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A Study on used of Low Dose Aspirin for the Treatment of Central Serous Chorioretinopathy

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Abstract: ***Background: Central serous chorioretinopathy is an important ophthalmological morbidity. This study was mainly undertaken in order to assess the efficacy of low dose aspirin in treatment of central serous chorioretinopathy. Material and Methods: A randomized controlled trial was undertaken in a tertiary care hospital in sixty cases who was equally divided in to two groups. Treatment group received 75 mg of low dose aspirin daily and placebo received no treatment. The patients were followed up for a period of six months with Visual acuity by using Snellen chart and log MAR vision. The recurrence was also noted at the end of follow up. Results: There was no significant difference in age and sex between the low dose aspirin group and placebo group. The improvement in visual acuity was noted in both the groups but more evident in the low dose aspirin group at the end of six months of follow up. The log MAR vision had also shown more improvement in the low dose aspirin than placebo group. The rate of recurrences was lower in the low dose aspirin group than the placebo group. Conclusion: The low dose aspirin had shown beneficial effect in patients with central serous chorioretinopathy.***

Keywords: Central serous chorioretinopathy, Low dose aspirin, Visual acuity, Log MAR vision, recurrence

1. Introduction

Central serous Chorioretinopathy is a posterior segment disease of eye and usually affects the young males in third or fourth decade of life.[1] Chorioretinpathy is often noted in neurotic patients experiencing the psychological stress. The main pathophysiology of central serous chorioretinopathy include fluid accumulation between the neuroretina and retinal pigment Epithelium. Posterior pole is usually affected leading to central vision loss, scotoma, metamorphophsia and/or micropia.[2, 3]

Fluorescein Angiography plays a main role in diagnosis of central serous retinopathy. This investigation confirms the diagnosis at the focal point of leakage by diffusion of the fluorescein diffusion in the form of a 'smokestack' pattern or 'expansile dot pattern' appearance. The central serous chorioretinopathy can be single or may have multiple leakage points.[4, 5] The morphological changes of the disease can be visualized by using Optical Coherence Tomography (OCT) and can also be used to track the disease evolution.[6, 7]

This disease is often self-limiting without any permanent effects during initial episodes. But these patients must be followed frequently for the disease progression and also for the confirmation of resolving the neurosensory detachment.8

The literature available had shown that, the factors associated with CSCR have their common denominator for increased hypercoagulability and increased platelet aggregation. The studies have also shown increase in tissue plasminogen activator inhibitor 1 (PAI-1).[9] Aspirin is known to produce antiaggregant effect and is often effective in reducing the levels of PAI-1.

The studies have shown that, administration of Aspirin had shown modulate the pathophysiology and role of PAI-1. Hence, a study was undertaken to assess the effect of low dose aspirin in a tertiary care setting.

2. Material and Methods

A randomized controlled trial was undertaken in the department of Ophthalmology of LLRM Medical College, Meerut. The clearance from institution ethics committee was obtained before the study was started. A total 60 cases were included into the study. All cases obtained an informed consent before including them into the study. New and followup cases attending the OPD with central serous chorioretinopathy diagnosed clinically were included in to the study. The patients with ocular infective and inflammatory condition, diabetes and patients with collagen vascular diseases were excluded from the study. The patients clinically diagnosed with Central Serous Chorioretinopathy were subjected for detailed history, history of recurrences about the steroid usage in any form, patients were then subjected to a detailed systemic and ophthalmic evaluation.

The patients were divided equally in to 30 patients each in to two groups. The first group of 30 patients was administered with 75 mg of once daily for the first month and on alternate days for next 5 months. The second group was administered with placebo. Both the groups were followed up for 6 months. The data thus obtained was compiled and analysed using Statistical Package for Social Services (SPSS vs 20).

3. Results

Table 1: Distribution of study groups according to mean age

Age	Low dose aspiring group	Placebo group	T value	P value, Sig
Mean ± SD	37.8 ± 12.04	35.93 ± 8.76	0.699	0.488, NS

The mean age of low dose group was 37.8 years and placebo group was 35.93 years which was not statistically significant.

Table 2: Distribution of study groups according to sex

Sex	Low dose aspiring group n (%)	Placebo group n (%)
Male	17 (56.7)	16 (53.3)
Female	13 (43.3)	14 (46.7)
Total	30 (100)	30 (100)

$\chi 2$ value=0.067 df=1 p value, Sig=0.795, NS

In this study about 56.7% of the cases in low dose aspirin group and 53.3% in the placebo group were males which were statistically not significant.

Table 3: Distribution of study groups according to visual acuity (Snellen)

Visual acuity (Snellen) Mean ± SD	Low dose aspiring group	Placebo group	T value	P value, Sig
Initial	6/18 ± 6/10	6/25 ± 6/16	1.804	0.076, NS
One week	6/14 ± 6/8	6/20 ± 6/10	2.713	0.009, Sig
One month	6/12 ± 6/6	6/17 ± 6/9	2.202	0.032, Sig
3 months	6/11 ± 6/5	6/14 ± 6/5	2.348	0.022, Sig
6 months	6/10 ± 6/4	6/12 ± 6/5	2.157	0.035, Sig

The initial visual acuity (Snellen) was 6/18 in the low dose group and 6/25 in the placebo group and it was not statistically significant. At the end of 6 months the visual acuity had improved to 6/10 in the low dose aspirin group and 6/12 in the placebo group which was also statistically significant.

Table 4: Distribution of study groups according to visual acuity (logMAR)

Visual acuity (LogMAR) Mean ± SD	Low dose aspiring group	Placebo group	T value	P value, Sig
Initial	6/15 ± 6/10	6/28 ± 6/17	3.701	0.000, Sig
One week	6/14 ± 6/11	6/26 ± 6/17	3.321	0.002, Sig
One month	6/14 ± 6/11	6/25 ± 6/17	2.923	0.006, Sig
3 months	6/13 ± 6/12	6/22 ± 6/17	2.43	0.018, Sig
6 months	6/11 ± 6/8	6/17 ± 6/10	2.295	0.025, Sig

The logMAR vision at the baseline was 6/15 in the low dose aspirin group and 6/28 in the placebo group which was statistically significant. At end of 6 months of follow up, the logMAR vision in the low dose aspirin group was 6/11 and 6/17 in the placebo group which was statistically significant.

Table 5: Distribution of study groups according to recurrences

Recurrences	Low dose aspiring group n (%)	Placebo group n (%)
Nil	26 (86.7)	21 (70.0)
1-3	4 (13.3)	9 (30.0)
Total	30 (100)	30 (100)

$\chi 2$ value=2.455 df=1 p value, Sig=0.117, NS

The recurrence rate was 13.3% in the low dose aspirin group and 30.0% in the placebo group. One to three recurrences were noted in this study. Bit this difference was not statistically significant between the two groups.

4. Discussion

This study was mainly undertaken to assess the efficacy of low dose aspirin in central serous chorio retinitis. Efficacy of low dose aspirin was compared with placebo in this study. The mean age and sex was not statistically significant and comparable in this study. A study by Caccavale also noted similar findings.[6] A study by Alsmann et al also reported similar findings.[7]

There was an improvement from 6/18 to 6/10 of visual acuity (Snellen) in the low dose aspirin group in this study. The place group had shown an improvement of 6/25 to 6/12 of visual acuity (Snellen). There was significant difference in the improvement between the low dose aspirin group and placebo group. In a study by Caccavaleet al, the improvement in visual acuity was noted in both low dose aspirin group and placebo group.[6] While a study by Bahadorani et al noted no statistically significant difference in the visual acuity between the treatment and control groups.[8]

The logMAR visual acuity was improved from 6/15 to 6/11 in the low dose aspirin group in this study. The placebo group had shown an improvement of 6/28 to 6/17. There was a statistically significant improvement in the logMAR vision in this study. A study by Caccavale et al noted similar findings.[6] A study by Alsmannet al reported that, the mean 12-month log MAR CDVA was 0.373 in placebo group and 0.174 in the low dose aspirin group.[7]

The recurrence rate (1-3 recurrences) was 13.3% in the low dose aspirin group and 30.0% in the placebo group which was not statistically significant. A study by Caccavale et al noted that, the recurrence in low dose aspirin group was 6.5% and in placebo group was 23.0%.[6] A study by Alsmann et al had reported that, the persistence of CSCR was not reported in any cases and one case had recurrence in 100 mg aspirin group.[7]

5. Conclusion

This study had shown a significant improvement in visual acuity (Snellen) and log MAR in the low dose aspirin group than the placebo group. The number recurrences were also lower in the treatment group than placebo group. The low dose aspirin had shown beneficial effect in patients with central serous chorioretinopathy.

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