

Childhood Blindness: A Global Perspective

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It may be surprising to see a title about world blindness amongst this collection of papers but I feel the sentiment is something of which my father would have approved. I am sure that some of the happiest and most productive years of his life were spent in Turkey in helping to tackle the burden of childhood disease as his father had done before him.

I remember him as a man of modesty and great integrity, whose overriding faith was in humanity itself. As a man of few words, he may never have said it, but I feel he would have been pleased that his three children are involved in medicine and medical and overseas development charities.

While he knew little about Ophthalmology, he would have been interested to hear about another burden of disease, that of childhood blindness and in particular preventable blindness as it relates to the developing world. I hope that in this short piece I can put the problem in perspective.

Data from the World Health Organisation (1994) estimates that a total of 38 million people are blind in the world, of whom approximately 65 % live in Asia and 20 % live in Africa. The current estimate is that there will be 45 million blind people by the year 2000. Cataract, childhood blindness and ocular infections account for 80 % of all blind people and together these disorders are responsible for more than 200 million years of blind life (the total number of years lived out by blind people). As much as 80 % of this blindness is potentially avoidable or preventable. The concept of "Blind years" ⁽²⁾ has prompted interest in determining the causes of visual loss in children, so that future emphasis can be placed on programmes to prevent and treat diseases which lead to "avoidable blindness" in children.

About 1.5 million children throughout the world are blind. Few population based studies have been

undertaken but from those that have been done it is estimated that the prevalence of childhood blindness in Western countries is 0.3/1000 increasing to 1.5/1000 in children living in poor areas of Africa and Asia ⁽¹⁾. The prevalence of childhood blindness is about one tenth of adult blindness. Approximately 500,000 children go blind each year in the world of whom 60-80 % die within the subsequent 1-2 years from the diseases which caused the blindness or from neglect consequent upon being blind ⁽³⁾.

Childhood blindness can be usefully classified from an aetiological or anatomical viewpoint. The classification helps to standardise data collected from different locations. Aetiological factors may act:

- a. at the time of conception, e.g. genetic and chromosomal abnormalities;
- b. during the intrauterine period, e.g. infections (rubella, toxoplasmosis), toxins;
- c. at the time of birth or postnatally, e.g. cerebral hypoxia, retinopathy of prematurity;
- d. in childhood, e.g. vitamin A deficiency.

An anatomical classification can be used to describe differences in the patterns of childhood blindness between different countries. For example corneal blindness is very common in parts of Africa accounting for 40-70 % of childhood blindness, but is extremely uncommon in Europe where diseases of the retina and optic nerve predominate.

In general it is possible to determine the causes of childhood blindness by looking at the standards of medical care available and the relative wealth of the country concerned.

In countries with sophisticated and readily available medical services, hereditary causes and factors operating at the time of birth predominate. Better neonatal care of preterm babies has reduced neonatal mortality, but resulted in an increase in morbidity including visual handicap. Genetic counseling and

further improvements in the management of preterm infants could result in a reduction in childhood blindness in parts of Europe and North America.

In areas of the world with intermediate medical services, intrauterine infections, particularly rubella, remain an important and preventable cause of childhood blindness. Immunization of infants with the combined measles-rubella vaccine would reduce the number of children born with the congenital rubella syndrome. Educating health workers about the need for early surgery for children with cataracts would also help.

In the poorest areas of the world, vitamin A deficiency, measles and the lack of eye care services are responsible for the vast majority of blindness in children. Nutrition education combined with increased availability of inexpensive local sources of vitamin A would make a great impact on the situation. Measles immunisation programmes are already underway and intensified efforts to promote a higher rate and extended coverage will help in the future.

At least half of all childhood blindness could be prevented if children received an adequate intake of vitamin A, were immunised against measles and rubella and had ready access to an antibiotic eye ointment. Of course there are many constraints to the delivery of eye care services. The major factors are lack of manpower, lack of mobility, inadequate management and lack of money. If there are to be any inroads made into the burden of disease, these constraints will need to be addressed.

The number of available ophthalmologists varies greatly from one region of the world to another, with about 1 ophthalmologist per 20,000 population in N. America, to 1 per 100,000 in India and 1 per million in some parts of Africa. There is a need to train appropriately more health personnel for eye care delivery and to provide management training for people responsible for providing eye care services. Resources for blindness prevention schemes will need to be made available from both governmental and non-governmental organisations and will have to be concentrated on target sectors with the greatest need and on strategies that are the most effective in reducing the number of blind people and blind years.

During the past few years much has been achieved but many challenges remain. My father was not ambitious for himself but instead was driven to achieve excellence through the potential aspirations and ambitions of his young patients. Prevention of childhood blindness, enabling children to have the chance to fulfil their own ambitions in the future would have been an ideal close to his heart.

References

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