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CLINICAL STUDY OF EPISCLERITIS AND SCLERITIS

SUMMARY

Episcleritis is a benign, inflammatory affection of deep subconjunctival tissue, including also the surface sclera lamellas. The disease occurs bilaterally or unilaterally. Scleritis is an inflammation involving deep layers of sclera, it is less frequent than episcleritis, but is a more serious disease.

Rheumatoid arthritis is the most frequent disease associated with scleritis and episcleritis. Scleritis associated with systemic diseases have significantly more unfavorable course of a disease. Recurrences are more frequent and they last for years, but early diagnosis and fast treatment during the first attack decrease recurrence frequency. The objective of this study was to determine whether there were differences in the clinical picture of the patients affected with episcleritis and scleritis of unknown etiology (group I) and those affected with episcleritis and scleritis with associated diseases (Group II). The average number of recurrences was 4,44 in the patients of group I and 6,36 of group II. Unilateral recurrences were present in 33,3% of the patients of group I, with recurrences on both eyes in 66,6% of the patients. In group II, alternating recurrences were present in 81,8% of the patients, but the difference was not statistically significant (p>0.05) More frequent presence of diffusive type episcleritis and scleritis of unknown etiology was noticed in the patients. The medium time of recovery in the patients of group I was 4,93 and 7,17 in those of group II; there is statistically significant difference between the investigated groups, in favor of group II (p< 0,05).

Key words: **episcleritis, scleritis, inflammatory affection, type**

INTRODUCTION

Episcleritis is a benign, inflammatory affection of deep subconjunctival tissue, including also the surface sclera lamellas. The disease occurs bilaterally or unilaterally. Scleritis is an inflammation involving deep layers of sclera, which is less frequent than episcleritis, but is a more serious disease. Watson and Hayreh (1981) pointed out the important fact that episcleritis and scleritis are two individual entites. Episcleritis never relapses into scleritis, while some kinds of episcleritis may be associated with scleritis. In 1976, the same authors made the division of scleritis and episcleritis, which is used even today:

Episcleritis:	Scleritis:
	I Front
1. diffusive	II Rear
2. nodular	
3. necrotic - with inflammation	
- without inflammation	

Pain and erythema are the most characteristic subjective symptoms. The pain is severe and it increases on eye movement and reading, thus making

any work impossible (Akpek et al, 1999). Most of the cases of scleritis (diffusive, nodular, necrotic) include the front part of the sclera , while the diffusive scleritis is usually bilateral. The nodular and rear ones are often unilateral (Denket al., 1997).

Episcleritis and scleritis may develop either isolated or in association with some other systemic diseases. Rheumatoid arthritis (Sainz de la Maza et al., 1994) is the most frequent systemic disease associated with scleritis.

MATERIAL AND METHODS

The patients were divided into two groups: I group (EP and SC) involved fifteen patients suffering only from episcleritis and scleritis and group II (EP and SC+ RA and SD) involved fifteen patients suffering from episcleritis and scleritis associated with systemic diseases (rheumatoid arthritis, systemic lupus erythematodes, polyarteritis nodosa, scleroderma, Wegener disease). Both groups were subjected to a prospective study.

The ophthalmologic examination was carried out at the Clinic of Ophthalmology in the Clinical Center in Niš, the Ophtalmological Ward of VMA-Belgrade and Djordje Nesic Ophtalmologic Diseases Institute – Belgrade.

The rheumatologic examination carried out in Niska Banja Institute for Prevention, Tretment and Rehabilitation of Rheumatic and Hearth Diseases included, on one hand, stationary treatment and examination and, on the other, outpatient regular medical check-ups. An effort was made to include both the patients with articular and those with extra-articular changes: subcutaneous nodes, cutaneous vasculitis, respiratory and cardiovascular manifestations.

The ophthalmologic examination involved the control of visual acuity, ocular pressure, examination of the front and rear eye segment, with changes verified by photo- spalt.

The rheumatologic examination involved an insight into the general and local clinical finding including standard biohumoral and radiological changes.

The objective of the study was to find out whether there were any differences in the clinical picture of the patients affected with idiopathic scleritis and episcleritis and those affected with episcleritis and scleritis with associated rheumatoid arthritis and other systemic diseases. The clinical parameters followed up included the type of episcleritis and scleritis, the number of recurrences, unilaterality and alternation, and the time of recovery.

RESULTS

The number of eye disease recurrences was followed up in the patients suffering from episcleritis and scleritis associated with systemic diseases of connective tissue.

A special characteristic of episcleritis and scleritis is their multiple recurrence in one same patient. Thus, in the group of the patients suffering from idiopathic episcleritis and scleritis there were 6 persons with 1-5 recurrences , which makes 66.7%. In the remaining three patients (33.3%), recurrences occurred 6-10 times. The average number of recurrences in this group was 4.44. In the group of patients suffering from some other systemic disease of connective tissue, in addition to episcleritis and scleritis, there were six (54.5%) patients with 1–5 recurrences and 3 patients (27.3%) with 6–10 recurrences. It should be emphasized that two patients from this group had more than 10 recurrences. The average number of recurrences is greater compared to the previously described group and is 6.36 (table 1).

Table 1. Distribution and average number of recurrences in the group of subjects with EP and SC and in the group with EP and SC + RA and SB

No of recurrences	EP and SC		EP and SC + RA and SB	
	No	%	No	%
1 – 5	6	66,7	6	54,5
6 – 10	3	33,3	3	27,3
> 10	0	0	2	18,2
Total	9	100,0	11	100,0
x ± SD	4,44 ± 2,24		6,36 ± 4,84	
Mann-Whitney test	U = 42,0 p > 0,05			

No statistically significant difference in the number of recurrences between the group of patients with idiopathic scleritis and episcleritis and that of the patients with previously described eye diseases associated with systemic diseases of connective tissue (U-42.0, p- 0.564, p -0.05) was found.

Regardless of the eye first subjected to the attack of scleritis and episcleritis, recurrences may occur alternately on either eye. Table 2 shows the presence of unilateral and alternating recurrences in the investigated groups.

Unilateral recurrences were present in 3 (3.33%) of the first group patients, with 6 (66.7%) of them having recurrences on both eyes. Alternating recurrences were present in 9 (81.8%) of the patients of the group suffering from episcleritis and scleritis associated with systemic diseases of connective tissue. However, the difference in the presence of alternating recurrences of 15.1% is not statistically significant (Fisher exact probability test p-0.616, p-0.05).

In the group of episcleritis and scleritis affected patients, 9 patients of 60.0% of the total number of subjects had a diffusive form, while a a nodular form was present in 6 patients (40%). In the group of patients affected with episcleritis and scleritis with associated systemic diseases of connective tissue, 7 (46.7%) subjects had the diffusive form and 8 (53.3%) had the nodular type, as shown in table 3. There is no statistically significant difference in the presence of diffusive and nodular type of disease between the group of the patients with idiopathic scleritis and episcleritis and that of the patients with idiopathic scleritis and episcleritis and that of the patients who, except for the previously mentioned diseases, suffered from systemic diseases of connective tissue (x^2 = 0,536; p=0,464; p>0,05).

The necrotic form of scleritis, scleromalacia perforans (as a type of the front part scleritis) and rear part scleritis were not found in the patients investigated.

Table 4 shows the correlation between scleritis and episcleritis type and kinds of recurrences (unilateral and alternate). Statistically speaking, there is no significant correlation between the number of episcleritis and scleritis recurrences and unilaterality and alternation in the investigated groups (p>0.05).

Statistically significant correlation between the type of episcleritis and scleritis on one side and unilaterality and alternation on the other was not found in the investigated groups, too.

The recovery time of patients suffering from episcleritis and scleritis varied greatly and ranged from 2 weeks to 28 months (table 5).

Table 2. Unilateral and alternate presence of recurrences in the group of subjects with Ep and Sc and in the group with EP and Sc + RA and SB

Group	Unillaterally		Alternately		All	
	No	%	No	%	No	%
EP and SC	3	33,3	6	66,7	9	100,0
EP and SC+RA and SB	2	18,2	9	81,8	11	100,0
Total	5	25,0	15	75,0	20	100,0
Fisher test	p > 0,05					

Table 3. Type of episcleritis and scleritis

Type of disease	EP and SC		EP and SC + RA and SB		All	
	No	%	No	%	No	%
Diffuse	9	60,0	7	46,7	16	53,3
Nodular	6	40,0	8	53,3	14	46,7
Total	15	100,0	15	100,0	30	100,0
x^2 test	x^2 = 0,536 p>0,05					

Table 4. Interrelation between the type of EP and SC and the type of recurrence (unilateral and alternating)

Type	EP and SC				EP and SC + RA and SB			
	unillaterally		alternately		unillateraly		alternately	
	No	%	No	%	No	%	No	%
Diffuse	1	33,3	3	50,0	2	100,0	5	55,5
Nodular	2	66,7	3	50,0	0	0,0	4	44,5
Total	3	100,0	6	100,0	2	100,0	9	100,0
Fisher test	p > 0,05				p > 0,05			

Table 5. Time of recovery in EP and SC group and EP and SC + Ra and SB

Time of recovery (in mounths)	EP and SC		EP and SC + RA and SB	
	No	%	No	%
< 1	0	0	5	33,3
1 – 5	10	66,7	4	26,7
6 – 10	2	13,3	3	20,0
11 – 20	2	13,3	1	6,7
> 20	1	6,7	2	13,3
Total	15	100	15	100,0
x ± SD	4,93 ± 6,01		7,17 ± 7,30	
Mann-Whitney test	p < 0,05			

In the group of patients with idiopathic scleritis and episcleritis the recovery time was not less than a month in any of the persons. In the greatest number (10 or 66.7%) of patients, the recovery time was from one to five months. Maximum recovery time of 22 months was registered only in one female patient. The average recovery time in this group of subjects was 4.93±6.01.

The recovery time of the largest number of patients suffering, in addition to episcleritis and scleritis, from systemic diseases of connective tissue, was less than one month (5 or 33.3%). In four of these patients (26.7%), the recovery time was from one to five months, in three of them (20.0%) six to ten months and in one of them it was 11–20 months. The average recovery time in the group is 7.17±7.30.

There is statistically significant difference of the recovery time between the patients with idiopathic episcleritis and scleritis and those suffering, in addition to these eye diseases, from rheumatoid arthritis and other systemic diseases (Mann-Witney Rank Sum W test, U-59.0, p-0.05).

DISCUSSION

Watson P. (1982) emphasizes that a front form scleritis (diffusive, nodular and necrotic with no inflammation) is the one that occurs in 95% of cases, while a rear part scleritis is significantly less frequent. This author also indicates that the diffusive and nodular types of scleritis are equally present, while a necrotic one is significantly less frequent and associated in higher percentage with systemic diseases (rheumatoid arthritis, systemic lupus erythematodes, Wegener disease, etc).

All the patients in our study suffered from the diffusive and nodular front part scleritis. In the first group, the diffusive form scleritis was present in 60.0% of patients while in the group with associated diseases, the diffusive form scleritis was present in 46,7% of subjects with the nodular type in 53.3% of subjects. There is no statistically significant difference in the presence of the diffusive and nodular type of disease between the group of the patients suffering from idiopathic EP and SC and that of the

patients suffering from EP and SC with associated diseases (x^2 = 0.536; p >0.05). A more frequent presence of the diffusive form scleritis in the patients suffering from idiopathic scleritis was noticed but this cannot be considered to be a rule, as the difference of 13.3% is not statistically significant.

In our studies, we have not registered the necrotic form of scleritis, scleromantia perforans, which may have very destructive character (Arnavaz 1997), as well as the rear part scleritis which is always followed by papilla edema and retina ablation.

The reason for an absence of a serious destructive form of scleritis is probably in the fact that only the patients with less serious articular manifestations and those with long and adequate therapy were encountered. Nonsteroidal anti-inflammatory drugs and corticosteroids were administered to all the patients with RA and other systemic diseases of connective tissue. A certain number of patients used medicines, which may influence the disease activity and lead to slowing down and ending of its progress.

A special characteristic of episcleritis and scleritis is their recurrence. The recurrence need not involve the same part of a sclera nor it need occur on the eye subjected to the first attack (Badassano, 1998). The diffusive form is described in the literature as more frequently bilateral with the nodular one as more frequently unilateral.

In the group of patients suffering from EP and SC, the average number of recurrences was 66.7% with the medium value of 4.44%, while in the group of patients suffering from EP and SC associated with RA and other systemic diseases the average number of recurrences between the investigated groups was found. This can be explained by the fact that due to groups being nonhomogeneous, only nonparametric statistical sum rank test for nonhomogeneous groups can be used here.

The unilateral recurrences in the EP and SC group without associated disease were present in 33.3% of subjects, with the alternating recurrences on both eyes in 66.6% of them. In the group of the patients with EP and SC associated with RA and systemic diseases, alternating recurrence of 15.1% is not statistically significant (Fischer exact probability test p =0.616; p>0.05).

There is no statistically significant correlation between the number of episcleritis and scleritis recurrences and unilaterality and alternation in the investigated groups (p> 0,05). No statistically significant correlation between the type of episcleritis and scleritis on one side, and unilaterality and alteration on the other, was found in the investigated group.

The recovery time of the patients suffering from episcleritis and scleritis was various and it ranged from 2 weeks to 26 months. The medium recovery time in the group of the patients with EP and SC of unknown etiology was 4.93, while in the group of those with EP and SC associated with RA and systemic diseases it was 7.17. There is statistically significant difference between the investigated groups, in favor of the latter (Mann-Whitney U -Wilkoxen Rank Sum W test, p-0.05).

Investigating the relation between the time of recovery and the number of recurrences in the group of the patients suffering from EP and SC of unknown etiology, we found a small correlation (rxy =0.181, p> 0.05) which was not statistically significant, while in the group of patients with EP and SC with associated diseases, the correlation between the time of recovery and the number of recurrences was statistically significant (p-0.05).

CONCLUSION

1. The diffusive form of episcleritis and scleritis was more frequent in the patients suffering from idiopathic episcleritis than in episcleritis with associated diseases.

2. There is no difference in the number of recurrences, unilaterality and alternation of episcleritis and scleritis of unknown etiology and those with associated disease.

3. Scleritis associated with rheumatoid arthritis and other systemic diseases requires much longer time of recovery and involves a more unfavorable character.

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EPISKLERITIS I SKLERITIS

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SAŽETAK

Episkleritis je benigna inflamatorna upala dubokog subkonjunktivalnog tkiva, uključujući površne skleralne lamele. Skleritis je upala dubokih slojeva sklere, ređa od episkleritisa, ali mnogo ozbiljnija bolest. Reumatoidni arthritis je najčešće sistemsko oboljenje udruženo sa skleritisom i episkleritisom. Cilj rada je bio da se utvrdi da li postoje razlike u kliničkoj slici bolesnika sa episkleritisom nepoznate etiologije (I grupa) i bolesnika sa episkleritisom i skleritisom koji su imali i pridružene sistemske bolesti (II grupa).

Prosečan broj recidiva je u I grupi bio 44,4, dok je II grupi iznosio 6,36. Unilateralni recidivi bili su zastupljeni u I grupi kod 33.3% bolesnika, dok je njih 66,6% imalo recidive na oba oka. U grupi su naizmenični recidivi bili zastupljenji u 81,1%, ali razlika nije statistički značajna (p<0,05). Zabeležena je češća zastupljenost difuznog tipa episkleritisa i skleritisa kod bolesnika nepoznate etiologije. Srednje vreme oporavka je u I grupi bilo 4,93, dok je u II grupi iznoslilo 7,17 gde postoji statistički značajna razlika među ispitanim grupama u korist II grupe (p<0,05).

Ključne reči: **episkleritis, skleritis, recidivi, vreme oporavka**