Outcome of Bell's Palsy in Children

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Abstract

Acute idiopathic facial nerve paralysis (Bell's palsy) is a non life-threatening disorder but may cause important impact. In Thailand there has been no report of the outcome of Bell's palsy in children.

Eighty four children with facial palsy were treated at Prasat Neurological Institute from January 1996 to July 2001. The etiology was found in 9 children (10.7%). Seventy five children were Bell's palsy. Twenty eight children were excluded, twenty two of these were loss to follow-up after the first visit and in six the onset were more than 30 days before presentation. Forty seven children remained for study.

The mean age was 8.8 years (range from 2 years to 15 years 8 months). The maie to female ratio was 1:1.1. The ratio of left to right side involvement was 1.3:1. Two children had recurrent facial palsy (4.3%). The duration from onset to recurrence was 6 months to 3 years 5 months. Oral prednisolone was given in 39 children. Complete recovery was observed in 29 children (61.7%) and almost complete recovery in 18 children (38.2%). All children recovered within 7 months. The mean duration of recovery was 6.61 weeks (range from 9 days to 28 weeks). The outcome of children aged under and over six years was not statistically different. The outcome of early and late steroid treatment could not be compared in this study.

Key word : Outcome, Bell's Palsy, Children

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Acute idiopathic facial nerve paralysis (Bell's palsy) is a non life-threatening disorder but it may cause important functional and psychological impacts[1]. The etiology is not identified in most cases[2] and the condition usually resolves spontaneously within 6 months[1,3,4]. Several treatment models have been described[5-11]. In adults, oral steroid therapy has been widely used and the outcomes have been controversial[5,9]. However, in children the prognosis is considered to be better than that of adults [4,8,10], because facial nerves in children occupy a smaller part of the fallopian canal than those of the adults so they are less prone to damage by pressure[12]. In Thailand, there has been no report of the outcome of Bell's palsy in children. This communication reports the outcome of idiopathic facial palsy in 47 children.

PATIENTS AND METHOD

At Prasat Neurological Institute during the period of January 1996 to July 2001, medical records of children with isolated facial palsy were reviewed. Children with unknown causes and onset within 30 days of presentation were included in the study. Children with known etiologies or onset longer than 30 days were excluded. The records were reviewed for demographic data, treatments and outcomes after various periods of follow-up. The outcomes of facial palsy were graded as complete recovery, mild dysfunction or almost complete recovery (eye closure with minimal effort, symmetry of mouth during smile). The data were analysed descriptively. Student *t*-test was applied for comparing the outcomes of facial palsy according to age under and over 6 years.

RESULTS

During the period of January 1996 to July 2001, eighty four children with facial palsy were encountered. The etiologies were found in 9 children (10.7%) which included post traumatic in 6 children (7.1%) and post specific viral infections in 3 children (3.6%) (varicella, mumps and herpes zoster in one

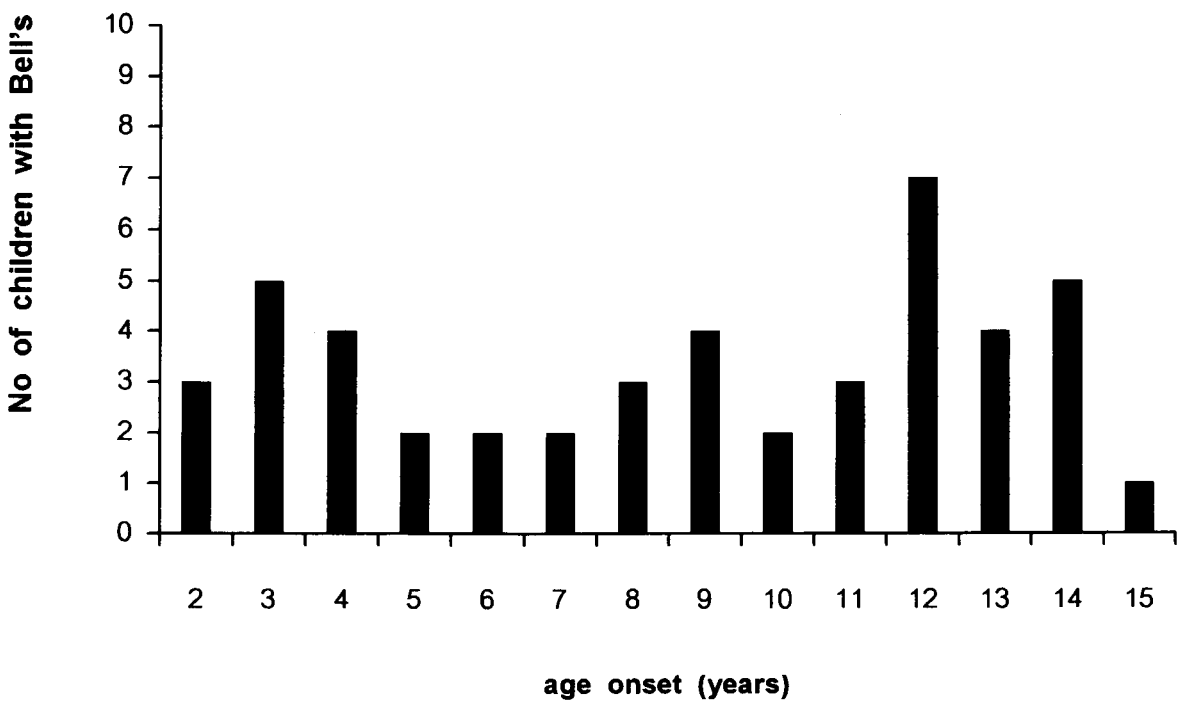

Fig. 1. The distribution of age onset in 47 children with Bell's palsy.

each). Seventy five children had idiopathic facial palsy. Sixteen children had a history of preceding non specific viral infection within two weeks. Twenty two children who were lost to follow-up after the first visit and six children whose duration of onset was more than 30 days before presentation were excluded from the study. Forty seven children remained for further analysis.

The mean age was 8.8 years and ranged from 2 years to 15 years 8 months, The distribution is shown in Fig. 1. The male to female ratio was 1:1.1. The side of involvement was on the right in 20 children and on the left in 27 children. Recurrent facial palsy occurred in two children aged 3 and 8 years respectively. Single recurrence occurred in one child on the same side. The other child had two episodes of recurrence, ipsilateral and contralateral at each. The duration from the onset to recurrence in the first child was 3 years 5 months, in the second child was 6 and 8 months respectively.

The treatments included oral prednisolone and the dosages ranged from 0.5-1.5 mg/kg/day in 39 children. Treatment was started within one week of onset in twenty three children. Eleven children had had prior prednisolone treatment elsewhere before presenting to our institution and the treatment was continued. Five children started oral prednisolone later than one week of onset. The record of treatment was not available for three of them and the other two did not have prior medical treatment. Oral vitamins were given in 8 children. Electrical stimulation was done in 10 children. Facial massage were advised for all children.

Table 1. Recovery of facial palsy and duration of follow-up.

Duration of onset to recovery (months)	Recovery		Total
	Complete	Nearly complete	
1	13	9	22
2	9	4	13
3	3	1	4
≥4	4	4	8

Table 2. Distribution of duration to recovery of facial palsy in 47 children.

Duration of onset to recovery (weeks)	All treatment models (n=47)	Oral prednisolone (n=39)	Oral vitamins (n=8)
1	1	-	1
2	3	3	-
3	12	8	4
4	6	5	1
5	7	7	-
6	2	1	1
7	4	4	-
8	1	1	-
9	-	-	-
10	1	1	-
11	2	2	-
12	3	3	-
13	1	1	-
14	1	1	-
15	1	1	-
..	-	-	-
..	-	-	-
23	1	-	1
..	-	-	-
..	-	-	-
28	1	1	-

The follow-up schedule after the first visit in all children was every week for 4 weeks and then one to two months until the facial palsy recovered. Twenty two children were followed for one month, 13 children for 2 months, 4 children for 3 months, and 8 children for more than 4 months. Complete recovery was found in 13, 9, 3 and 4 children who were followed-up for 1, 2, 3 and more than 4 months respectively (Table 1). The longest follow-up period was 1 year 5 months. The mean duration of follow-up was 9.4 weeks.

Complete recovery was observed in 29 children (61.7%) and nearly complete in 18 children (38.2%). All children recovered within 7 months. The shortest duration to recovery was 9 days in a child who received oral vitamins 2 days after the onset of facial palsy. In 3, 12 and 6 children, recovery occurred within 2, 3, 4 weeks from the onset respectively (Table 2). The mean duration to recovery in all children was 6.61 weeks, in the group with prednisolone treatment it was 6.79 weeks and in the group without treatment was 5.57 weeks. Two children who followed-up for more than one year still had mild facial weakness.

Of the thirty nine children with oral prednisolone treatment, recovery was complete in 24 children (61.5%) and nearly complete in 15 children (38.5%). The mean duration from onset to recovery was 6.79 weeks. Of eight children who were given oral vitamins, the mean duration to recovery was 5.75 weeks (Table 2).

The outcome of facial palsy of 7 children aged under 6 years and 16 children aged over 6 years who received oral prednisolone within one week of onset were compared. The mean duration to recovery of the two groups was 5 and 6.68 weeks respectively which were not statistically different ($p > 0.05$) (Table 3).

Table 3. Distribution of duration to recovery of facial palsy in 23 children age under and over 6 years who were treated with oral prednisolone within one week after the onset.

Duration of onset to recovery (weeks)	Age < 6 years (n=7)	Age > 6 years (n=16)
1	-	-
2	-	2
3	2	5
4	1	3
5	2	2
6	-	-
7	1	-
8	1	-
9	-	-
10	-	-
11	-	-
12	-	2
13	-	-
14	-	1
15	-	-
..	-	-
..	-	-
..	-	-
28	-	1

DISCUSSION

The diagnosis of acute idiopathic facial nerve palsy (Bell's palsy) depends on exclusion of known causes of isolated facial palsy such as trauma, tumor, otitis media, chronic ear diseases, congenital facial paralysis and some syndromes. Sathirapanya P. reported facial palsy in 1207 patients from the southern part of Thailand. The etiologies were found in 8.6 per cent which included trauma, herpes zoster infection, otitis media and tumor in 5.1, 2.5, 0.5 and 0.2 per cent respectively. The majority of the patients were adults[13]. Inamura reported facial palsy in 82 children, and the etiologies were known in 34 children (41.5%). The etiologies included congenital (15.9%), otitis media (7.3%), mumps and infectious mononucleosis (7.3%), and trauma (6.1%)[10]. In this study, three children (3.6%) had a specific viral infection i.e. mumps, varicella and herpes zoster infection in one each, and six children (7.1%) were post traumatic. The incidence of preceding trauma was comparable to that of Inamura's series.

The pathophysiology of Bell's palsy is uncertain. The condition often occurs within two to three weeks following a viral illness. Active viral invasion of the nerve or immune demyelination may be responsible for the underlying neuropathy[14-17]. Sixteen children in this report had preceding viral illness within two weeks.

The recurrent rate of Bell's palsy in all ages was reported from 1.5 to 9.3 per cent[2,5,13]. Wong reported a recurrent rate in children as high as 25 per cent (6/24)(3). The recurrent rate in the presented group of children was 4.3 per cent (2/47), which was comparable to the recurrent rate in all ages reported but not as high as Wong's series.

The prognosis of Bell's palsy in children is better than for adults because facial nerves in

children occupy a smaller part of the fallopian canal than those of adults, and the chances of facial nerve damage caused by pressure are lower[12]. The recovery rate of Bell's palsy in children was reported to be as high as 88-96 per cent in 6 months[3,10] and 100 per cent in one year[11]. In the present study 61.7 per cent (29/47) recovered completely and 38.2 per cent (18/47) of them recovered nearly completely within 7 months. Thirteen children with incomplete recovery were lost to follow-up 10 weeks after the onset. These children might have achieved complete recovery and did not come for further follow-up or did not improve and sought advice from other medical centers.

Inamura et al reported that 96.5 per cent of children aged less than 6 years were cured[10]. In the present study the duration of recovery from the onset of children age under and over 6 years were not statistically differrent ($p>0.05$).

Several treatment models have been described for Bell's palsy, corticosteroid has been the most used agent and it seems to reduce the inflammation and edema of the nerve sheath. However, most reports involve adult patients[6,7,9]. In the pediatric population, there are only a few studies regarding results of steroid treatment. In children, Inamura et al reported 96.5 per cent complete recovery which included 30 children with no treatment, 9 children treated with steroid, 16 children with vitamins and 4 children with no treatment information [10]. Another prospective randomized control study involving 42 children was performed by Unuvar et al[11]. It revealed that early steroid treatment within 3 days after the onset of Bell's palsy did not improve the outcome. The outcome of early and late steroid treatment could not be compared in the present study because only 2 children received late treatment. Almost all children in this study had complete or nearly complete recovery with or without steroid treatment. However, only 8 children received no treatment, so further study in a larger group of children may be required before the result of steroid treatment in children with Bell's palsy could be concluded.

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ผลการรักษาเบ็ลล์ส พัลซีย์ในผู้ป่วยเด็ก

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Bell's palsy เป็นภาวะที่ไม่ทำให้ผู้ป่วยเป็นอันตรายต่อชีวิตแต่สามารถก่อให้ผู้ป่วยเสียบุคลิกและมีปมด้อยได้ ในประเทศไทยยังไม่มีการศึกษาผลการรักษาของผู้ป่วย Bell's palsy ในเด็ก การศึกษานี้ได้รวบรวมจากเด็กที่มาด้วยอาการ facial palsy ที่มารับการรักษาที่สถาบันประสาทวิทยาระหว่างเดือนมกราคม 2539 ถึง กรกฎาคม 2544 จำนวน 84 ราย หาสาเหตุได้ 9 ราย (10.7%) ผู้ป่วย 75 รายได้รับการวินิจฉัยเป็น Bell's palsy ผู้ป่วยจำนวน 28 รายได้ตัดออกจากการศึกษา เนื่องจาก 22 รายมาตรวจเพียงครั้งเดียวและขาดการติดตามผล ส่วนอีก 6 รายมีอาการนานเกินกว่า 1 เดือน คงเหลือผู้ป่วย 47 รายในการศึกษา อายุเฉลี่ย 8.8 ปี (2 ปี ถึง 15 ปี 8 เดือน) เป็นเพศชายต่อเพศหญิง 1 : 1.1 อาการเป็นข้างซ้ายมากกว่าข้างขวาในสัดส่วน 1.3 : 1 ผู้ป่วย 2 รายเป็นซ้ำ (4.3%) ระยะเวลาของการเกิดซ้ำตั้งแต่ 6 เดือน ถึง 3 ปี 5 เดือน ผู้ป่วย 39 รายได้รับยา prednisolone 29 ราย (61.7%) หายเป็นปกติ 18 ราย (38.2%) หายเกือบปกติ ผู้ป่วยทั้งหมดอาการดีขึ้นมากและหายขาดในระยะเวลา 7 เดือน โดยมีค่าเฉลี่ยของการหาย 6.61 สัปดาห์ (9 วัน ถึง 28 สัปดาห์) เปรียบเทียบการหายจากโรคในเด็กอายุต่ำกว่าและสูงกว่า 6 ปี ไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ ส่วนการศึกษาเปรียบเทียบระหว่างการให้ยา steroid ในระยะเริ่มแรกภายใน 7 วัน และภายหลัง 7 วัน ไม่สามารถทำได้ในการศึกษานี้

คำสำคัญ : ผลการรักษา, เบ็ลล์ส พัลซีย์, ผู้ป่วยเด็ก

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