Treatment of retrobulbar neuritis in multiple sclerosis with corticosteroids and interferon \(\beta_1b\)

**APSTRACT**

Objective. Retrobulbar neuritis is the inflammation of optic nerve which is localized behind the eye. Patients with multiple sclerosis are adequate for our examination, because of well-known association between these two diseases.

Methods. The study included 64 patients, divided in 4 groups, during last five years, during hospitalizations and outpatient controls. We analyzed demographic characteristics, neuro-ophthalmological clinical symptoms, diagnostic tests and the effectiveness of therapy.

Results. The greatest number of patients was young women, from urban regions, treated primarily during the winter time of the year. Temporal pallor of optic head was always present in clinical status. The loss of visual acuity appeared in 64%, MRI findings were positive at 56%, positive cerebrospinal fluid findings were at 43% subjects. VEP examination was positive at 84%, ocular sequels at 67% and neurological disturbances occurred in 48% subjects. Incidence of relapse of retrobulbar neuritis was found in 16% of patients with normal MRI in the period of five years. After the treatment with corticosteroids, the appearance of plaques was delayed for 2 years at almost all patients. A good recovery of patients appeared after 2-3 weeks of corticosteroid treatment. The good results with interferon beta-1b therapy were achieved in 76% of patients. In our patients, prolongation of relapsing-remitting status of retrobulbar neuritis during multiple sclerosis evolution was about 2 years.

Conclusion. Retrobulbar neuritis is an important health problem in many patients suffering from multiple sclerosis.

Key words: optic neuritis; multiple sclerosis; interferons.
INTRODUCTION

Retrobulbar neuritis is mainly an inflammatory disease of the optic nerve. Medical and social interests for this disease are in great expansion. At the first phase of the disease, there are no clear clinical signs on the optic nerve head, but at the later stage we can find temporal pallor of the optical nerve head (PNO), with clear borders, presence of lower visual acuity, which depends on the number of lost nerve fibers. The vascular component of retrobulbar neuritis is explained with clinical anatomy of Haller-Zinnia ring. Ophthalmologist describes pallor of the PNO, reduction of the PNO vessels, regional or diffused thinning of the nerve fibers, according to the etiology and the level of lesions. The most common type of the disease is multifocal demyelization neurodegenerative process. Fibrous multifocal acute or chronic plaque, formed by atrocities reduces conduction in terminal synapse of the optical nerve. The same process is in the brain and spinal cord. The travel of the cytoplasmic’s organelles of the peripheral nerves is still preserved. MS is still the great challenge for neurology-ophthalmologists, as a hereditary, autoimmune, unpredictable and complex disease. The clinical subtypes of MS are isolated, primary or secondary progressive and remitting disease. Kurtzke’s Functional Systems Scale and Expanded Disability Status Scale (EDSS) with score from 0 to 10 is used for standardization of the disease progression. The complexity of the medical treatment includes, besides the corticosteroids, oral interferon’s therapy, treatment with monoclonal antibodies, stem cell transplantation, adjuvant therapy, etc. Interferon, like nonspecific cytokine, suppressed autoimmune reaction with antiviral, antibacterial, ant proliferative and ant tumors action.

The recognizable trend of this disease is a well-known trend among physicians. Therefore main goal of our study was to examine the efficiency of corticosteroid and the interferon’s therapy at patients with retrobulbar neuritis and multiple sclerosis. Achieved perpetual therapy is very important for neurology-ophthalmologist and is the guaranty for better quality of life of the patients.

RESULTS

Distribution according to sex among our patients showed that women prevailed (38 patients), figure 1.
Distribution according to age showed that the great number of patients were between 30-45 years old, figure 2.

Most of patients were from industrialized region (urban). We noticed that the incidence of disease was higher during winter, with disease peak in December, statistically significant (T test, p<0.05), figure 3.

Temporal pallor (unilateral or bilateral) of the optic head was present in all patients. Visual acuity distribution was L+P at 26 patients, 0.1-0.2 at 15 patients, 0.3-0.5 at 16 patients, >0.5 at 7 patients. Other visual disturbances were distributed as: disturbances in color vision - 62 patients, scotoms - 61 patients, painful eye movement at 49 patients, late recidivate at 28 patients, figure 4. (T test, p<0.01).

MRI showed demyelization plaques at 56 patients, figure 5.

Analysis of focus was detected at 8 patients, as the background for the disease, liquor presented oligoclonal bands at 43 patients, figure 6, (x2 test, p<0.01).

Pathological results of VEP were inherent at 89%. Eye sequel were positive at 60% and neurological sequel were positive at 40%. 18% of patients had intellectual alteration with dementia, (x2 test, p<0.01). The effects of therapy showed that methyl-prednisolone-succinate (2g/24h, i.v., 3-7 days), with prednisolone (1mg/1kg/24h, p.o., more than 11 days) was justified for 98% patients. This treatment accelerated clinical revival in 2 to 3 weeks, delayed recidivate for 2 years (T test, p<0.05). The positive results of interferon B1b were notified at 76% (8-16 million IU / mL, s.c., 3 per week). It was manifested like prolonged relapse-remitting status at these patients (T test, p<0.05). The therapy effects showed that steroid treatment, without prolonged effects had positive effect at 98%; interferon B1b treatment presented relative remission with prolonged effects (>2 years), at 76% of patients; the adjuvant therapy with positive effect, but without total remission was presented at 30%. Combined treatment was effective at 98% of patients, figure 7. (T test, p<0.05).
Lečenje retrobulbarnog neuritisa / Treatment of retrobulbar neuritis

Figure 7. The effects of the therapy

The early recidivate were noticed at 30%, late recidivate at 60%, without recidivate were 10% of all patients, figure 8. (T test, p<0.05).

Figure 8. Recidivate of disease - late, early and without recidivates

DISCUSSION

Patients with retrobulbar neuritis and with negative MRI have 16% lower incidence of multiple sclerosis for 5 years.6 Sex distribution showed female domination (2:1). Most of the patients are either young or middle age. The highest incidence of the disease was in winter (‘peak’ in December), just like other viral infections.7 Temporal pallor was presented at all patients, some of them had bilateral manifestation. Decreasing of visual acuity, color defects, scotomas were notified at almost 20%.8 Painful eye movement was present at half of all patients.9 Late recidivate were more frequent than early ones (2:1). Infective genesis of the disease was detected at 8 patients. We found in literature that at 1/4 of patients, infective genesis was positive. Negative effects of the steroids and interferon therapy were the reason for cyclic controls of other specialists (endocrinologists, cardiologist, gastroenterologists). Immunological and blood analysis were performed on monthly basis. Neurological, gastroenterological, urological and other examination was regularly done every month. The relapse of the disease was delayed for 2 years (MRI, liquor analysis, VEP examination).10,11 Optimal treatment effects were achieved, but with specific characteristic. The good treatment is the treatment which results in prolonged remitting time and without new, quick nerve damages. We must bear on our minds all unwanted effects of the current treatment (interferon’s antibodies, osteoporosis, menopause, cardiovascular or gastrointestinal discharges, increase of immunity status, etc. Steroid therapy is our choice made according to the social and economic state of our country.12 Negative MRI results after steroid treatment in acute stage of the disease indicates the positive effect of this therapy, without delayed clinical effects.13 Interferon therapy is also good treatment modality. Authentic, five years study indicates that patients, who were treated with steroids or interferon therapy, had better life quality and prolonged remitting-relapse status.14 This finding corresponds to the dates from other authors.15

Retrobulbar neuritis is among the first signs of the multiple sclerosis. It is a joined mission for the ophthalmologist and neurologist. This joined struggle for the better quality of life of the patients is hard and uncertain. At the end of the era of one therapy, a new one appears.

We must make our decision what to use. Consulting the literature in this field and relying on one’s own experience are the basis for good practice.
REFERENCES


