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Measles and Blindness in Nigerian Children

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Summary

Animashaun, A. (1977). *Nigeria Journal of Paediatrics*, 4 (1), 10. **Measles and Blindness in Nigerian Children.** Cases of measles admitted to a 100-bed Children's Hospital in Lagos, Nigeria, during 1974 were analysed in order to find out the contribution of this disease to handicaps among children. Out of 8,706 admissions, 2,772 (32 per cent) were cases of measles. Forty-seven (1.7 per cent) of the children with measles developed eye complications which resulted in blindness in 29 cases. It is suggested that, in order to reduce the incidence of childhood blindness arising from measles infection, immunisation against the disease should be compulsory for all children in Nigeria.

In contrast to small-pox which has been virtually eradicated through the World Health Organisation-sponsored immunisation programmes, measles remains a major cause of blindness in West Africa. Blindness was due to measles in 24 out of a total of 73 children attending the Pacelli School for the blind in Lagos, Nigeria, and 11 out of 14 new entrants to the same School in October 1975 were also blind from this infectious disease.

Since effective vaccines are now available, measles and its various complications including blindness are preventable. The object of the present communication is to report the prevalence of blindness among children with measles seen in the Massey Street Children's Hospital, Lagos, during a one-year period, and to indicate appropriate action for preventing this major cause of visual handicap.

Materials and Method

All cases of measles seen at the Massey Street Children's Hospital between 1st January, 1974 and 31st December, 1974 were reviewed. This Hospital is situated in a slum area of Lagos, and a majority of the patients therefore belong to the low socio-economic sector of the Lagos population. The case notes of those with eye complications were further scrutinized and analysed. To be included in this study, the patient must be an African child, and the diagnosis of blindness must have been made with reasonable certainty as being due to measles infection. Blindness, in the present context, is defined as "sight limited to only perception of light or worse in both eyes, and impossible of improvement by the wearing of corrective glasses".

Results

Table I shows the prevalence and mortality from measles compared to other illnesses at the Massey Street Children's Hospital over the period under review. It will be observed that out of 114 in-patients with measles, 19 (25 per cent) died.

The major complications of measles in the present study, are shown in Table II. Ocular complications, occurring in 47 children, were

TABLE I

Admissions and Deaths in the Massey Street Children's Hospital, (Jan.- Dec. 1974)

Admissons	*Out-patients*	*In-patients*
All cases	7,659	1,049
Deaths	1,712(20)	262 (3)
Measles cases	2,658	114
Deaths	75 (3)	29 (25)

Figures in parenthesis represent percentage of total

exceeded in frequency only by bronchopneumonia and malnutrition. The miscellaneous complications included skin sepsis, subcutaneous emphysema, convulsions, cancrum oris and gastroenteritis.

TABLE II

Major Complications in 2,772 Cases of Measles in Lagos

Complication	*No. of Cases*
Bronchopneumonia	85
Malnutrition	54
Ocular complications	47
Encephalitis	15
Suppurative otitis media	8
Miscellaneous	215

Of the 47 ocular complications, 18 were mild to moderate, while 29 were severe and resulted in blindness. The specific causes of blindness included keratitis (25), panophthalmitis (2), cortical blindness (1) and subacute sclerosing panencephalitis (1).

The age and sex distribution of the blind children (Table III) revealed no sex difference. All but one of the 29 children were between 6 months and 3 years of age. The only child older than 3 years had subacute sclerosing panencephalitis (SSPE); he died after 4 months of hospitalization. In one child, an attempt to separate the sticky palpebral fissures resulted in rupture of the orbital tissues which were full of pus.

TABLE III

Age Distibution of 29 Children with severe ocular Complications in Measles

	No. of Cases	
Age (yr)	*Male*	*Female*
6/12 –1	3	5
1+ –2	11	8
2+ –3	1	–
3+ –4	–	–
5+	1	–
Total	16	13

Illustrative Cases

Case 1

A. L, Female, aged 2 years, was admitted with a history of fever, convulsions, vomiting, diarrhoea and refusal of feeds for one week before the appearance of a generalised morbiliform rash which had been treated at home with application of chalk and a cow's urine mixture to the eyes and body.

The child was brought to the hospital because of deterioration in her condition. The main complaints given were severe cough, difficulty in breathing, discharges from the eyes, and swelling of both feet.

Clinical examination showed a miserable, dyspnoeic and malnourished child with thin brown hair, subnormal temperature, and oedema of the feet. She had angular stomatitis, as well as infected scarification marks on the trunk and limbs. There was no ascites, cardiopathy, or hepatomegaly. Examination of the chest revealed features of bronchopneumonia, and this diagnosis was confirmed by a chest x-ray. Heaf test was negative. Her urine contained a trace of albumin but no red or white cells. Haemoglobin was 5.3 gm/100 ml; Hb electrophoresis was A. Eye examination showed bilateral corneal opacity and blepharitis. A diagnosis of post-measles bronchopneumonia, kwashiokor and bilateral

keratitis was made. After two weeks' hospitalization, the chest became clear and the nutritional state improved considerably. However, re-examination of the eyes showed that she had lost vision in both eyes. At this stage the mother stopped visiting the child and she has not been traced since. The girl is now in a home for abandoned children.

Case 2

This patient had measles at the age of 9 months and was transferred from the Infectious Diseases Hospital to the Massey Street Children's Hospital because of respiratory complications. He made a complete recovery and was not seen again until the age of $5\frac{1}{2}$ years. The main complaints this time were deterioration in personality which was initially noticeable at school, involuntary movements, increasing stiffness of limbs, poor speech and loss of vision.

Clinical examination revealed a wasted child with muscular rigidity, dysarthria, dementia and spastic quadriplegia. The cerebrospinal fluid showed raised gamma-globulin and normal cells. The ophthalmologist reported cortical blindness. The patient's condition deteriorated relentlessly in spite of steroid therapy and he died after 4 months in hospital. Post-mortem examination revealed perivascular cuffing involving the grey and white matter, focal areas of necrosis and considerable demyelination. These features were reported to be consistent with inclusion-body encephalitis, presumed to be SSPE.

Discussion

Up to the end of the Second World War, blindness in children in the advanced countries of Europe and America was mainly due to corneal scarring or destruction from ophthalmia neonatorum and following acute exanthemata. For a few years thereafter, retrolental fibroplasia in premature babies became a prominent factor. Today however, the above causes of blindness have yielded place to others which are of congenital, neoplastic, degenerative and traumatic origins.

In Nigeria, as in the rest of West Africa, childhood blindness remains largely infective in origin. In spite of the Eradication Programmes carried out in this region from 1967 to 1971, measles continues to wax strong as a major public health problem.

Rodger (1959) listed measles as a leading cause of blindness in West Africa, while Gans (1961), in Lagos, placed eye lesions high among the multifarious complications of measles in Nigerian children. In our experience, the incidence of eye lesions complicating measles remains high at the present time. In Dakar, Senegal, Quere (1964) found that ocular complications of measles constitute the leading cause of blindness in childhood. Similarly in a study of 140 cases of blindness at the University College Hospital, Ibadan, Olurin (1970) reported that 21 per cent of the cases were due to keratitis of which two thirds were caused by measles. The question is why do so many Nigerian children continue to go blind from measles?

Measles occurs much earlier in life and with shorter periodicity epidemiologically in Nigeria, than in Europe or America. The majority of attacks occur between 9 months and 2 years of age when malnutrition is rampant and exposure to infection is maximal. In most of these children with malnutrition, vitamin A deficiency in particular co-exists and predisposes the eye to keratoconjuctivitis which together with bacterial infection leads to destruction of the eyes. Furthermore, local beliefs about the disease and the often prior consultation of traditional healers cause delay in seeking medical consultation; these beliefs also increase the risk of superimposed bacterial infections. Another cause of eye complications is that patients who convulse in the course of the illness may have local herbal preparations and red pepper applied to their eyes.

Measles is a common actiological factor in the production of encephalitis and cerebral palsy in

Lagos and this is sometimes associated with cortical blindness. The present series includes a case of subacute sclerosing panecephalitis (SSPE), a condition first described by Dawson (1934) and latterly by van Bogaert (1945). According to Connelly *et. al*, (1967), the weight of evidence is almost conclusive that the measles virus is the cause of this disease. Recent evidence (vandik and Degre, 1975) has also shown an association between the measles virus and disseminated sclerosis which is another well known cause of blindness.

The high incidence of ocular complications in measles as shown in the present study as well as in previous ones, make it mandatory that in our environment, appropriate and prompt care of the eyes should be instituted in cases of measles. Health education programmes against self-medication should be intensified.

In view of the high incidence of eye complications of measles, including blindness, as well as the possible aetiological relationship of the measles virus with SSPE and disseminated sclerosis, a strong need exists for immunisation of all our children against measles. In order to ensure that immunisation is carried out in all pre-school children it is suggested that as a pre-condition for registration of children for the free Universal Primary Education in Nigeria evidence of immunisation should be produced by parents during registration of their children.

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