

## The efficacy of steroids in idiopathic facial nerve paralysis: an open, randomized, prospective controlled study

İdyopatik fasyal sinir felçli olgularda prednizolon tedavisi: Açık, randomize, kontrollü, prospektif bir çalışma

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**Objectives:** Although corticosteroid therapy is widely used in idiopathic facial nerve paralysis, its efficacy has not been clearly demonstrated. This study was designed to evaluate the role of steroids in idiopathic facial nerve paralysis.

**Patients and Methods:** The study included 56 patients (29 males, 27 females; mean age, in men 44.1, in women 40.3 years) with a diagnosis of idiopathic facial nerve paralysis. Within the first three days after the onset of symptoms, the patients were randomly assigned to two groups to receive either steroids or other medications for the prevention of ocular complications or to provide pain relief. The severity of facial paralysis was evaluated using the House-Brackmann classification before and after three and six weeks of the treatment. Regression to stage 1 or 2 disease was regarded as a successful response.

**Results:** Although the initial response to steroid therapy seemed to be better, the results at the end of three and six weeks of the treatment were not statistically different from those of patients receiving other supportive treatments ( $p < 0.05$ ).

**Conclusion:** Further studies with large patient series are needed to clarify the use of steroids in the treatment of idiopathic facial nerve paralysis.

**Key Words:** Bell palsy/drug therapy; facial paralysis/drug therapy; prednisolone/therapeutic use.

**Amaç:** Steroidler periferik fasyal paralizilerin tedavisinde sıkça kullanılmalarına rağmen kesin yararlılığı gösterilememiştir. Bu çalışmada idyopatik fasyal paralizisi tanılı hastalarda steroid kullanımının yeri araştırıldı.

**Hastalar ve Yöntemler:** İdyopatik fasyal paralizisi tanılı 56 hasta (29 erkek, 27 kadın; ort. yaş erkeklerde 44.1, kadınlarda 40.3) çalışmaya alındı. Hastalar, bulguların başlamasını izleyen üç gün içinde steroid tedavisi görenler ve diğer koruyucu ve destekleyici tedavileri alanlar (ağrı kesici olarak parasetamol ve oküler komplikasyonlardan korunma) olmak üzere iki gruba ayrıldı. Fasyal paralizinin şiddeti House-Brackmann sınıflandırması ile tedavi öncesinde ve üçüncü ve altıncı hafta sonunda değerlendirildi. Tedavi sonunda evre I ve II'ye gerileyen hastaların tedaviye yanıtı başarılı olarak kabul edildi.

**Bulgular:** Steroid tedavisinin etkinliği gözlenmekle birlikte, bu etki, steroid tedavisi görmeyen gruba kıyasla anlamlı değildi. Üçüncü ve altıncı hafta sonundaki sonuçlar, başarılı iyileşme bakımından iki tedavi grubu arasında anlamlı fark olmadığını gösterdi ( $p > 0.05$ ).

**Sonuç:** İdyopatik fasyal paralizisi tedavisinde steroidin etkinliğini değerlendirmek için iyi düzenlenmiş daha geniş çalışmalara gerek vardır.

**Anahtar Sözcükler:** Bell paralizisi/ilâç tedavisi; fasyal paralizisi/ilâç tedavisi; prednizolon/terapötik kullanım.

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◆ Received - October 10, 2003 (Dergiye geliş tarihi - 10 Ekim 2003). Request for revision - October 22, 2004 (Düzeltilme isteği - 22 Ekim 2004). Accepted for publication - October 28, 2004 (Yayın için kabul tarihi - 28 Ekim 2004).

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Idiopathic facial nerve paralysis, or Bell's palsy is a common disorder. It affects 20 per 100.000 people a year.<sup>[1]</sup> Its etiology is yet unclear. Many theoretical etiologies such as viral infection,<sup>[2-4]</sup> ischemic and diabetic vascular disease<sup>[5,6]</sup> autoimmune inflammatory disease,<sup>[7-10]</sup> familial inheritance<sup>[11]</sup> or a combination of the these factors<sup>[12]</sup> have been proposed. Since the etiology of idiopathic facial nerve paralysis (IFNP) is unclear, its treatment spectrum is widely varied. Treatment is aimed at improving recovery of facial nerve function and the prevention of neural degeneration and its complications. Of the multiple treatment modalities evaluated over the past three decades, corticosteroid therapy for IFNP patients has become the most widely accepted. However, despite the widespread clinical acceptance of corticosteroid therapy for IFNP patients, its efficacy has not been clearly demonstrated in the literature.<sup>[13-15]</sup>

We have designed this analysis in an attempt to resolve uncertainly about corticosteroid efficacy in the treatment of IFPN and the role of steroid usage in patients with established diagnosis of IFNP has been investigated. Parameters used to determine benefit included the followings: functional recoveries at 3<sup>rd</sup> and 6<sup>th</sup> weeks, facial paralysis grade at onset versus grade at recovery.

## MATERIALS AND METHODS

Fifty five patients (male: n=29; female: n=27) were randomly chosen among those referred to Neurological Clinics of Dr. Lütfi Kırdar Training and Research Hospital between February 2000 and July 2002 with established diagnoses of IFP. All patients have been evaluated with complete physical and neurological examinations. Lungs were examined and patients were interrogated and investigated as for sarcoidosis, tuberculosis and neoplastic abnormalities. Parotids were evaluated bilaterally and the presence of localised and diffuse lymphadenopathies were searched. The diagnosis was established with the demonstration of facial nerve involvement and excluding of diagnoses showing similar manifestations. Neurological examination and grading of paralysis were performed by the same neurologist participating in the study. The study was conducted in an open label fashion. All the patients including subjects who did not have steroids but took supportive therapy were informed about the aim of the study. The patients who gave their written and signed informed con-

sent were enrolled in the study. The patients were divided in two groups as those receiving steroids or other therapies. Initial and final examinations of both groups were done by the same neurologist. After the establishment of diagnosis, the patients who continued their steroid therapies during their follow-up period under our surveillance were included in Group I and those under preventive or supportive treatment (prevention of ocular complications, administration of paracetamol for pain relief) were enrolled in Group II. Group II patients were selected from the patients admitted to hospital after 3 days which was accepted as a therapeutic interval previously. Those referred within the first 3 days after onset of symptoms were started on steroid therapy (Group I). Methylprednisolon (1 mg/kg p.o.) was administered for the first week and then the dosage was tapered gradually and the treatment was terminated within 10 days. During the follow-up period of Group I, an antacid was added as a protective agent of gastric mucosa. All of the patients received routine eye care and therapy for prevention of complications related to eyes. Degrees of severity of facial paralyses of patients were initially evaluated using House-Brackmann classification.<sup>[16]</sup> Subsequent assessments were done at the end of 3<sup>rd</sup> and 6<sup>th</sup> weeks after referrals and degrees of severity of IFNP were recorded separately. According to the treatment results obtained at 3<sup>rd</sup> and 6<sup>th</sup> weeks, patients who regressed to stage -1 and stage -2 were rated as successful responders while the remaining cases were considered as failures.

*Statistical Analysis:* Parametric (Student's-t) and non-parametric tests were used.

## RESULTS

Twenty nine male and 27 female patients completed the study. Mean ages were detected to be 40.30±16.92 for females and 44.10±15.66 for male patients. When ages and genders were compared, a statistically significant difference was not observed between groups receiving steroids or placebo. Degrees of severity of facial paralysis were rated according to House-Brackmann classification. Steroid therapy was started on the first day of admission in 11 out of 34 patients. The remaining 23 patients received their first doses on 2<sup>nd</sup> or 3<sup>rd</sup> days of their referrals. Patients (n=34) in the treatment group distribution of facial nerve grades at times of

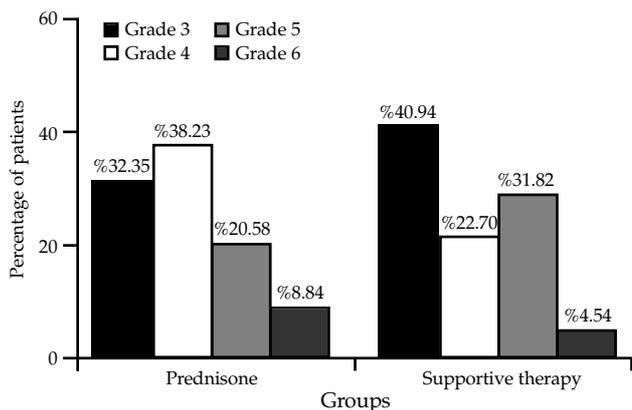


Fig. 1 - Distribution of facial nerve grades at time of starting therapy.

starting therapy are shown in Fig. 1. Were classified as stage 3 (n=11), stage 4 (n=13), stage 5 (n=7) and stage 6 (n=3) cases. The patients who hadn't been treated during the initial phase of the disease, were rated as in stage 3 (n=9), 4 (n=5), 5 (n=7) and 6 (n=1) respectively. Firstly recorded pretreatment stages of Group I and II expressed as means ± SD were 4.06±0.95 and 4.00±0.98 respectively (Fig. 2). There was not any statistically significant difference between the two groups (Table I). Although the efficacy of initial steroid therapy was observed, a statistically significant difference was not detected when compared with the no treatment group. Assessments of groups at 3<sup>rd</sup> and 6<sup>th</sup> weeks are shown in Table I as well. At the end of 3<sup>rd</sup> week, the

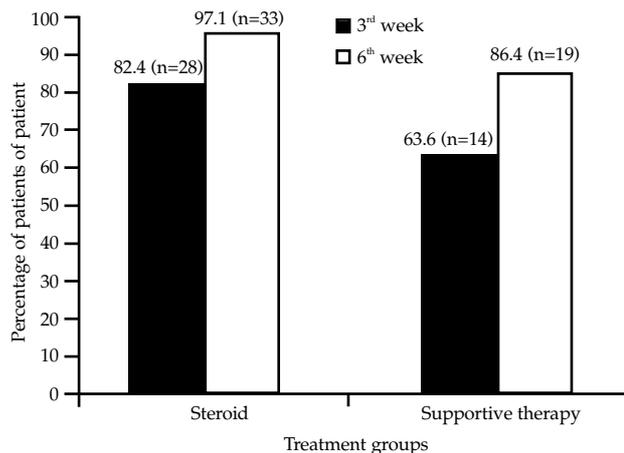


Fig. 2 - The percentages of success at time of 3<sup>rd</sup> and 6<sup>th</sup> weeks for the prednisolone and supportive therapy groups.

percentages of patients considered as successful responders to treatment in Group I and II were found to be 82.4% (n=28) and 63.6% (n=14) respectively (Fig. 2). At the end of 6<sup>th</sup> week, the percentages of patients considered as successful responders to treatment in Group I and II were detected to be 97.1% (n=33) and 86.4% (n=14) respectively. When results obtained at the end of 3<sup>rd</sup> and 6<sup>th</sup> weeks, a statistically significant difference was not detected between groups. Besides a statistically significant difference was not demonstrated with respect to responses to the treatment between patients whose treatments were started from the

TABLE I  
DEMOGRAPHICAL FINDINGS AND COMPARE OF TWO GROUPS RELATED TO THERAPY PROTOCOLS

	Control group	Treatment group
Mean ages (±SD) years	46.50±19.39	38.97±14.64
Gender	11 F** (50%) 11 M* (50%)	16 F** (47%) 18 M* (53%)
Stage rated at presentation (mean±SD)	4.00±0.98	4.06±0.95
Stage rated at 3 <sup>rd</sup> week (mean±SD)	2.23±1.19	2.00±1.02
Stage rated at 6 <sup>th</sup> week (mean±SD)	1.59±1.05	1.29±0.63
Percentage of successful recoveries at the end of 3 <sup>rd</sup> week	63.6% (n=14)	82.4% (n=28)
Percentage of successful recoveries at the end of 6 <sup>th</sup> week	86.4% (n=19)	97.1% (n=33)

M\*: Male; F\*: Female.

first day or after the first day (2<sup>nd</sup> or 3<sup>rd</sup> days) of their presentations Rates of recovery of patients treated from the first or the second day of their referrals were compared. A statistically significant difference was not observed between the two groups of patients (Fig. 3a, b).

### DISCUSSION

Peripheral facial paralysis is one of the most common mononeuropathies. Its course is relatively benign but up to 16% of the patients show moderate or severe sequelae.<sup>[17]</sup> IFNP is a dramatic but usually self-limiting condition. A neurologist can expect to see a case of IFNP many times a year. Although IFNP is common in population, there is still no definite therapy protocol currently used by neurologists. The majority of cases with Bell's palsy are treated without drugs. In spite of reports of combined therapy (Acyclovir and prednisone) the most generally accepted treatment at present is prednisone at a dose of 1 mg/kg/day.<sup>[17,18]</sup> Inflammation and edema of facial nerve cause IFNP. Corticosteroids are potent anti-inflammatories which can minimise nerve damage and thus improve the outcome of patients suffering from this condition.<sup>[18]</sup> There are some reports that early treatment with acyclovir and prednisone was proven to be effective and available evidence suggests that steroids combined with acyclovir is more effective than steroid monotherapy.<sup>[19,20]</sup> As mentioned above the available evidence from trials is not enough to show significant benefit from therapy of IFNP with steroids. Our study showed that there was no statistical difference

between groups who took steroid or supportive therapy.

Degeneration is an important factor effecting the recovery and if present, the chance of recovery reduces to 50 per cent. Steroids does not appear to influence the outcome of the Bell's palsy if degeneration developed.<sup>[14]</sup> If steroids are used to treat Bell's palsy, treatment should be started within the first 24 hours for it to be effective.<sup>[15,21,22]</sup> Our study indicated that initiation of therapy within the first 24 hours had not influenced treatment outcomes significantly. The difference between treatment groups whose therapy started in the first day and 2<sup>nd</sup> or 3<sup>rd</sup> days was not statistically significant.

A meta-analysis by Ramsey et al.<sup>[23]</sup> concluded that steroid treatment provided a clinically and statistically significant improvement in recovery of functions in complete paralysis when compared to placebo or no treatment. In this study we have found that three of four patients with complete paralysis showed improvement in recovery but statistical analysis was not performed because of low number of patients.

In this open, randomized, controlled study, we didn't find a statistically significant difference between patients receiving corticosteroid therapy or other supportive therapies. In addition, initiation of steroid therapy within the first 24 hours hasn't influenced recovery favourably. Well-designed studies investigating the effectiveness of the treatments for Bell's palsy are still needed.

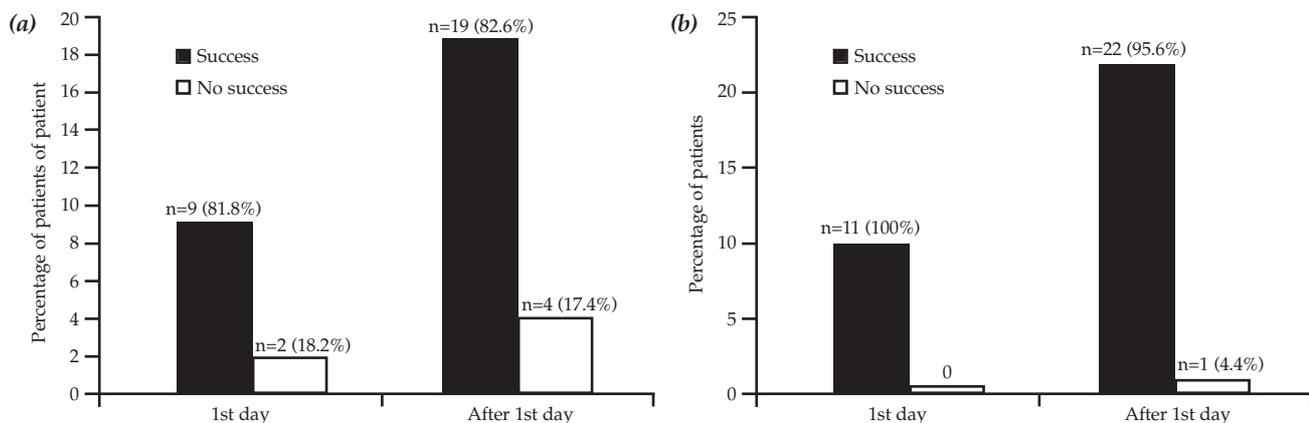


Fig. 3 - (a) Distribution of succes of steroid therapy related to start (at time of third week). (b) Distribution of success of steroid therapy related to start (at time of sixth week).

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TABLE II  
 RATES OF RECOVERY OF PATIENTS TREATED FROM THE FIRST OR THE SECOND OR  
 THIRD DAYS OF THEIR REFERRALS WERE COMPARED

		Patients whose treatment was started on 1 <sup>st</sup> days		Patients whose treatment was started on 2 <sup>nd</sup> or 3 <sup>rd</sup> days	
		n	%	n	%
3 <sup>rd</sup> Weeks	Failure	9	81.89	19	82.6
	Successful	2	18.2	4	17.4
6 <sup>th</sup> Weeks	Failure	11	100	22	95.7
	Successful		0	1	4.3