segments**	7	18	5	9	1
Normal	3	1	0	0	0
No data#	16	8	0	0	5

* Short segments: Spinal cord lesion should not exceed 2 vertebral segments
** Long segments: Spinal cord lesion at least 3 vertebral segments
# No data: Details not available

thoracic spinal cord was predominantly affected (90%) with only one OS-IDD patients had isolated lumbar spinal cord involvement. This finding also conformed to a previous study[2]. One case of NMO had normal spinal MRI study; as it was performed 10 years after myelitis attack, the longer duration between the attack and MRI may provide the resolving inflammatory lesion.

Neuromyelitis optica IgG (NMO IgG) determination was used to diagnose NMO based on current 2006 criteria. It also was used to predict relapses after myelitis attack[24]. This 2006 revised criteria is at present not practical in Thailand, as NMO IgG antibody testing has not yet been available in Thailand. The diagnosis, therefore, will have to rely upon clinical presentation and the brain and spinal

MRI findings only. As a retrospective study, the diagnosis would be impossible if both types of studies were not performed. It was also noticed in the present study that, for cervical cord level, the MRI findings of long cervical cord involvement could not be used to distinguish MS from NMO. If there were long thoracic cord involvement, however, the possibility of having NMO could be expected.

The present study has several limitations. Firstly, there were a small number of patients in each category, MS and NMO-like diseases. In addition, the unclassified group who had insufficient data on CSF profiles, brain, or spinal MRI for assigning a final diagnosis, comprised approximately of 20-30% of total OS-IDD patients. This limitation might have an impact on some parts of the statistical analysis. Secondly, the authors did not perform serum NMO-IgG antibody, which is one of the three criteria for diagnosis of NMO 2006. Therefore, the incidence of NMO in the present study might be underestimated. Finally, OSMS is not an uncommon disease in Asia and the definition of it is still inconclusive with the probability of long cord involvement. Therefore, OSMS could be counted as NMO patients in the present study. Furthermore, oligoclonal band, which is present higher in the western MS, is less documented in Asian MS. These limitations, might affect the classification of patients in the present study.

In conclusion, Thai OS-IDD patients had ambiguous features, clinical presentation, MRI findings, CSF analysis, and immune profiles, which are not useful for differentiating MS from NMO. A prospective study on OS-IDD patients would probably unravel the difficult issues in assigning a definite diagnosis of either MS or NMO in patients who present with optic nerve or/and spinal cord involvement, in particularly for those who come at their earliest phase of presentation, when the specific treatments will be most beneficial to the courses of their disease. Since the clinical manifestations and investigations, including CSF-oligoclonal bands and MRI findings in Asian MS cannot support the differentiation between the two diseases among Thai people, the NMO IgG antibody, then, might be the most appropriate method in this situation.

Potential conflicts of interest

None.

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ข้อมูลผู้ป่วยกลุ่มโรค *Optic-Spinal Inflammatory Demyelinating Disease: (OS-IDD)* ***โรงพยาบาลศิริราช***

สงคราม โชติกอนุชิต, สสิธร ศิริโท, สิริอร ตริตระการ, อรสา ชวาลภาฤทธิ์, นาราพร ประยูรวิวัฒน์

วัตถุประสงค์: *เพื่อศึกษาข้อมูลพื้นฐานของผู้ป่วยกลุ่มโรคปลอกประสาทเสื่อมที่มีทั้งขั้วประสาทตา และไขสันหลังอักเสบในโรงพยาบาลศิริราช ระหว่างมกราคม พ.ศ. 2540 ถึง ธันวาคม พ.ศ. 2549*
วิธีวิจัย: *เป็นการศึกษาย้อนหลังจากแฟ้มเวชระเบียนผู้ป่วย*
ผลการศึกษา: *มีผู้ป่วยจำนวนทั้งหมด 84 ราย เข้าได้กับ OS-IDD ผลการตรวจน้ำไขสันหลังในผู้ป่วยนิวโรมัยอีไลติส-ออปติกา (เอ็นเอ็มโอ) พบจำนวนเม็ดเลือดขาว และเม็ดเลือดขาวนิวโทรฟิล มากกว่าในผู้ป่วยมัลติเพิล สเคลอโรสิส (เอ็มเอส) ผู้ป่วยเอ็นเอ็มโอพบว่ารอยโรคในกลุ่มเอ็นเอ็มโอมีความยาวเฉลี่ยมากกว่า โดยพบความยาวเฉลี่ยของรอยโรคในระดับคอประมาณ 4.1 ระดับกระดูกสันหลัง และมีความยาวเฉลี่ยของรอยโรคในระดับทรวงอกประมาณ 6.5 ระดับกระดูกสันหลัง*
สรุป: *โรคเอ็นเอ็มโอไม่สามารถแยกออกจากโรคเอ็มเอสโดยตรง โดยอาศัยอาการทางคลินิกเพียงอย่างเดียว*
