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OCULAR MANIFESTATIONS IN SYSTEMIC LUPUS ERYTHAMATUSUS PATIENTS: A HOSPITAL BASED OBSERVATIONAL STUDY.

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Abstract
Objectives: This study was to evaluate the incidence and ocular manifestation in systemic lupus erythematosus (SLE) patients.
Methods: A total of 50 cases with age group 15 to 50 years were enrolled. A detail history, clinical examinations and relevant investigations were performed to all cases. Patients who were diagnosed with systemic lupus erythamatusus (SLE) by using American Rheumatologic criteria with or without ocular features were included in this study.
Results: Data was analysed by using simple statistical methods with the help of MS-office software. All data was tabulated and percentage was calculated.
Conclusions: Females were commonly suffered with systemic lupus erythamatusus (SLE) and it was commonly seen in age 15-25 years. Episcleritis was the most common symptoms in SLE. Second most common symptoms were conjunctivitis and scleritis. Right eye was more affected than left eye. Most of the cases had ANA positive. Hence, ocular manifestation is the most common in SLE patients. Early diagnosis and prompt treatment may give light of hope for SLE patients. And more research is needed in order to determine which therapy will provide the best prevention and management in SLE patients.
Key words: Systemic lupus erythamatusus (SLE), ocular manifestation, age group, ANA-positive.

Introduction

SLE is a chronic inflammatory disease with multisystem involvement having different clinical and immunological manifestation characterized by the presence of antinuclear antibodies [1].
The incidence of retinal involvement in SLE is 7–26 %. It is one of the most common vision-threatening complications of SLE with an incidence of up to 29 % in patients with active systemic disease [2].
Ocular manifestations are a marker for overall systemic disease activity and can occur in up 1/3rd of all SLE patients. The incidence of retinal involvement in SLE is 7–26 % [3] and is the second most common ocular manifestation after keratoconjunctivitis sicca [4].
It occurs in up to one-third of patients with active SLE, [5,6] with the most frequent complications including keratoconjunctivitis sicca, episcleritis/ scleritis, and lupus retinopathy. More extensive ischemic retinal [7] and choroidal vasculitis – the latter often presenting as serous retinal detachment, [8,9] are less common, but can be blinding and point to the potential presence of active systemic disease. Ocular complications related to treatment, particularly with corticosteroids [10] and hydroxychloroquine, are also well recognized [11].
The clinical diagnosis of SLE is based on the presence of four of the 11 features listed by the American College of Rheumatology classification criteria [12]. The presence of four criteria indicates a diagnosis of SLE, serially or simultaneously, during the course of the disease. The revised criteria include: (1) malar rash, (2) discoid rash, (3) skin photosensitivity, (4) oral ulcers, (5) nonerosive arthritis, (6) serositis, (7) renal involvement, (8) neurological disorder, (9) hematologic disorder, (10) immunologic disorder, and (11) positive antinuclear antibodies. The presence of 4 of these 11 criteria confirms the diagnosis of SLE and yields a sensitivity of 85% and a specificity of 95% for SLE [13]. Our study was diagnosed SLE by using this American College of Rheumatology classification criteria. Objectives of our study was to evaluate the incidence and ocular manifestation in systemic lupus erythematosus (SLE) patients.

Materials & Methods

This present study was conducted in Department of Ophthalmology, VIMS, Pawapuri, Bihar, with

collaboration of SKMCH, Muzaffarpur, Bihar, India during a period from January 2018 to November 2018.

Entire subjects signed an informed consent approved by institutional ethical committee was sought. Data was collected by random sampling methods with irrespective of age and sex. A total of 50 cases with age group 15 to 50 years were enrolled in this study. A detail history, clinical examinations and relevant investigations were performed to all cases. Patients who were diagnosed with systemic lupus erythamatusus (SLE) by using American Rheumatologic criteria with or without ocular features were included.

Statistical Analysis

Data was analysed by using simple statistical methods with the help of MS-office software. All data was tabulated and percentage was calculated.

Observations

This present study was enrolled 50 patients of SLE with age group of 15-55 years. Most of the cases (60%) were in age group of 15 to 25 years. And most of the cases (70%) were females. Male and female ratio was 3:7

Figure.1. Gender wise distribution of SLE patients

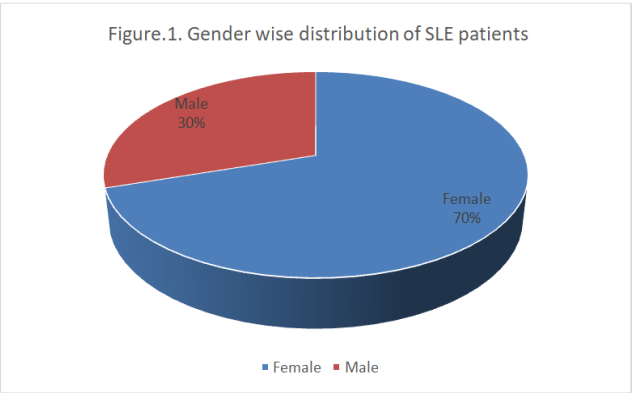

Figure.2. Age wise distribution of SLE patients

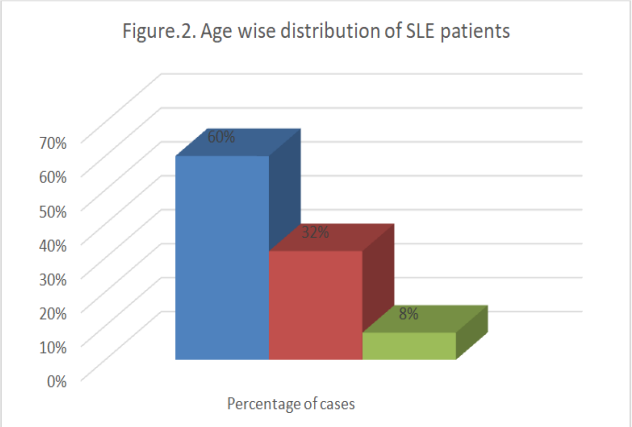

Table 1: according ocular distribution

Symptoms	Right eye(N=37)	Left eye(N=13)	Total
Conjunctivitis	11(78.57%)	3(21.42%)	14(28%)
Episcleritis	16(69.56%)	7(30.43%)	23(46%)
Scleritis	10(76.92%)	3(23.07%)	13(26%)
Total	37(74%)	13(26%)	50(100%)

According to ocular distribution, right eye 37(74%) was mostly affected in SLE patients than left eye 13(26%).

Episcleritis was seen in 23(46%) patients. Out of them right eye was involved in 16(69.56%) than left eye 7(30.43%). Conjunctivitis was seen in 14(28%) patients, out of them right eye was involved in 11(78.57%) than left eye 3(21.42%). Scleritis was seen in 13(26%) patients, out of them right eye was involved in 10(76.92%) than left eye 3(23.07%).

Table 2: Gender wise distribution of symptoms

Symptoms	Females (N=35)	Males (N=15)	Total
Conjunctivitis	12(34.28%)	2(13.33%)	14(28%)
Scleritis	9(25.71%)	4(26.67%)	13(26%)
Episcleritis	14(40%)	9(60%)	23(46%)
ANA-Positive	38(90.48%)	4(9.52%)	42(100%)

Out of 35(70%) SLE female patients, conjunctivitis, scleritis and episcleritis were seen in 12(34.28%), 9(25.71%) and 14(28%) respectively. And out of 15(30%) male SLE patients, conjunctivitis, scleritis and episcleritis were seen in 2(13.33%), 4(26.67%) and 9(60%) respectively. Out of total 50 patients of SLE, ANA-positive was seen in 42 cases. Among them 38(90.48%) were females and 4(9.52%) were males.

Discussions

SLE is a complex disease process demonstrating dysregulation of the immune system at multiple levels. Autoantibodies against double-stranded DNA were first isolated from kidney specimens in patients with lupus nephritis in 1967 [14]. Other autoantibodies that have been implicated in disease include anti-Ro, La, Sm, nucleosome, NMDA receptor, phospholipid, and α-actinin. Two major theories exist on how these autoantibodies cause tissue damage. The first model suggests that anti-double-stranded DNA antibodies bind to circulating nucleosomes to form immune complexes that then get deposited in end-organ capillary beds such as the renal glomerulus and activate immune/inflammatory responses [15]. The second hypothesizes that these autoantibodies

cross-react with normal renal proteins causing tissue destruction [16]. The source of autoantigens that trigger the formation of the aforementioned antibodies is thought to arise from apoptotic cells. Normally, early complement factors, such as C1q, bind cellular debris from apoptotic cells, which facilitate phagocytosis by macrophages. Deficiency of such complement factors is an independent risk factor for the development of SLE [17].

In this present study, SLE was seen in age group of 15 to 50 years. Among them most of the cases 30(60%) of SLE was seen in age group 0f 15 to 25 years. Majorities cases were females 35(70%).

Patel P, Werth V (2002) [18] conducted a study on SLE patients and seen that most of the SLE women had age 15 -44 years. According to Sharfuddim Ahmed, Tasruba Shahnaz, et al [1] SLE has commonly seen in age 15 years to above. Mean age was found 34.5 ± 9.3 years.

Episcleritis is generally a benign inflammation of the episclera. Typically occurring in young women, symptoms include a dull ache, red eye, and tearing. Decreased visual acuity and severe pain are uncommon. Systemic associations are extremely rare in adults, and a systemic workup is not necessary. Incidence in adult patients with SLE has been reported at 2.4% [19]. However, in children, episcleritis is much more rare but systemic associates are much more common. Read et al. [20] found 6 of 9 patients in their series on pediatric episcleritis to have systemic connective tissue disease. In our present study, episcleritis was very common symptoms and it was seen in 23(46%) SLE patients. Right eye 16(69.56%) was more affected than left eye 7(30.43%). Among female 14(40%) episcleritis symptoms were seen. And among male cases 9(60%) symptoms of episcleritis was found.

Scleritis is a more painful and potentially a vision threatening condition that warrants prompt treatment. Anterior scleritis can be nodular or diffuse and presents with a red, painful eye that is tender to touch. The injected deep episcleral vessels give a violaceous due to the sclera, which is best appreciated in natural light. Posterior scleritis on the other hand may not be associated with a red eye because it affects sclera posterior to the equator of the globe. Presenting symptoms are pain, blurred vision, limited eye movements, and proptosis [21]. In this present study, Scleritis was seen in 13(26%) patients, out of them right eye 10(76.92%) was more involved than left eye 3(23.07%). Among female SLE cases, a symptom of scleritis was found in 9(25.71%). And among male SLE cases, symptoms of scleritis was found in 4(26.67%).

Chronic conjunctivitis is infrequent [22]. Symblepharon has been reported, especially in association with discoid lupus erythematosus of the eyelids [23]. Immunopathologic studies examining actively inflamed conjunctiva in SLE-associated peripheral ulcerative keratitis, scleritis, and cicatrizing conjunctivitis showed subepithelial and perivascular cellular infiltration and granuloma formation, as well as immune deposits at the epithelial basement membrane and in vessel walls, compatible with an immune complex mediated disease [24,25]. Nonsteroidal anti-inflammatory agents or antimalarial therapy may be sufficient in relatively mild disease [24]. In our present study, conjunctivitis was seen in 14(28%) patients, out of them right eye 11(78.57%) was more involved than left eye 3(21.42%). Among females, symptoms of conjunctivitis were found in 12(34.28%). And in males, symptoms of conjunctivitis were found in 2(13.33%). And in this study ANA-positive was seen in 42(84%) SLE patients. Among them 38(90.48%) were females and 4(9.52%) were males.

Ushiyama et al. [23] reported the mean age at onset of SLE in the patients with and without retinopathy to be 34.2 and 31.9 years, respectively, and all of them were females. Sex hormones are known to affect the clinical course of SLE; estrogen enhances the disease and testosterone suppresses it [27, 28] and 90 % of women are of child-bearing age [29].

Retinopathy in SLE is suggestive of high disease activity during the course of SLE, and hence, is a marker of poor prognosis for survival, that is SLE patients with retinopathy have overall worse prognosis and decreased survival, compared to SLE patients without retinopathy [4]. Interestingly, the severe form of vaso-occlusive retinopathy is associated with similar changes in the central nervous system vasculature [30].

Conclusions

This present study concluded that the females were commonly suffered with systemic lupus erythamatusus (SLE). SLE was commonly seen in age 15-25 years. Episcleritis was the most common symptoms in SLE. Second most common symptoms were conjunctivitis and scleritis. Right eye was more

affected than left eye. Most of the cases had ANA positive. Hence, ocular manifestation is the most common in SLE patients. Early diagnosis and prompt treatment may give light of hope for SLE patients. And more research is needed in order to determine which ttherapy will provide the best prevention and management in SLE patients.

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