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HIV INFECTION IN GENERAL SURGICAL PATIENTS AT THE GA-RANKUWA/MEDUNSA COMPLEX SOUTH AFRICA

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ABSTRACT

Objective: To assess the possible impact of HIV infection on the management of general surgical patients at the Ga-Rankuwa Hospital.

Design: A prospective study.

Setting: Ga-Rankuwa Hospital/Medical University of Southern Africa (MEDUNSA) Academic Complex, Pretoria, South Africa.

Subjects: Nine hundred and forty one patients admitted to general surgical wards.

Main outcome measures: HIV infection and CD4 counts.

Results: Nine hundred and forty one patients admitted to general surgical wards from January 1966 to December 1997 were tested for HIV infection. Twelve per cent tested positive. HIV positive patients were significantly younger [33 ± 10 versus 41 ± 7 ($\bar{x} \pm SD$) years, Chi-square = 51, $p < 0.0001$]. There was no correlation of HIV positivity to the patient's sex ($p = 0.7$). In forty three HIV positive patients treated surgically, mortality was attributed to HIV/AIDS in only one patient with a CD4 count of 47/ul who died following laparotomy for peritonitis. CD4 counts done during follow up in thirty one HIV positive patients revealed a count of < 500 /ul in eleven patients.

Conclusion: It is predicted that an increasing number of patients with HIV/AIDS will be admitted to general surgery wards of the Ga-Rankuwa Hospital. Surgeons are advised to take universal precautions to prevent HIV infection.

INTRODUCTION

South Africa faces an HIV epidemic similar in its demographic characteristics and scope to other sub-Saharan countries(1). The national anonymous antenatal surveys have demonstrated an increase in the HIV point prevalence rate from 0.76% in 1990 to 1.49% in 1991, 2.6% in 1992, and 4.25% in 1993(2). It is estimated that in 1999 the HIV prevalence in South Africa was over 10%(3).

In HIV infected individuals, there is a risk of transmission from needle stick injuries which occur in 5.6% of surgical procedures or perforated gloves in 20%(4). The chance of acquiring HIV infection from a needle stick is estimated to be 0.5% compared to six to thirty per cent in hepatitis B(5,6). In patients with HIV-infection and a CD4 count less than 200/ul, there is increased morbidity and mortality following major abdominal surgery(7,8). These data suggest that surgeons should be aware of the HIV status of their patients.

The Ga-Rankuwa Hospital affiliated to the Medical University of Southern Africa (MEDUNSA) forms an academic complex situated 32 km to the north of Pretoria. The complex provides tertiary care for peri-urban and rural patients referred from 49 peripheral hospitals. At MEDUNSA, routine HIV testing for HIV is not recommended. As a result, a study was planned to determine

the possible impact of the current HIV epidemic on general surgical practice at MEDUNSA.

MATERIALS AND METHODS

Permission was obtained from the MEDUNSA human ethics committee to test the HIV- 1 status of patients ten years and above, admitted from January 1996 to December 1997 to the Ga-Rankuwa Hospital general surgery section. Consent for HIV testing was obtained as part of pre-test counselling. Sera was tested in batches using the enzyme-linked immunosorbent assay (ELISA) for HIV antibodies. All repeatedly reactive sera were confirmed by Western blotting. In HIV positive patients, CD4 cell counts were determined by flow cytometry. Patients were treated without knowledge of the HIV- 1 test results. The Chi-square test was used to compare seroprevalence across groups on the basis of demographic characteristics and clinical status.

RESULTS

Out of 941 patients admitted to general surgical wards, 117 (12%) tested positive for HIV. The proportion of infected patients according to sex was 75/538 compared to 42/286 for males and females respectively (Chi-square = 0.08; $p = 0.7$). Distribution of HIV positive patients according to age is shown in Table 1. Overall, HIV positive patients were significantly younger; Pearson Chi-square = 51, $p < 0.0001$).

Table 1

Distribution of HIV-positive patients according to age

Age	Status		Total
	Negative	Positive	
≤15	17	0	17
16-20	64	5	69
21-25	82	24	106
26-30	91	24	115
31-35	103	17	120
36-40	79	19	98
41-45	70	10	80
46-50	63	6	69
51-55	51	9	60
56-60	55	3	58
61-65	149	0	149
Total	824	117	941

Table 2

Hospital diagnosis in HIV-positive patients

Diagnosis	No. of patients
Trauma	18
Malignancies	8
Oesophagus	1
Pancreas	1
Breast	3
Thyroid	1
Soft tissue	1
Skin (melanoma)	1
Lymphadenopathy	10
Peri-anal pathology	17
Abscesses	10
Pruritis	1
Fissure -in-ano	2
Piles	4
Abdominal pains	8
Vague abdominal pain	5
Epigastric pain	3
Upper GIT bleeding	13
Hematemesis	10
Peptic ulcer	2
Variceal bleeding	1
Acute abdomen	2
Mesenteric adenitis	1
Perforated duodenal ulcer	1
Hepato-biliary pathology	5
Pancreatic pseudocyst	1
Pancreatitis	3
Cholelithiasis	1
Vascular	4
Arterial	2
Venous	2
Miscellaneous	32
Gastric outlet obstruction	1
Battery acid ingestion	3
Pyelonephritis	1
Fibro-adenoma	1
Breast abscess	1
Rectal prolapse	1
Oesophageal candidiasis	3
Intestinal obstruction	3
Multinodular goiter	2
Lipoma	1
Foreign body oesophagus	1
Cellulitis	4
Chronic leg ulcer	3
Suppurative hydradenitis	1
Abscesses face	2
Axillary abscess	1
PID (pelvic inflammatory disease)	3
Total	117

Table 3

Operations, morbidity and mortality in HIV-positive patients

Diagnosis	No. of pts.	Procedure	Complication or death
Penetrating abdominal injury	10	5-Laparotomy bowel repair	4-Wound infection
Acute abdomen	2	5-Laparotomy bowel repair + colostomy	Wound dehiscence 1 death
• Mesenteric adenitis		Laparotomy/ Omental patch	
• Perforated duodenal ulcer			
Stab-neck - carotid artery injury	1	Exploration/carotid artery repair	1 death
Adhesive intestinal obstruction	2	Laparotomy/ Adhesiolysis	
Obstructive jaundice (Ca head of pancreas)	1	Laparotomy/ chole- cystojejunostomy	Wound sepsis
Breast carcinoma	1	Modified radical mastectomy	
Cholelithiasis	1	Laparoscopic chole- cystomy	
Peripheral vascular disease	2	One-aortobifemoral bypass and amputation (L) leg (BKA); one-above knee amputation	Stump sepsis
Gastric outlet obstruction post	1	Antrectomy and Bilroth I anastomosis	Wound sepsis
Pancreatic pseudocysts	1	Cysto-gastrostomy	Wound sepsis
Bleeding duodenal ulcer	1	Laparotomy: Under sew the ulcer	
Melanoma	1	Pyloroplasty Truncal vagotomy Excision and lymphadenectomy	Wound infection
Degloving injury (L) thigh post MVA	1	Debridement Late skin graft	Wound infection Skingraft
Chronic leg ulcer	1	Debridement	
Peri-anal abscess	10	Incision and drainage	
Fissure-in-ano	1	Anal stretch	
Head and neck abscess	2	Incision and drainage	
Single thyroid nodule	1	Thyroid lobectomy	
Lymphadenopathy	2	Lymph node biopsy	
Breast abscess	1	Incision and drainage	

Hospital admission diagnosis in HIV positive patients are shown in Table 2. The majority of patients were not suspected to be HIV positive. Procedures done and post-operative morbidity and mortality in 43 HIV positive patients who were treated surgically during the first admission are shown in Table 3. The commonest postoperative complication was wound sepsis. Postoperatively, mortality was directly related to the HIV status in one patient who died following laparotomy for peritonitis. The patient had a CD4 count of 47/ul. In 31 HIV positive patients, CD 4 counts were done during follow-up. CD4 counts were >500/ul in 20 patients; 200-500 in six and <200 in five. Two patients with a sarcoma and generalised lymphadenopathy and CD4 counts of 94 and 30 respectively died of AIDS in hospital.

DISCUSSION

The twelve per cent incidence of HIV positivity in general surgical patients at the Ga-Rankuwa Hospital reflects the current pandemic of HIV/AIDS in sub-Saharan Africa. The first cases of HIV infection in South Africa were in homosexual white males(11). However, the current epidemic affecting the majority of black population occurs in heterosexuals. The infection is prevalent in young sexually active males and females.

A subset of our patients, treated for general surgical diseases at the Ga-Rankuwa Hospital have HIV infection which is unrecognised. CD4 counts suggest that most patients do not yet have AIDS as defined by CDC criteria(12). As a result, surgical procedures do not result in increased morbidity and mortality.

The prevalence of HIV as estimated in our study may be an under-estimate of the true incidence of HIV in South Africa because consent was requested for the blood test. Furthermore, it is possible that some patients were tested before seroconversion(13). Nevertheless, the high prevalence indicates that all surgeons should adopt universal protective measures including wearing gloves, eye protection, impervious gowns and water proof boots(14). Surgical techniques and precautions should be adhered to in order to prevent needle-stick injury(5,6).

In South Africa today there is a major effort driven by the government to curb the spread of HIV. Emphasis is mainly on prevention through population education and promotion of the use of condoms. The use of antiretroviral drugs such as AZT (zidovudine) is not recommended by the government for treatment of HIV/AIDS in public hospitals such as the Ga-Rankuwa Hospital.

The current high incidence of HIV infection in South Africa will result in more patients with AIDS requiring hospital admission. It is probable that in our future general surgical practice, many patients will have AIDS-related peri-operative complications such as pneumonia, multiple organ failure, intra-abdominal abscesses and wound

infection. In our overall experience with AIDS-related complications, we have also seen patients with abdominal tuberculosis, Kaposi's sarcoma and gastrointestinal B cell lymphoma.

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