PATIENT LOAD IN THE MEDICAL WARDS OF LERATONG HOSPITAL (2001 AND 2004): THE IMPACT OF HIV/AIDS EPIDEMIC

1. INTRODUCTION

1.1 BACKGROUND INFORMATION

In the two decades since they were first reported, the human immunodeficiency virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) have become major public health concerns worldwide, especially in sub-Saharan Africa, where the disease has reached a hyperendemic proportions. HIV/AIDS has devastating impacts on the working age populations, economic resources of nations and their health care systems.[27,32] Current reports from the Joint United Nations Programme on HIV/AIDS (UNAIDS) shows that about 39.4 million people were living with the disease in 2004. This includes about 17.6 million women and 2.2 million children. About 12% (4.9 million) were infected in 2004. The disease is now by far the leading cause of death in the sub-Saharan Africa, and the fourth biggest global killer.[42]

The greatest brunt of the pandemic is borne by sub-Saharan Africa, where more than four million adults and children were infected with the virus in 2004. This brings the total number of HIV patients living in the region to more than 30 million in 2004. More than 67% of the global total of people living with HIV/AIDS in 2004 were in sub-Saharan Africa[42].

South Africa currently has one of the most rapidly growing HIV epidemics and the highest HIV prevalence in the world.[15,17,36] In 2004 it was estimated that about 5.1 million adult South Africans were infected with the HIV virus and national HIV prevalence rate is 21.5%. The number of deaths in 2003 attributable to HIV infection and AIDS infection has been estimated to be about 370,000.[42] Steinberg et al estimates that by 2010 the number of South Africans living with the disease will reach between 6 and 7.5 million, if no major behavioural and cultural changes are implemented.[39]

Many studies have been done to quantify the various impacts of the HIV/AIDS epidemic in different countries in sub-Saharan Africa. More studies are needed to investigate the impact of the epidemic in health care services and how to adapt the health systems to adequately mitigate the impacts.

Leratong Hospital is a regional (level 2) hospital in the West Rand district of Gauteng Province. Level 2 hospital forms a referral link between the district hospitals and clinics and the specialist teaching hospital in the region. The hospital was established in 1975 and it presently has a 708-bed capacity. It has the major specialist departments, including medicine, surgery, paediatrics, obstetrics and gynaecology, and orthopaedics. It currently has 168 medical beds. Drainage areas include Krugersdorp, Kagiso, Randfontein, Roodoport, Westonaria, Carltonville and some parts of Soweto.

1.2 DESCRIPTION OF THE PROBLEM

In South Africa, like other sub-Saharan African countries, caring for AIDS patients is overwhelming hospitals and their staff. Patients with AIDS-associated symptoms occupy more than 50% of hospital beds in South Africa and Zimbabwe. The overall result is escalating cost of providing health care and increased shortage of resources including beds, essential drugs, doctors, nurses, laboratory staff, etc.[18,24,43] Floyd et al reported that the total hospital admissions in a Hlabisa district hospital in Kwazulu-Natal, South Africa increased by 81% between 1991 and 1998.[12] Colvin et al noted that the prevalence of HIV-infected patients in the medical wards of a tertiary hospital in Durban, South Africa was 54%, and that most (84%) of these patients presented initially with AIDS.[8]

As the disease progresses, patients increasingly change from using primary health and outpatient facilities to hospital care because of AIDS. This usually leads to overburdening of the hospitals, increased workload on the healthcare workers and staff burnout.

1.3 JUSTIFICATION OF STUDY

One of the greatest economic impacts of the HIV/AIDS epidemic is the ever-increasing need for human and material resources for caring for people ill with AIDS. Health care services face different levels of strain depending on the number of people who seek services, the nature of demands for health care, and the capacity to deliver the care.

With the recent introduction of anti-retroviral therapy at Leratong Hospital in 2004, there is need to quantify the existing disease burden. This will help in developing the necessary adequate health systems and capacity to tackle the challenges. This will also help in future monitoring and evaluation of the programme in order to establish the impacts of the Antiretroviral therapy programmes.

1.4 LITERATURE REVIEW

Many studies have been conducted both in South Africa and other African countries to assess the burden of diseases due to HIV/AIDS in health facilities and the changing trends of admission since the start of the epidemic. These are summarized in Table 1.1.

1.4.1 Burden of disease

In Tanzania, Mkony et al reported an overall HIV prevalence of 10.5% among hospitalized surgical patients in a major national hospital. The highest prevalence of 27.9% was found in the age group 35-44 years.[29] In another hospital study in Tanzania, Kwesigabo et al (1999) noted an overall age-adjusted HIV prevalence of 32.8% and there was no significant differences in sexes in different age groups. The highest prevalence rates were found in the 25-34 years age group (53.3%), medical wards (40.4%), and gyneacological wards (41.2%).[25]

Table 1.1 Summary of studies on HIV prevalence

AUTHOR (YEAR)	COUNTRY	PATIENT POPULATION	HIV PREVALENCE
Bane et al[4] (2003)	Ethiopia	Medical wards	42%
Fabiani et al[11] (2003)	Uganda	Medical wards TB patients	52.6% 44.6%
Kwesigabo et al[25] (1999)	Tanzania	All wards	32.8%
Lewis et al[26] (2003)	Malawi	Medical wards Surgical wards	70% 36%
Meyers et al[28] (2000)	South Africa	Paediatric wards	29.2%
Mkony et al[29] (2003)	Tanzania	Surgical wards	10.5%
Palmer et al[32] (2001)	Zimbabwe	Medical wards	58%
Tembo et al[40] (1994)	Uganda	Medical wards	>50%
Wilkinson & Moore[46] (1996)	South Africa	TB patients	36%
Zuma et al[49] (2003)	South Africa	Carletonville community	37.1%
Zwi et al[47] (1999)	South Africa	Paediatric wards	20%

Palmer et al noted that 58% of patients who received voluntary counselling and testing in the medical wards of two major city hospitals in Harare, Zimbabwe were HIV positive.[32] Tembo et al[40] noted that over 50% of all medical admissions in an urban hospital in Kampala, Uganda were HIV-positive patients. In a community-based study done in Carletonville, South Africa, Zuma et al reported an HIV prevalence of 37.1% among a random sample of 834 women. Higher prevalence was noted in the migrant population (46%) compared to the non-migrant population (34.7%), and the age-group 26-35 years had the highest prevalence (50.9%).[49]

Arthur et al reported increased admission in a national hospital in Nairobi, Kenya between 1988 and 1997.[3] This was mainly due to the HIV/AIDS epidemic. The bed occupancy rate and mean length of stay were 190% and 9.5 days respectively within this period. Zwi et al reported that total annual paediatric admissions in a South African regional hospital increased by 23.6% and the prevalence of HIV infection among these admitted patients increased from 2.9% to 20% between 1992 and 1996.[47] Meyers et al noted a HIV sero-prevalence of 29.2% among paediatric admissions in the same hospital, and that multiple admissions and higher average lengths of stay were significantly more common among HIV infected patients.[28]

In Malawi Lewis et al reported an HIV prevalence of 70% and 36% among patients admitted into the medical and surgical wards respectively, in a tertiary hospital in Blantyre. Among the medical patients 45% had AIDS compared

with 8% of surgical patients. Sero-prevalence was highest among the 30-40 years age group.[26] In Uganda, the overall HIV prevalence in a major hospital was 42%, with the highest prevalence in the medical wards (52.6%), TB Unit (44.6%), and Cancer Unit (13.2%). The disease-specific prevalence of HIV/AIDS ranged from 45% to 65% for patients admitted with tuberculosis, pneumonia, malaria and gastroenteritis.[11]

In Ethiopia Bane et al reported an HIV prevalence rate of 42% among patients admitted into the medical wards of tertiary hospital in Addis Ababa. Ninety two percent of these patient presented initially with WHO stage 4 disease (AIDS), and their mean length of hospital stay was 27.5 days.[4] Fabiani et al reported average lengths of stay of 41.4 days in Uganda.[11] In Hlabisa Hospital, South Africa, Wilkinson and Moore noted that 36% of adults diagnosed with tuberculosis were infected with HIV and the prevalence was significantly higher in females (46%) compared with males (29%).[46] The annual tuberculosis caseload in the same hospital increased from 301 in 1991 to 839 in 1995, and the proportion of all admissions due to tuberculosis increased significantly from 4.7% in 1989 to 8.3% in 1995.[44]

1.4.2. Profile of HIV-associated diseases

HIV/AIDS is associated with an increased prevalence of infections including pneumonia, tuberculosis, gastroenteritis and meningitis. While tuberculosis is already a very common disease in developing countries, the advent of HIV/AIDS epidemic has greatly increased its incidence, especially in sub-Saharan Africa.[2]

Gilks et al found that irrespective of HIV status, tuberculosis and pneumococcal pneumonia were the leading causes of admission in a hospital in Nairobi, Kenya in 1992.[13] In a study done in Baragwanath Hospital in Soweto, South Africa in 2000, the most common reasons for admission were infectious diseases such as gastroenteritis and pneumonia.[28] The proportion of new smear-positive tuberculosis cases attributable to HIV in Northern Malawi increased from 17% in the period between 1988 and 1990 to 57% in 2000-2001 period.[14]

HIV sero-prevalence rate among tuberculosis patients in another tertiary referral hospital in Nairobi reportedly increased from 7.5% in 1986 to 42% in 1990.[30] In Tanzania, Range et al reported an increase in HIV prevalence among tuberculosis patients from 32% in 1991 to 44% in 1998. About 60% of the increase in tuberculosis between this period was attributable to HIV infection.[34] Floyd et al noted that adult tuberculosis admissions in a rural South African hospital increased by 303% between 1991 and 1998 due to the HIV/AIDS epidemic.[12]

1.4.3. Mortality

Table 1.2: Summary of hospital studies on HIV mortality

AUTHOR (YEAR)	COUNTRY	PATIENT POPULATION	HIV MORTALITY
Bane et al[4] (2003)	Ethiopia		31%
Fabiani et al [11] (2003)	Uganda	Medical wards	14.6%
Harries & Mvula[20](1995)	Malawi	Medical wards	49%
Lewis et al [26] (2003)	Malawi	Medical & surgical wards	68%
Mbanye et al[27] (2002)	Cameroun		27%
Mkony et al[29] (2003)	Tanzania		16.1%
Ole-Nguyaine et al[31] (2004)	Tanzania	All wards	21%
Samayao et al[37] (2003)	Guatemala		23.7%
Tembo et al[41] (1994)	Uganda	Medical wards	17.4%
Zwi et al[49] (2000)	South Africa	Paediatric wards	46.1

HIV infection is a major contributor to morbidity and mortality (Table 1.2). In Uganda, among patients admitted into medical wards of an urban hospital in the country, the HIV sero-positive patients had a significantly higher mortality rate of 17.4% compared to 5.8% in sero-negative patients.[40] Similar findings

were made by Fabiani et al in another Ugandan hospital where HIV positive patients had a higher in-hospitality mortality rate (14.6%) compared with HIV negative patients (3%).[11]

Zwi et al noted that the proportion of deaths due to HIV admissions in a South African regional hospital increased from 6.7% in 1992 to 46.1% in 1996. They concluded that the HIV/AIDS epidemic is threatening the advances made on child survival over the last few decades in South Africa.[48] In Durban, South Africa, Colvin et al reported a crude mortality rate of 22% among HIV sero-positive patients compared with 9% among the HIV-seronegatives.[8] Several other studies have shown in-hospital mortality rates among HIV/AIDS patients of 31% in Ethiopia[4], 27% in Cameroon[27], and 23.7% in Guatemala.[37]

In a Tanzanian hospital study, the mortality rate among HIV/AIDS patients (16.1%) was significantly higher than in HIV sero-negative patients (6.4%).[29] Ole-Nguyaine et al reported an inpatient mortality rate among HIV patients, which ranged between 15 to 21% between 1990 and 2000. The odds of in-hospital death were greatest for those patients with meningitis, septicaemia and renal diseases[31]. Reid et al noted that in-hospital mortality rates in a rural hospital in Kwazulu-Natal, South Africa increased from 8% in 1991 to 20% in 2002.[35]

In Malawi, Harries and Mvula reported that Tuberculosis and AIDS-associated diseases accounted for 49% of deaths in the medical wards of a hospital in 1992 to 1993.[20] This was significantly higher than the 13% observed twenty

years ago in the pre-AIDS era. Severe bacterial infections, tuberculosis and AIDS were responsible for 68% of deaths in the medical and surgical wards of another hospital in Malawi.[26]

1.4.4. Cost of care

The impact of the AIDS epidemic is most evident in the health sector. It has been estimated that adult hospital bed needs in Gauteng will have increased by 600% from 2000 in 1998 to over 10 000 in 2010, unless more efficient ways of caring for people with HIV are implemented.[1]

In five out of seven hospitals studied in Zimbabwe by Hansen and colleagues the average cost of an in-patient stay for an HIV/AIDS patient was twice as high as for a non-HIV/AIDS patient. This was due to higher direct costs per in-patient day, and longer average lengths of admission.[18] Kikumbih et al also found that the incidence of clinical diagnoses was 30% higher in HIV/AIDS patients, and there was 23% higher utilization of health care services.[24]

Guinness et al reported that the mean length of hospital admissions for HIV/AIDS patients in a Kenyan hospital was 9.3 days and the mean cost per patient admission was US$163.[16] In Zambia Chela et al noted that hospital treatment of HIV/AIDS patients is more expensive and the drug cost per patient admission is increased by 469% compared with non-HIV patients.[7]

In a hospital in Guatemala, Samayao et al reported that AIDS-associated admissions constituted about 5% of all medical admissions at a cost of $500,000 per year.[37] Karstaedt et al concluded that the key to reducing costs of HIV patient care was by reducing hospitalisation by shortening admissions, utilising more cost effective inpatient care services and increasing access to high quality outpatient care.[23]

1.4.5. Impact of ART on opportunistic infections

Many studies have been done to confirm the positive impacts of antiretroviral therapy on the incidence of opportunistic diseases in HIV/AIDS patients. In a study done in Kyaelitsha, South Africa, Coetzee et al[9] reported an increase in mean CD4 count and undetectable viral load in majority of patients after receiving antiretroviral treatment for periods ranging from three to 24 months. There was associated increase in survival rate during these periods. Eley et al noted that there was a significant increase in CD4 percentage among HIV-infected children who received HAART in a tertiary hospital.[10]

1.4.6 Impact on healthcare workers

Little has been done to investigate the impact of high workload in the healthcare sector on the medical staff, especially in the light of the HIV/AIDS epidemic. Touyz et al assessed the effect of high workload on interns in Johannesburg teaching hospitals between 1985 and 1986.[41] The commonest symptoms reported were severe stress, fatigue, irritability, sleep deprivation

and loss of weight. Between 53% and 65% stated that they could not cope, while between 48% and 69% lost interest in medical practice in their first year of internship. The HIV/AIDS epidemic is expected to have aggravated this relationship.

Bertrams reported that high mental workload was positively associated with number of patients seen and health worker fatigue, and inversely associated with physician's satisfaction with the quality of care they provide to their patients.[7] Bor et al reported an increase in the workload of a HIV/AIDS counselling unit of a London teaching hospital from 117 new referrals in 1988 to 926 in 1990.[6]

In a study done in Malawi 4% of the qualified nurses working in a hospital in Blantyre were treated for tuberculosis between 1993 and 1994, and 14% of those working in medical wards had tuberculosis.[20] The annualized incidence rate of tuberculosis among the staff of a hospital in South Africa increased from 138 per 100,000 in 1991-1992 to 690 per 100,000 in 1993-1996. Among those tested 86% had HIV infection.[45]

Shisana et al reported that about 15.7% of South African heath workers were living with HIV/AIDS in 2002. The risk is higher among the younger age-group of 18 to 35 years (20%), and non-professionals (20.3%).[38]