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Pattern of HIV-infection in Hurungwe district, Mashonaland West, Zimbabwe

K DENHE, D DHLAKAMA, C RICHTER, M
MAWADZA, D McCLEAN, R HUSS

SUMMARY

After the first case of HIV-infection had been diagnosed in 1986 in a Northern district of Zimbabwe, a local hospital based surveillance system, was introduced. In order to monitor the spread of the epidemic in the district, residence, age, sex and clinical presentation of all newly diagnosed HIV-patients were recorded. After three years, the data were compiled and analysed with the following results. Altogether 887 symptomatic HIV-patients (0,5 pc of the district population) were diagnosed. The most common HIV-associated signs and symptoms were PGL (47 pc), chest infection (29 pc), herpes zoster (24 pc) and chronic STDs (15 pc). The female-to-male ratio in adults was 1,4. The average age on diagnosis in women was $26,0 \pm 6,7$ years and in men $30,7 \pm 8,6$ years. The three years' cumulative incidence of HIV-cases was 27,2/1 000 in the urban area and 3/1 000 in the rural areas of the district.

INTRODUCTION

In Zimbabwe, the first adult AIDS-case was notified to WHO in 1983;¹ some paediatric cases were diagnosed in Harare in 1985.² Since then a few studies on clinical manifestations and transmission of HIV-infection have been carried out in the capital,^{3, 4} but no information is available on its clinical and epidemiological pattern in rural areas of Zimbabwe.

From Lusaka clinical manifestations of HIV-infection were first reported in 1986.⁵

Correspondence to:

K Denhe

Academic Unit of Public Health Medicine

University of Leeds

20 Hyde Terrace

Leeds LS2 9LN

UK

The purpose of this study was to explore and present data on HIV-infection from a rural district in Zimbabwe.

MATERIALS AND METHODS

Patients: The district hospital served as a referral centre for 13 peripheral health centres and two rural hospitals. The district population is 195 000. The district consists of one urban area, communal land with a growth point, resettlement area and large-scale commercial farms. The vast majority of the population has easy access to health institutions through a regular bus service or short footing distances.

All patients presenting at the hospital with signs and symptoms suspected to be associated with HIV-infection were offered an HIV-test. A few healthy partners were tested. HIV-infection was suspected in cases of PGL (in most cases in combinations with other symptoms such as pruritus, skin rashes, general malaise and chronic fatigue), chronic diarrhoea and/or weight loss, chronic STDs, herpes zoster, oral candidiasis, failure-to-thrive (in infants), Kaposi's sarcoma and atypical and chronic chest infections.

Persistent generalised lymphadenopathy was defined as enlarged lymphnodes (>1 cm) in at least two non-contiguous extranguinal sides. Any genital discharge or ulcer not responding to treatment within two weeks was regarded as chronic STD. A patient was diagnosed as having chronic diarrhoea if at least two unusually loose stools per day for at least 30 days during the last two months were reported. Weight loss was defined as profound involuntary weight loss sufficient for the patient to notice a marked change in the fit of clothes or documented weight loss of at least 10 pc on two consecutive measures at least one month apart.

Chest infections included tuberculosis, pneumonias and unexplained chronic cough for at least four weeks. Kaposi's sarcoma was confirmed histologically.

Tuberculosis was either confirmed by positive sputum examination or typical chest X-ray. All other diagnoses were made on clinical grounds.

Blood samples: Samples from all patients were tested for HIV at the blood transfusion centre or the public health laboratory in Harare using two different

ELISA tests: some positives were confirmed by Western blot.

Data collection: During the course of this study, from 1986 to 1989, AIDS was not a notifiable disease in Zimbabwe. HIV-infection and AIDS were not included in the in-patient and out-patient forms routinely used in the Zimbabwean health information system.

Therefore a separate recording system was started in the district. From 1986, when the first HIV-positive patient was diagnosed, to 1987, names, sex, age, symptoms and addresses of all HIV-positive patients tested for HIV were recorded.

At the end of the three-year study period the data were compiled and analysed.

Statistics: Percentages, means and standard deviations were used for exploratory data analysis.

RESULTS

Number of HIV-cases: In 1988 and 1989, 72 pc of all tested patients were HIV-positive. In 1986 and 1987 not all HIV-negative patients were recorded so that the HIV-seropositivity rate could not be calculated.

Over the three years' period, 887 patients were found to be HIV-positive. The number of newly diagnosed HIV-cases rose from 19 in 1986 to 290 in 1987 and 433 in 1988. During the first three months of 1989, 145 cases were diagnosed (Figure I).

Table 1: Incidence of symptomatic HIV-infection confirmed by ELISA: by area and year (1:10 000)

| | Urban | Growth Point | Communal Land | Resettle-ment | Farms |
|--------------------------------|-------|--------------|---------------|---------------|-------|
| 1986 | 7 | — | — | 8 | 1 |
| 1987 | 83 | 73 | 6 | 58 | 8 |
| 1988 | 141 | 100 | 11 | 28 | 12 |
| 1086-88 (3+ months 1989) | 272 | 200 | 21 | 116 | 26 |

Age-sex-characteristics: The female-to-male ratio in adult HIV-positive patients was 1,4 (1,2-1,6). The mean age on diagnosis was 26,0 (SD = 6,7) in women and 30,7 (SD = 8,6) in men (Figure II). One hundred and two HIV-positive children below the age of five were diagnosed. The five seropositive patients in the age group of 5-14 years were all female.

Figure I: Number of confirmed HIV-infections by year

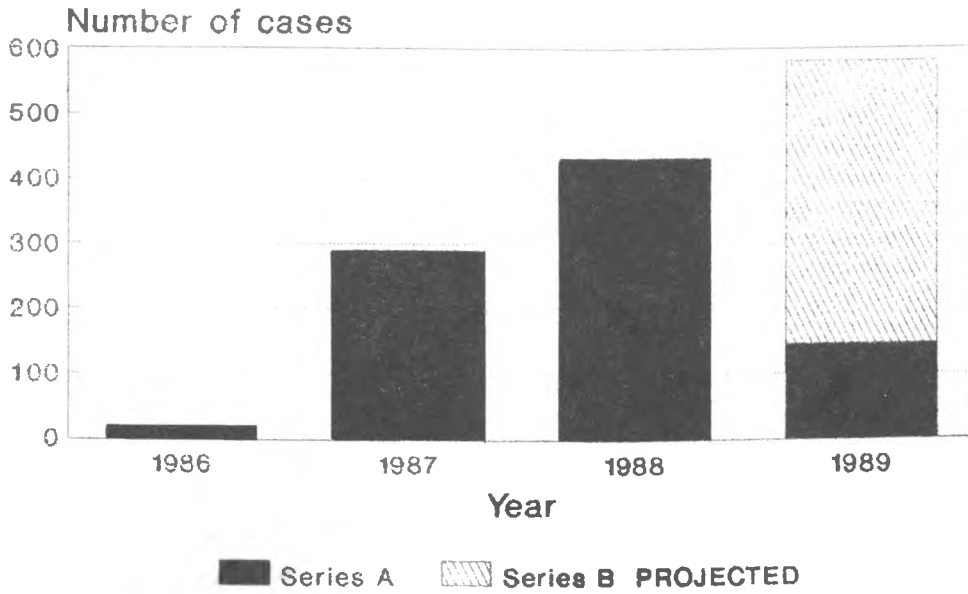
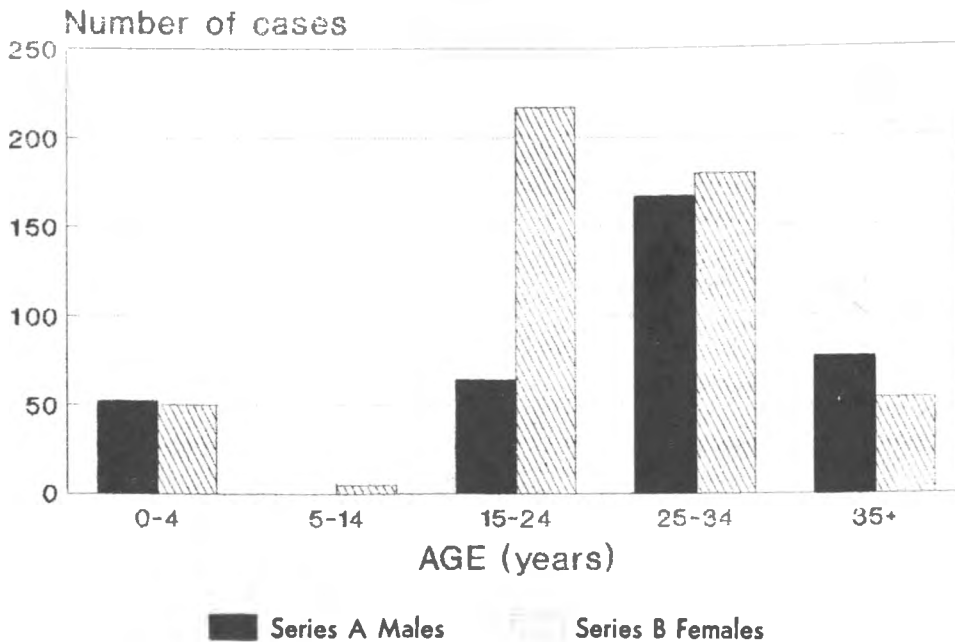


Figure II: Agel sex distribution of HIV-infection



Distribution by area: There was a sharp increase of new cases in all socio-economic areas in the district (Table I). The urban area accounted for about 44 pc of the total number of cases.

Distribution of cases by signs and symptoms: The most common signs and symptoms were PGL, chest infections and herpes zoster (Table II).

Table II: The most common signs and symptoms (Total number of cases: 889)

| | Number of Cases | Percentage |
|-----------------------------------|-----------------|------------|
| PGL | 417 | 47 |
| Chest Infection | 257 | 29 |
| Herpes Zoster | 211 | 24 |
| Chronic STD | 135 | 15 |
| Chronic Diarrhoea/ Weight Loss | 116 | 13 |
| Failure to Thrive | 72 | 8 |

Notes: PGL = Persistent Generalised Lymphadenopathy
STD = Sexually Transmitted Disease

During the study period, 44 cases of HIV-positive pulmonary TB and pleural effusion were seen. Eight cases of Stevens-Johnson-syndrome in seropositive patients were treated. Five of them were known TB-cases on TB-treatment.

Typhoid-like symptoms with positive serology were recorded in five HIV-patients.

Positive predictive values: The highest HIV-seropositivity rate was 89 pc among patients with herpes zoster (Table III).

Table III: Positive predictive values of signs and symptoms associated with HIV (1988-1989)

| | Number of Cases | HIV-positive | Percentage |
|-------------------------------|-----------------|--------------|------------|
| Herpes Zoster | 182 | 162 | 89 |
| Oral thrush | 30 | 25 | 83 |
| PGL | 432 | 328 | 76 |
| Weight Loss/Chronic Diarrhoea | 127 | 89 | 70 |

DISCUSSION

Hurungwe district lies along the Harare-Lusaka road, the main transport route between Zambia and Zimbabwe. Karoi, the district capital, serves as stop-over for long-distance lorry drivers. From 1986 onwards more than 40 pc of the new HIV cases were

reported from that small urban area which comprises less than 10 pc of the district population.

However, by 1987, cases of symptomatic HIV-infection were reported from all socio-economic areas. Good bus services allow for high mobility of people within the district and consequently for the rapid spread of the infection to the periphery. At the beginning of 1989, the majority of patients came from rural areas (communal land and commercial farms). Nevertheless, the incidence there remained comparatively low. The growth point, situated in the communal land, with a population of roughly 1 500 represents a second focus of the epidemic in the district. The fluctuation of the HIV-incidence in the small resettlement area is difficult to explain.

In most rural areas of Zimbabwe the female/male ratio is greater than one due to job related migration. In Hurungwe District it is 1,03.⁶ The female/male ratio of HIV-patients was significantly different. Recently some seroprevalence studies in Central African countries have found an even higher ratio.^{7, 8, 9} The authors suggest an increased HIV transmissibility in females. Alternatively, in our study some HIV-positive women may have been picked up at family planning and MCH clinics.

The marked difference in the manifestation age of males and females probably reflects the earlier beginning of sexual activity in girls¹⁰ and the continuing sexual activity up to a later age in men. Our results correspond closely with those of Hira *et al* from Zambia.⁵

The clinical features of HIV-infection did not differ significantly from those reported from the University Teaching Hospital in Lusaka.⁵ The presentation of zoster in otherwise healthy patients, the high rate of HIV-seropositivity in TB-patients and the development of Stevens-Johnson-syndrome due to tuberculosis treatment confirm findings elsewhere.^{11, 12, 13} The inclusion of non-typhoid salmonella bacteraemia in any case definition of adult AIDS in Africa, as suggested in a study from Rwanda, is not recommended.¹⁴ There was serological and clinical evidence for salmonella septicaemia in only a few cases. Moreover, no blood cultures are available in most Zimbabwean district hospitals.

The easy diagnosis of herpes zoster and its high positive predictive value make it a valuable tool to monitor the spread of HIV-infection in a given area, as is discussed in a separate study by the same author.¹⁵

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