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A STUDY OF KNOWLEDGE AND AWARENESS REGARDING EYE COMPLICATIONS IN PATIENTS OF SICKLE CELL DISEASE IN CENTRAL INDIA.

Ophthalmology

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ABSTRACT

Aim: This study was conducted to study the knowldege and awareness about the eye complications in patients of sickle cell disease. **Subjects And Methods:** The study was a cross-sectional study carried out in 2020 in the patients above 18 years of age attending eye OPD of upgraded dept of Ophthalmology, NSCB Medical college, Jabalpur in Central India using a pre-designed questionnaire. **Results:** The study population comprised of a total of 500 adults among which 314 were females and 186 were males. Their mean age was 26.4 ± 8.3 years. Majority of the participants (60%) were not aware that SCD could affect the eye and vision. **Conclusions:** Health educations should be imparted to the patients suffering from sickle cell regarding the eye complications.

KEYWORDS

Awareness, Sickle Cell Disease, Eye Complications

INTRODUCTION:

Sickle cell disease (SCD) is a very common haemoglobinopathy which is an autosomal recessive genetic blood disorder.[1] Sickle is prominent in prominent parts of central India and a high rate of consanguinity could explain the increased number of patients affected with SCD.[2,3] Use of hydroxyurea have increased the life expectancy of SCD patients, and newer fundus imaging techniques have given new insight into the pathogenesis and early recognition of more complications of the disease, such as ocular complications.[4,5,6] Sickle cell retinopathy, especially the proliferative form, has significant visual morbidity, especially due to its complications such as vitreous hemorrhage and retinal detachment.[7,8,9] Among the different genotypes, sickle-cell hemoglobin C disease was noted to have the most severe form of retinopathy and this is probably related to blood hyperviscosity.[10]

The high prevalence of SCD in Central India mandates that the population should be highly aware of the potential vision-threatening nature of this disorder. There are very minimal data regarding awareness of eye complications of SCD in this region. Hence the present study was conducted to study the knowldege and awareness about the eye complications in patients of sickle cell disease.

Methodology:

It was a cross-sectional study conducted in the in eye OPD of upgraded dept of Ophthalmology, NSCB Medical college, Jabalpur between 1st January to 31st March, 2020. An opthalmologist with a pre-designed questionnaire distributed it to a total of 550 eligible participants above 18 years of age after obtaining verbal informed consent from the subjects about the study and its purpose and a total of 500 fully filled forms were obtained which were then included in the study. The questionnaire was created with the help of senior opthamologists of the college Percentages were calculated and appropriate statistical analysis was done. P value less than 0.05 was considered significant.

OBSERVATION AND RESULTS:

Out of a total of 500 patients who participated in the study, 314 were females (62.8%) and 186 were males (37.2%). More than half of the participants (n = 300; 60%) were between 26 to 35 years of age, followed by the age group of 18–25 years (n = 125. 25%). A total of 350 participants (70%) were sickle cell carriers i.e. AS pattern and remaining 150 patients were sickle cell sufferers (30%). 200 patients had yellow ratiion card i.e. BPL and rest 300 patients had either orange or white ration cars i.e. APL. Majority (n = 275; 55%) of the participants had done graduation, 125 (25%) had high school education, 53 (10.6%) had secondary school education, 45 (9%) had upper primary school education and only 2 (0.4%) were illiterates.

In terms of SCD knowledge, 450 participants (90%) were aware that SCD is genetically inherited. However, only 205 participants (41%) were aware that SCD can affect the eye. Only 95 participants (19%) were aware that SCD can cause permanent blindness. Half of the participants 250 (50%) did not know that ocular trauma in SCD patients was more dangerous than normal individuals. The level of awareness had neither significant difference between both gender (P = 0.9) nor age group (P = 0.8).

When knowledge about the best method to treat SCD retinopathy was enquired, 300 participants (60%) had no knowledge about the treatment of SCD retinopathy. It was also noted that there was no significant difference in knowledge among the sufferers and the carriers (P = 0.25). Regarding source of knowledge, the majority of the participants (n = 185, 37%) reported that they got the information from the doctor. Regarding the eye examination in sickle cell carriers and sufferers, 125 of them (25%) had never had their eyes examined.

DISCUSSION:

The high prevalence of Sickle cell disease in central India has led to many government projects being developed like a special sickle cell OPD and day care blood transfusion unit dedicated only to the sickle cell patients in many government hospitals. While health education has led to increased awareness about the cause and treatment of sickle cell crisis, eye complications due to sickle cell disease are not given due importance in the health education and hence there is a decreased awareness and knowledge regarding this.

A total of 500 filled questionnaires were included in the study out of which majority were by females. 41% of the population in our study were aware that SCD can affect the eye, whereas 20% of the population in a study conducted in Oman and 36% of a Jamaican study were aware that SCD can cause organ damage.[11,12] The difference in knowledge between the present study and the Omani study could be explained by the fact that the prevalence of sickle cell disease carriers and sufferers is much higher here than the prevalence of sickle cell trait and SCD in Oman which was 6% and 0.2%.[13] Increased prevalence probably leads to improved awareness. In contrast to the Jamaican study, our study showed no difference in the knowledge between the age groups, whereas important gaps were identified in the adolescents' knowledge and understanding of presentations and complications associated with SCD in the Jamaican study.[12] Sickle cell trait was found in 1 in every 10 persons in Jamaica and the high awareness among the Jamaican population was attributed to the high prevalence and high general education in various studies.[14,15]

According to the positive relationship between educational level and more awareness about the disease, awareness campaigns, both online and through brochures and leaflets would go a long way in increasing the knowledge of the population and improve coping skills. Studies in Jamaica have proved conclusively that the high awareness levels are related to the high general educational levels.[15]

About 81% of the study population were not aware that SCD can cause permanent ocular damage, which is a cause of grave concern, as retinopathy is a serious complication, and an Egyptian study mentions

sickle cell retinopathy as the most common complication of SCD.[16]

Regarding source of knowledge, the majority of the participants (*n* = 185, 37%) reported that they got the information from the doctor. Regarding the eye examination in sickle cell carriers and sufferers, 125 of them (25%) had never had their eyes examined. Annual eye examination in adults and biennial examination in children with SCD should be strictly implemented. Yet another study confirms the early retinal changes in sickle cell anemia and SCD patients and supports the need for ophthalmological monitoring in early childhood to avoid the progression of proliferative sickle cell retinopathy to blindness.[17]

This study is probably the rarest of studies done about knowledge and awareness of eye complications in sickle cell disease patients. However, the limitations of the study were thought to be a difference in the number of female and male participants and the inability to reach all strata of the general population as the study mainly focused on the hospital population.

CONCLUSION:

Despite the high prevalence of sickle cell disease in Central India, the awareness and knowledge regarding eye complications of SCD were not praiseworthy. Health educations should be imparted to the patients suffering from sickle cell regarding the eye complications and periodic eye screening should be done.

Table 1 showing the demographic profile of the study population

Characteristic	Number (n)	Percentage
Gender		
Male	186	37.2%
Female	314	62.8%
Age:		
18-25 years	125	25%
25-35 years	300	60%
35-45 years	50	10%
>45 years	25	5%
Based on poverty level:		
APL	300	60%
BPL	200	40%
Education status:		
Illiterate	2	0.4%
upper primary	45	9%
seconday	53	10.6%
high school	125	25%
graduate	275	55%
Sickle cell status:		
Carrier (AS pattern)	350	70%
Sufferer (SS pattern)	150	30%

Table 2 showing awareness in the study population about eye complications:

Question	Response N(%)		
	NO	YES	I DON'T KNOW
SCD can affect the eye	120	205	175
SCD can cause permanent blindness	180	95	225
SCD can cause a painful, red eye	140	60	300
Ocular trauma is more dangerous in SCD patients than normal individuals	50	200	250

Table 3 showing the knowledge about the treatment options and the source of knowledge in the study population:

Methods of SCD retinopathy treatment:	NUMBER	PERCENTAGE
1. Drops	50	10%
2. glasses	40	8%
3. Laser	100	20%
4. Surgery	10	2%
5. Don't know	300	60%
Source of knowledge:		
1. Doctor	185	37%
2. Other health care personnel	115	23%
3. Family member	100	20%
4. Internet	25	5%
5. Magazines	5	0.1%
6. Friends	70	14%

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