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## Case Study

# Study of Hypermetropia in a Senegalese Hospital

## Summary

The cases of hypermetropia in patients aged 5 to 40 years were studied at Aristide Le Dantec hospital in Dakar. There are 85 patients including 28 men and 57 women. The average age was 22 years old. Headache was the most common reason for consultation (79.69%). The average consultation time was 6 days after onset of functional symptoms. Complications were strabismus (21.88%) and amblyopia (3.12%). A negative impact on the socio-professional level was noted in 60.94%. The treatment consisted of an optical correction by glasses in 96.87%.

age, the sex, the literacy, the use of screen of display (computer, cellphone, television) the existence of family ametropia; an ophthalmological examination and an automatic refractometry without and with cycloplegic.

## Results

Of the 1523 patients examined during the study period, 85 patients were identified with a frequency of 5.58%. The sex ratio was 0.45 (28 men and 57 women). The average age was 22 years old with extremes of 7 and 40 years old. The most affected age group is 20-24 years old with 42.19% of cases. Eight (08) nationalities were concerned including 82.81% Senegalese and 96.88% of the subjects were black. Only one patient was not literate or 1.56% of our sample. The use of display screens was noted in 98.44% of patients. Fifty-one (51) patients had a family history of ametropia of 79.69%. The reasons for consultation were dominated by headache (79.69%) and photophobia (40.63%), strabismus was the least common with 1.56% of cases. The average age of appearance of the first symptom was 16.5 years. The average consultation time was 6 days after onset of functional symptoms, with 0 and 30 day extremes. Seventeen (17) patients, 26.56%, had already undergone an optical correction. A decrease in visual acuity by far uncorrected was noted at least in one eye in 43.75% of cases and a decrease in acuity of nearly in 18,75%. Eighty-two point eighty-one percent (82.81%) of patients had low hyperopia, 12.5% moderate hyperopia, and 4.69% severe hyperopia. Hyperopia was considered in absolute value as low if it was less than 3; average if between 3 and 6 and strong if greater than 6. Sixteen patients (16) or 25% had a strabismic complication in 14 patients or functional amblyopia in 2 patients. Thirty-nine (39) patients (60.94%) considered that their ametropia had a severe impact on their socio-professional life. After

## Introduction

Farsightedness is a defect of static refraction of the eye that occurs when the power of the ocular diopter is too small compared to the axial length of the eye or vice versa, so the image of an object located at infinity is formed behind the retina in the absence of compensatory accommodation [1]. The hypermetropic subject is often characterized by an apparently normal vision at the cost of a sustained effort of accommodation. The latter, however, poses a triple problem: diagnostic, therapeutic and finally social by strabismus and amblyopia. Few studies have been devoted to hyperopia in Black Africa, hence the aim of our study, which was to assess the epidemiological, clinical, refractometric and therapeutic profile, as well as the contributing factors and complications of hypermetropia in a hospital setting. University Hospital Aristide le Dantec.

## Patients and Methods

This is a transversal descriptive study conducted over four (04) months from February 1st to May 31st, 2012 in the Ophthalmology Department of the Aristide Le Dantec Hospital. Patients aged 5 to 40 years who underwent automatic cycloplegic refraction with transparent ocular media and a spherical equivalent  $\geq 0.5$  diopter at least one eye after cycloplegic automatic refraction were included. Verbal informed consent was obtained in all patients (For children, it was the parents who agreed). All the patients included benefited according to a pre-established protocol: an interrogation which specified: the

cycloplegia, hyperopia was bilateral in 81.25% of cases. The left eye was concerned in 92.19%. The average value of the sphere was  $+1.91 \pm 1.60$  diopters with extremes of  $+0.5D$  and  $+ 8.75$  diopters. The average value of the cylinder was  $-0.84 \pm 1.09$  diopters with extremes of  $-5.25$  to  $0D$ . Twenty patients (20) or 31.25% had spherical and / or cylindrical anisometropia. Our patients had received an optical correction by glasses for 96.87% of them with a satisfaction rate of 100%.

## Discussion

The frequency we observed is well below the figures found in the African and Senegalese literature. Houssaini [2], in 2006 estimated the prevalence of hyperopia at 68% in Senegal. This difference is explained by the fact that on the one hand our study targets only the age group from 05 to 40 years and on the other hand our definition of hyperopia takes into account only the spherical equivalent. The average age of our sample is higher than those of Lam [3] and Houssaini [2], in Senegal where the average was 16.2 years and 17 years respectively. Ayed [4], in Tunisia found 40% of hypermetropic patients aged between 8 and 11 years. Lam and Ayed's studies focused on children from school, while ours was in a hospital setting. Female predominance is found in other studies in Africa [4,5], Headache was the most common reason for consultation, as was Blouza et al. [6], who reported headache in 82% of cases. For Lam [3], headache accounted for only 44% of cases, which could be explained on the one hand by an underestimation of the number of hyperopic patients because they did not use cycloplegia and on the other hand by the relative youth of its population which has a probably greater power of accommodation. Uncorrected visual acuity was retained in 56.25% of cases, which is close to BLOUZA et al. [6], who found a rate of 59%. Mean spherical potency varies significantly under cycloplegic, which is confirmed by the literature [2-7]. Hyperopia was low in 82.81% of cases. Sounouvou et al. [8], reports faint hyperopia in 75% in cases. The prevalence of strabismus was 21.88% with 50% esotropia. Blouza et al. in Tunisia [6], found 7% of strabismus and 72.8% of esotropes. In the literature, the authors agree that hyperopia shows its deleterious effect where pre-existing fragility of binocularity [9]. We found a statistically significant association between amblyopia and spherical anisometry. This is confirmed by Blouza [6], who reports, in his study, that there is at least +3.5

diopters for hyperopic patients 37 times more likely to have amblyopia compared to literature. Even though most of our patients have had optically corrected glasses, which is the only treatment we have, 25% of them preferred refractive surgery and 14.06% contact lenses.

## Conclusion

The high prevalence of hyperopia in African literature contrasts with the scarcity of studies conducted on the subject. It is with this in mind that our study of hyperopia in a hospital setting is part of. Despite its limited nature, our study has highlighted the negative impact of farsightedness on the socioprofessional level. Strengthening the technical platform is therefore necessary to ensure the screening, diagnosis and treatment of ametropia in general and hypermetropia in particular, in all regional hospitals.

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