

Community Eye Health

Volume 12 Issue No. 30
1999



INTERNATIONAL
CENTRE FOR
EYE HEALTH

AN INTERNATIONAL JOURNAL TO PROMOTE EYE HEALTH WORLDWIDE

EXTERNAL EYE INFECTIONS

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No exact figures are yet available for the number of people blind due to infections of the cornea with bacteria, fungi, viruses or *Acanthamoebae*. In the summary figures from the World Health Report or the Global Data Bank at the World Health Organization Programme for Prevention of Blindness, infectious keratitis is included in the 10 million or so due to 'other causes'.

Yet if we look at the results of individual surveys of the causes in different countries, blindness due to 'other corneal opacities' or 'corneal scars' is usually greater than the proportion caused by trachoma. Some of these cases will be due to vitamin A deficiency early in life; others to trauma. But a sizeable proportion will be due to suppurative infection (i.e., 'pus-producing' infection) in both eyes, or in the second eye where the causes in the two are different. We need further investigation of the proportions of causes making up these 'other corneal opacities'.

Every ophthalmologist or eye health care worker knows what a severe clinical prob-

lem infective corneal ulceration can present, especially in tropical latitudes. If the published results of the causative organisms in these ulcers are arranged according to geographical latitude, this shows that the proportion due to fungi increases the nearer the study is to the equator, reaching 56% of the total in Accra, Ghana, at a latitude of 8° north. In Hyderabad, India, in the second report in this issue, fungi accounted for 33% of corneal ulcers where an organism could be identified. This is at an intermediate latitude, 17.5° N. Until very recently, antifungal agents, and even the newer broad spectrum antibiotics, have either not been available in many developing countries or have been prohibitively expensive.

So what can be done to prevent these severe corneal infections, and to treat them before they cause irreversible corneal scarring or perforation and loss of the eye?

Because of the shortage of appropriate drugs, a search has been going on for simpler and less expensive antimicrobial agents which could be widely distributed. In India, silver sulphadiazine ointment looked very hopeful for treating fungal keratitis, but has not fulfilled its early promise. Povidone iodine solution is effective as an antiseptic, is widely used pre-operatively for this purpose, and is effective in preventing ophthalmia neonatorum. But it does not appear to penetrate sufficiently deeply into the



Suppurative keratitis leading to panophthalmitis and phthisis in a Somali child

Photo: Murray McGavin

cornea to treat successfully established fungal infections. Chlorhexidine, in varying strengths, has been used for over 40 years as an antiseptic in the treatment of burns, bladder infections, vaginal infections and gingivitis, as well as a surgical scrub. It is most important that chlorhexidine, when used in the treatment of the eyes, is prepared at the appropriate strength. As a 0.02% solution in water it is an effective treatment for *Acanthamoeba* infection of the cornea. In two small clinical trials in India and Bangladesh, 0.2% chlorhexidine was superior to natamycin in treating a range of fungi causing keratitis. *Aspergillus*, however, remained very difficult to treat. Recent attempts to use chlorhexidine in two locations in Africa have not been so encouraging, although the ulcers are often so far advanced when they present that no topical treatment is going to be effective.

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This issue is generously supported by the

**International
Glaucoma Association**



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Prevention of Blindness**

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Indian Edition

An Indian edition with a local supplement is published and distributed by DANPCB in Delhi.

Typeset by

Regent Typesetting, London

Printed by

The Heyford Press Ltd.

ISSN 0953-6833

Very recently, a number of specific anti-fungal agents have begun to be manufactured in India, and can be bought over the counter in India for 30–50 rupees (40–75 British pence; less than one US dollar) for a 5ml bottle of drops. These include ketoconazole and fluconazole drops as well as natamycin. Clotrimazole ointment is now manufactured in Bangladesh. Ciprofloxacin drops are readily available in India for bacterial ulcers. The way forward, therefore, may be for prevention of blindness agencies, or Ministries of Health in other tropical countries, to import these preparations from India or set up a central manu-

facturing facility in, for example, sub-Saharan Africa.

If effective drugs are now becoming available, it therefore becomes essential that eye care workers recognise these ulcers immediately. Garg and Rao also emphasis in their article that local hospitals should put in place simple microbiology facilities to recognise whether the ulcer is bacterial or fungal. This can be done from corneal scrapes and Gram stain or a smear in potassium hydroxide (KOH) or lactophenol cotton blue. The most appropriate drug can then be started at the earliest opportunity.

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Indian Supplement to the Journal

The most recent issue has the following articles:

Status of Education of the Visually Impaired in India

Dr Bhushan Punani, Mrs Nandini Rawal

**Mobile Eye Services – Experience of Christian Medical College
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Printouts of these articles are available from

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DANPCB, A1/148 Safdarjung Enclave, New Delhi 110029, India.

Fax: 91 11 618 1099

NB. All requests concerning the *Journal of Community Eye Health* in India should be referred to the above address

Community Eye Health

Supported by:

Sight Savers International (United Kingdom)

Christoffel Blindenmission (Germany) and

Christian Blind Mission International

**Danish Assistance to the National Programme for
Control of Blindness in India (Denmark/India)**

International Glaucoma Association (United Kingdom)

Journal of Community Eye Health

International Centre for Eye Health, London

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