shown higher anxiety scores among patients with no previous or unpleasant previous anaesthetic experience compared with those whose previous experience had been pleasant. This was also the case in this study, and the table shows the anxiety shown by these more nervous patients (n=50). These patients had a lower anxiety score after they took timolol 10 mg. This effect was often described as "a surprising absence of the 'butterflies'." Scores changed little after placebo. The change in mean anxiety score was compared for the timolol and placebo groups by the paired two sample $t$ test, and the reduction in the multiple affect adjective checklist score was significant ($t=2{\cdot}05$, 48 df; $p<0{\cdot}05$).

### Comment

Although reassurance and the calm atmosphere that exists in our day bed unit were helpful in reducing patients' anxieties, timolol was a useful adjunct in particularly anxious patients. β Blockers could perhaps be used as anxiolytic premedicants in other patients who are not normally premedicated because the associated sedation might have adverse effects.

As anaesthetists and other medical attendants tend to associate anxiolysis with sedation they will have to adjust their clinical impressions accordingly. As β blockers are non-sedative they may be taken by patients at home so that the effect is well established on arrival at the hospital. That the patients remain fully ambulant preoperatively is an advantage as they can then walk to theatre, thus reducing portering requirements. Little demand is made on nurses once the patients have been admitted if they are not sedated preoperatively, and return to normal is rapid. In a study of midazolam and temazepam the critical flicker fusion threshold was still depressed four hours postoperatively.[2]

We thank the surgeons who let us study patients under their care.

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*(Accepted 11 November 1988)*

# Prevalence of HIV infection among patients with leprosy and tuberculosis in rural Zambia

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*Br Med J* 1989;**298**:364-5

Mycobacterial infections have been associated with HIV infection.[1] Much evidence exists of tuberculosis as a presenting feature of HIV infection or AIDS related complex. High grade pathogens such as *Mycobacterium tuberculosis* develop early whereas low grade pathogens such as *Mycobacterium avium-intracellulare* emerge only when immune deficiency is more advanced.[2] There are few reports of a direct association between HIV infection and leprosy,[3,4] though clinical leprosy has long been associated with a defect in cell mediated immunity.[5] I studied patients in Zambia to see whether an association between leprosy and HIV infection existed similar to that shown for tuberculosis.

### Subjects, methods, and results

The study comprised subjects presenting to Chikankata Salvation Army Hospital from October to December 1987. This is a busy, 240 bed rural hospital in the southern province of Zambia. Patients presenting with leprosy and tuberculosis and blood donors and surgical patients were included. A full history was taken from patients about the onset of symptoms and progression of disease. Personal details such as age, sex, and area of residence were also recorded.

Venous blood samples were allowed to clot and the serum separated by centrifugation. Antibodies to HIV were detected with the Wellcozyme VK51 competitive enzyme linked immunosorbent assay (ELISA). Non-repeatable false positive results are known to occur with competitive ELISAs, so all tests that did not give an obvious negative result were repeated on another sample of blood taken from the patient at least one week later. Thus all positive results were confirmed. In addition, many samples were retested with both the Fujirebio HIV agglutination assay (in which agglutination indicated a positive result) and Elavia (a non-competitive ELISA) kit.

The table shows the number of subjects in each group classified by residence (urban or rural), age group, and sex. No patients from urban areas had leprosy. Of 18 new patients with leprosy, six (33%) were positive for HIV antibody. Of 54 patients with suspected tuberculosis, 27 (50%) were positive for HIV antibody. Eighteen of the 54 had active pulmonary tuberculosis, with results of smears of sputum positive for acid fast bacilli, and eight of these (44%) were also positive for HIV antibody. By comparison, only seven out of 63 blood donors (11%) and two out of 42 surgical patients (5%) were positive for HIV antibody.

The prevalence of HIV infection was significantly higher among patients with leprosy than among blood donors ($p<0{\cdot}05$) or surgical patients ($p<0{\cdot}01$). Some patients came from Lusaka, which may have a higher prevalence of HIV infection than rural Zambia. When the analysis was restricted to rural residents patients with leprosy still had a higher prevalence of HIV infection than surgical patients or blood donors ($p<0{\cdot}001$).

### Comment

The present study may have been subject to serious limitations in the selection of cases and controls. In particular, patients with leprosy and tuberculosis who presented to hospital were probably not typical of all patients with these diseases. The patients with leprosy tended to have serious symptoms, such as paralysis or neuritis, rather than a single skin lesion. Thus the results may indicate an increased number of self referrals to hospital among patients with HIV infection. Because of the small number of patients sampling error cannot be discounted. In addition, the controls were not matched to the cases at the time of the study, though some attempt was made to take this into account in the analysis. Nevertheless, the study suggests that as with tuberculosis there may be an association between leprosy and HIV infection, which would have serious implications for programmes to control leprosy.

Further epidemiological studies should be conducted to confirm this association and to monitor

*Number of subjects in each group by residence, age group, and sex. Numbers in parentheses are subjects positive for HIV antibody*

| | Recently developed leprosy (n=18) | | Established leprosy (n=9) | | Suspected tuberculosis* (n=54) | | Confirmed tuberculosis (n=18) | | Surgical patients (n=42) | | Blood donors (n=7) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age (years) | M | F | M | F | M | F | M | F | M | F | M | F |
| | | | | | | *Urban* | | | | | | |
| 0- | | | | | | | | | | | 3 | 1 |
| 20- | | | | | 3 (3) | 4 (3) | 1 (1) | 3 (2) | | 1 | 3 (2) | 1 (1) |
| 40-59 | | | | | | | | | 2 | | | |
| Total | | | | | | 7 (6) | | 4 (3) | | 3 | | 8 (3) |
| % Positive for HIV antibody | | | | | | 86 | | 75 | | | | 38 |
| | | | | | | *Rural* | | | | | | |
| 0- | 1 | 1 | | | 1 | 4 (3) | | 1 (1) | 3 | 8 | 12 (2) | 7 |
| 20- | 2 (1) | 4 (3) | 1 | | 12 (7) | 18 (9) | 6 (2) | 3 (1) | 4 (1) | 13 | 21 | 4 (1) |
| 40- | 2 (1) | 6 (1) | 3 | 3 | 4 (1) | 4 (1) | | 1 (1) | 4 (1) | 6 | 7 (1) | 3 |
| ≥60 | 2 | | 1 | 1 | 4 | | 3 | | 1 | | 1 | |
| Total | 18 (6) | | 9 | | 47 (21) | | 14 (5) | | 39 (2) | | 55 (4) | |
| % Positive for HIV antibody | 33† | | | | 45† | | 36† | | 5 | | 7 | |

*p<0·001 Compared with pooled prevalence of HIV in surgical patients and blood donors (6%).
†Includes patients positive for acid fast bacilli (confirmed); patients with confirmed tuberculosis are therefore included twice in table.

any change in the epidemiological characteristics of leprosy.

I thank Drs Ian Campbell and Annelies Vreeburg of the Salvation Army Hospital, Dr R J W Rees of LEPRA, and Drs Len Poulter and Jonathan Elford of the Royal Free Hospital School of Medicine. The study was supported by a grant from the British Leprosy Relief Association.

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*(Accepted 18 November 1988)*

# Unusual complication of use of a Hertel exophthalmometer in a patient with Graves' ophthalmopathy

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*Br Med J* 1989;**298**:365

Proptosis is often measured clinically with a Hertel exophthalmometer, the assessment being an important part of evaluating patients with orbital disease. Correct positioning of the foot plates of the instrument on the lateral orbital rim is essential if reproducible results are to be obtained.[1] In patients with Graves' ophthalmopathy periorbital swelling is often a prominent feature, and gentle backwards pressure is required to position the instrument accurately. I report an unusual complication of the use of this instrument in a patient with Graves' ophthalmopathy.

## Case report

A 54 year old woman with grade 4 Graves' ophthalmopathy[2] of four years' duration was reviewed as an outpatient. She had received 550 MBq of iodine-131 two weeks previously for biochemically confirmed hyperthyroidism, which had developed immediately after antithyroid drugs (carbimazole 40 mg and thyroxine 0·1 mg daily for 13 months) were stopped. Before the radioiodine treatment her ocular symptoms had included increased lachrymation and diplopia in all directions of gaze, with signs of periorbital oedema, ophthalmoplegia, and proptosis of 22 mm (right) and 20 mm (left) with an interocular spacing of 105 mm. Fourteen days after the $^{131}I$ treatment she reported considerable improvement in her periorbital oedema (confirmed by clinical examination) and subjective improvement in diplopia over the previous week.

During a routine examination a doctor with considerable experience of using a Hertel exophthalmometer applied gentle backward pressure to position the instrument. The patient's right upper lid slipped behind her eyeball, completely out of sight, and she experienced considerable discomfort and distress. With some difficulty the lid was repositioned manually. Although profuse lachrymation and injection of the conjunctival vessels occurred, her vision was not impaired and all symptoms and signs resolved without intervention within 48 hours.

## Comment

Exophthalmometry is a safe technique, but this unusual complication shows that care should be taken when positioning the instrument in patients who have both appreciable proptosis and periorbital oedema; particularly when oedema has recently lessened, leaving redundant soft tissue. Traction on such tissue in the patient described clearly caused the upper lid to invert, fortunately without serious consequences. In such patients, I suggest that the limbs of the exophthalmometer should be positioned on the patient laterally to the orbital margin before the correct interocular distance for that patient is set. In this way traction on the lids will be minimised and the complication described will be less likely to occur. Induction of a facial nerve block, although unnecessary on this occasion, may help to reposition a lid that has slipped behind the eye.

R M Pope is funded by the Medical Research Council.

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*(Accepted 18 November 1988)*