

THESIS: THE ACUTE ABDOMEN IN THE UNIVERSITY TEACHING HOSPITAL. A COMPARATIVE STUDY OF THE OUTCOME OF SURGERY IN HIV SEROPOSITIVE AND SERONEGATIVE PATIENTS.

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INTRODUCTION

With the emergency of the human immunodeficiency virus (HIV) most disease presentations have been modified or altered in seropositive patients.

At mortality meetings in the Department of surgery the increased mortality and morbidity noted has often been attributed to the positive HIV status of the patient. There has been no factual data to support such a relationship other than the reports emanating from the literature.

Because of the widespread belief that seropositivity is associated with a poor outcome some surgeons have been reluctant to offer surgical treatment to patients who are HIV seropositive. In other words the decision to operate or not is often based on the results of a single test alone.

Is there justification for such a course of action?

In order to address this important issue a prospective comparative study was undertaken to compare the outcome of surgery in seropositive and seronegative patients with acute abdomen.

RATIONALE

At the Amsterdam Aids Conference it was reported that in the University of California, 30% of residents had reported that some surgeons refused to manage HIV infected patients (Martin F Shapine 1992).

In the University Teaching Hospital implant surgery has been withheld in patients who are seropositive. It is generally felt that the complication rate is unacceptably high in these patients, thus a non operative approach is instituted. (John Jellis, UTH unpublished data).

Furthermore at the regular morbidity mortality meetings of the Department an unexpected poor outcome is usually attributed to the patients's seropositivity, without adequate supporting evidence to implicate HIV related disease as being a causative factor in the poor outcome.

Prospective Data on morbidity and mortality in patients who are HIV positive and who undergo surgery for the acute abdomen is lacking, to the best knowledge of the author no comparative study has been done to compare the outcome of surgery in acute abdomen in seropositive and seronegative patients.

Literature Review

In the review of literature there is no information on this subject reported as of now.

D A K Watters gives a three year personal review of surgery for peritonitis in Lusaka together with a review from Rwanda and Uganda and C Bem's retrospective study for 18 months on generalised peritonitis in HIV patients and Dr D Mugala's dissertation which referred to the outcome of surgery in general in patients who were seropositive for HIV. However, none of these were a prospective comparative study dealing with the outcome of surgery in the acute abdomen in relation to the HIV status of the patients.

In order to address the issue this study was undertaken. It is the opinion of the researcher that the knowledge obtained from such a study would be useful to surgeons dealing with acute abdominal conditions in patients who may be HIV seropositive.

OBJECTIVES

To determine whether in patients with acute abdomen HIV seropositivity on its own influences short term results of surgery in terms of morbidity and mortality.

DEFINITION OF KEY TERMS

Acute Abdomen:

Was defined as a patient with abdominal signs and symptoms who needed laparotomy in Phase V Emergency Theatre at the University Teaching Hospital.

Laparotomy:

Was defined as opening of the peritoneum through an anterior abdominal wall incision.

HIV Check Test:

(Biodiagnostics) used for the detection of HIV antibodies is a rapid qualitative test for detection of antibodies to either of the two Human Immuno Deficiency Viruses, HIV-1 or HIV-2 in human serum or fresh plasma. Reactive samples are then further tested by Elisa Test.

Wound Infection:

Was defined as inflammation and induration with or without abscess formation.

Peritonitis

Was defined as infection in the peritoneal cavity irrespective of the aetiology.

Morbidity:

Was defined as postoperative complications occurring within a month from the time of the operation.

Mortality:

Was defined as death occurring within one month from the time of the operation.

Acute Appendicitis:

Was defined as inflammation of the appendix with or without local complications.

Chi Square:

This is Woolf's test for heterogeneity of odds ratios.

Seropositivity:

Was defined as the detection of HIV antibodies in the serum tested by HIV check test and further confirmed by Elisa Test.

Seronegative:

Was non reaction of the serum sample to HIV Check test.

INTERIM PROPOSAL FOR A WHO STAGING SYSTEM FOR HIV INFECTION AND DISEASE (1990)

CLINICAL STAGE 1:

1. Asymptomatic
2. Persistent generalised lymphadenopathy.

CLINICAL STAGE 2:

1. Weight loss greater than 10% body weight
2. Minor mucocutaneous manifestations
3. Herpes Zoster (within the last 5 years)
4. Recurrent upper respiratory tract infection.

CLINICAL STAGE 3:

1. Weight loss, greater than 10% body weight
2. Unexplained chronic diarrhoea (greater than 1 month)
3. Oral candidiasis
4. Oral hairy leukoplakia
5. Pulmonary tuberculosis (within the past year)
6. Severe bacterial infection.

CLINICAL STAGE 4:

1. HIV wasting syndrome i.e weight loss of greater than 10% body weight plus either unexplained chronic diarrhoea (greater than 1 month) or chronic weakness and unexplained prolonged fever, greater than 1 month.

2. Pneumocystic carinii pneumonia
3. Toxo-plasmosis of the brain
4. Cryptosporidiosis with diarrhoea (greater than 1 month)
5. Cryptococcosis (extrapulmonary)
6. Cytomegarovirus (other than liver spleen or lymph nodes)
7. Herpes simplex virus (mucocutaneous greater than 1 month or visceral any duration)
8. Progressive multifocal leukoencephalopathy
9. Any disseminated endemic mycosis
10. Candidiasis of the oesophagus, trachea, bronchi or lungs.
11. Atypical mycobacteriosis
12. Non-typhoid salmonella septicaemia
13. Extrapulmonary tuberculosis
14. Lymphoma
15. Kaposi's Sarcoma
16. HIV Encephalopathy

Each of the above stages can be subdivided on the absolute or CD4 Lymphocyte counts to give further evidence of immune status.

	Lymphocytes	CD4
A.	2000	500
B.	1000-2000	200-500
C.	1000	200

Thus an early asymptomatic patient may be 1A, 1B, or 1C while a late case may be 4A, 4B or 4C.

Patients and Methods

This was a prospective study carried out at the University Teaching Hospital for a period of 6 months from May to November 1991.

For participation in the study the following criterias were to be fulfilled-

- (1) Consent to HIV testing
- (2) Non traumatic cause of acute abdomen
- (3) Emergency admission in Phase V Surgical ward followed by laparotomy in Phase v Emergency Theatre.
- (4) No signs of HIV disease as defined by WHO INTERIM PROPOSAL in the patient.

With prior approval of the ethical committee consent for HIV testing was obtained before blood was collected from each patient preoperatively by me. Results of the blood tests were not known before the operations.

The study group consisted of seropositive and seronegative patients. Seronegative patients acted as the control group. Ninety (90) patients participated in the study, 64 males and

26 females. 63 patients were seronegative 27 patients seropositive. 20 patients had postoperative complications and 16 patients died (table I and II).

Chi-square test was used for statistical analysis of our results.

RESULTS

Table 1: SEX, SERONEGATIVE, SEROPOSITIVE, MORBIDITY AND MORTALITY DISTRIBUTION

SEX	NUMBER OF PATIENTS	SERO NEGATIVE	SERO POSITIVE	MORBIDITY		MORTALITY	
				SERO POSITIVE	SERO NEGATIVE	SERO POSITIVE	SERO NEGATIVE
M	64	49	15	3	10	1	13
F	26	14	12	2	5	1	1
TOTAL	90	63	27	5	15	2	14

Seropositivity 30%

TABLE 2: SERONEGATIVE, SEROPOSITIVE, MORBIDITY
MORTALITY DISTRIBUTION

	NUMBER OF PATIENTS	MORBIDITY	MORTALITY	PER CENTAGE
SERONEGATIVE	63	13	13	70%
SEROPOSITIVE	27	7	3	30%
TOTAL	90	20	16	100%

P. value 0.31

Table 3; AGE RANGE SEROPOSITIVITY DISTRIBUTION

AGE IN YEARS	NUMBER OF PATIENTS	SEROPOSITIVE
0-4	6	1
5-9	5	0
10-14	3	0
15-19	8	1
20-24	14	6
25-29	11	5
30-34	16	7
35-39	9	5
40-44	7	0
45-49	3	0
50-54	4	1
55-59	1	1
60-64	1	0
65-69	0	0
70-74	1	0
75-79	1	0

The older age group had a higher seroprevalance and the highest was in those falling in the 20 to 40 years range.

P-value: 0.011

Table 4(a) CAUSES, HIV STATUS, MORBIDITY AND MORTALITY DISTRIBUTION

CAUSES OF ACUTE ABDOMEN	NUMBER OF PATIENTS	SERO NEGATIVE	SERO POSITIVE	MORBIDITY		MORTALITY	
				SERO POSITIVE	SERO NEGATIVE	SERO POSITIVE	SERO NEGATIVE
APPENDICITIS	22	16	6	1	2	0	0
PERITONITIS	20	16	4	2	5	0	5
VOLVULUS	17	9	8	0	2	1	0
STRANGULATED HERNIA	12	10	2	1	2	1	1
ADHESION	8	5	3	1	2	0	2
MISCELLANEOUS	5	2	3	0	1	0	3
INTUSSUSCEPTION	3	3	0	0	1	0	2
MALIGNANCY	3	2	1	0	0	0	1
TOTAL	90	63	27	5	15	2	14

P. Value 0.42

Table 4(b): PERITONITIS CAUSES

CAUSES	NUMBER OF PATIENTS
Perforated terminal ileum	8
Pelvic Inflammatory disease	5
Perforated Duodenal Ulcer	3
Perforated appendix with generalised peritonitis	2
Peritonitis of unknown aetiology	2
TOTAL	20

Table 4(c): VOLVULUS CAUSES

CAUSES	NUMBER OF PATIENTS
Sigmoid Volvulus	12
Small bowel Volvulus	4
Sigmoid knot ("Compound Volvulus")	1
TOTAL	17

Table 4(d) STRANGULATED HERNIA CAUSES

CAUSES	NUMBER OF PATIENTS
Inguinal	10
Umbilical	2
TOTAL	12

Table 4(e) MISCELLANEOUS CAUSES

CAUSES	NUMBER OF PATIENTS
Tubo-Ovarian Mass	2
Cholecystitis	1
Abdominal Tuber- culosis	1
Duodenal Atresia	1
TOTAL	5

Table 4(f) MALIGNANCY CAUSES

CAUSES	NUMBER OF PATIENTS
Adenocarcinoma Rectum	1
Adenocarcinoma Stomach	1
Carcinomatosis Peritoneae	1
TOTAL	3

Table 4(g) INTUSSUSCEPTION CAUSES

CAUSES	NUMBER OF PATIENTS
Ileo - Colic	2
Ileo - Ileal	1
TOTAL	3

Table 5: CAUSES AGE AND SEX DISTRIBUTION

CAUSES OF ACUTE ABDOMEN	NUMBER OF PATIENTS	MEAN AGE YEARS	AGE RANGE	SEX M F	PERCENTAGE
APPENDICITIS	22	20	0-45	10 12	24.4
PERITONITIS	20	28	15-60	15 5	22.2
VOLVULUS	17	41.8	20-56	16 1	18.9
STRANGULATED HERNIA	12	31.2	2-75	11 1	13.4
ADHESIONS	8	34.2	22-70	6 2	8.9
MISCELLANEOUS	5	25.6	0-39	1 4	5.6
INTUSSUSCEPTION	3	18.7	0-40	2 1	3.3
MALIGNANCY	3	29.8	0-75	3 0	3.3
TOTAL	90	28.4	0-75	64 26	100

Table 6: CAUSES, HIV, STATUS, MORBIDITY MORTALITY AND SEX DISTRIBUTION

CAUSES OF ACUTE ABDOMEN	SERONEGATIVE		SEROPOSITIVE		MORBIDITY		MOTALITY	
	M	F	M	F	M	F	M	F
APPENDICITIS	8	8	2	4	3	0	0	0
PERITONITIS	13	3	2	2	4	3	5	0
VOLVULUS	9	0	7	1	2	0	0	1
STRANGULATED HERNIA	10	0	1	1	3	0	2	0
ADHESIONS	5	0	1	2	2	1	1	1
MISCELLANEOUS	0	2	1	2	0	1	3	0
INTUSSUSCEPTION	2	1	0	0	1	0	1	1
MALIGNANCY	2	0	1	0	0	0	1	0
TOTAL	49	14	15	12	15	5	13	3

P.value 0.114

DISCUSSION:

The HIV seropositivity rate in Lusaka Urban among blood donors has been reported to be in the region of 20 to 30% (Blood Bank statistics UTH Lusaka). The 30% seropositivity could be extrapolated to apply to the general population knowing that blood donors are a health cross section of the general population. In comparison the seroprevalance rate among blood donors in Uganda, Rwanda and Zaire ranges from 8 to 18% (Thomas Quinn 1986).

The results of this study show that 30% of the study group were seropositive. This is in agreement with the blood bank findings.

With the various age groups participating in the study (table 3) we have observed that patients who are in the sexually active age groups (20 to 40) had the highest seroprevalance. Zambia is like other sub Saharan African countries where HIV infection is attributed to heterosexual transmission (Anne M Johnson 1992). As a result of this mode of transmission the sexually active age groups are bound to have a higher seroprevalance. Whereas, the other modes of transmission such as mother to new born child or blood transfusion, could explain the HIV seropositivity seen in the paediatric age group.

Female patients had a significantly higher incidence of seroprevalance than males (table 6). This incidence of seropositivity in females could be attributed to

cultural practice or sexual behaviour such as promiscuity with a large number of sexual contacts among our female population. This cultural practice is not unique to Zambia but is widespread in Central and East Africa and possibly the whole of sub Saharan Africa. Promiscuity especially the total number of sexual partners, is correlated with HIV infection in both the United States and Africa (Daniel B Hardy 1987).

The volvulus group (table 4(a) had the highest number of seropositive patients, I have no reasonable explanation why patients with volvulus had a higher seroprevalance, with the P.value of 0.42 statistically not significant. It could be a chance finding or dietary factors may be co-factor in HIV related disease.

The post operative complications were as follows: In the

appendicitis group: i) wound infection (2)
ii) stitch sinus (1)

In the peritonitis group:

i) wound infection (6)
ii) residual abscess (1)

In the Volvulus group:

i) wound infection (1)
ii) Faecal fistula (1)

In the strangulated hernia group:

i) wound infection (2)
ii) Faecal fistula (1)

In the Adhesion group:

i) wound infection (3)

In the miscellaneous group:

- i) wound infection (1)

Intussusception group:

- i) wound infection (1)

One striking observation noted in the volvulus group is the single death (one out of seventeen patients) despite the fact that this group had the highest seroprevalance. And this occurred in a patient who was seropositive. Ojara et al (1982), and Gabriel Campbell and Musselman (1953) reported 26.9% and 59% mortality rates respectively in their patients with volvulus, although the HIV status in their patients was unknown at the time.

In acute appendicitis (table 4(a) a morbidity rate of 14% was noted 4.6% occurring in seropositive and 9.4% in seronegative with no mortality in our series, Loeffler (1988) in Nairobi and Nzarubara et al (1988) at Mulago reported 19% and 4.4% morbidity rates respectively among their patients with acute appendicitis.

Loefler had no deaths among his patients whereas Nzarubara et al reported 2 deaths out of 122 patients. The HIV Status in these two reports is unknown.

In our hernia group the morbidity rate was 25%, 8.3% occurring in seropositive and 16.6% in seronegative patients and mortality of 16.6% equally shared between seropositive and negative.

Mr Yerzingatsian (1991) reported a 6% morbidity and nil mortality in 50 adult elective and emergency herniorrhaphies which he had done.

Reports on patients with generalised peritonitis from Maputo by Garrido et al (1988) and that of Oliver et al (1988) from Mpilo Hospital showed 10% and 15% postoperative wound infection rates respectively, although the HIV status of these patients was not known. Our rate of post-operative complications was 35% in our peritonitis group and 12% of these were seropositive and 23% seronegative.

In a study by Hoekman et al (1991) in open reduction of fractures in Rwanda the relative frequency of postoperative wound infection was significantly higher in seropositive patients. His cases were not contaminated prior to surgery. We do not have comparable data as our cases dealt with the acute abdomen only.

Mortality was highest in our peritonitis group (25%) and all were seronegative. Oliver et al (1988) and Garrido et al (1988)

reported 11.9% and 8.9% mortality rates respectively in their generalised peritonitis patients.

Septicaemia was an important factor in the high mortality reported in our patients, other factors which contributed to the high morbidity (35%) and mortality in the peritonitis group was the non availability of saline for peritoneal lavage (often sterile fluid was out of stock) and the lack of suitable antibiotics because of depleted stocks in the hospital pharmacy. Furthermore abdominal packs were frequently not available and suction machines malfunctioned.

The choice of an abdominal incision is determined by the prevailing pathology and aetiology. In this study 63% of the cases had midline, 24% gridiron, 11% inguinal and 2% transverse incisions.

Zambia being a developing country experiences shortage of manpower in many areas and surgery is no exception, as a result most emergency operations in Phase V at the University Teaching Hospital are carried out by registrars and in only a few complicated cases are the consultants called upon to perform an emergency operation. In this study only 3 out of 90 emergencies were performed by a consultant.

Acute abdomen Table 4(a) The common causes in the University Teaching Hospital were acute appendicitis, peritonitis, volvulus, strangulated hernia and adhesions.

In this prospective study the results indicate that seropositivity on its own in patients with acute abdomen

does not influence short term results of surgery in terms of morbidity and mortality (table 2).

The author is of the opinion that in patients who have acute abdomen surgeons should not deny surgery because of the seropositive status of the patient. This paper has shown that the HIV status of a patient does not directly influence the outcome of surgery in terms of morbidity and mortality.

As this study was concerned purely with HIV seropositivity these recommendations do not apply to clinical Aids patients (as defined by the WHO definition - Definitions section).

CONCLUSIONS

- HIV seropositivity on its own has no direct influence on the outcome of surgery over the short term in patients who have an acute abdomen. Morbidity and mortality is no higher than in patients who are seronegative.
- In the patient who requires surgery for the acute abdomen the decision whether to operate or not should not be influenced by the HIV status.
- Due to the heterosexual mode of transmission of HIV infection the sexually active age groups had a higher incidence of HIV seropositivity.
- Due to cultural norms in our society our female patients had a higher HIV seroprevalance compared to our male patients.
- In this study volvulus patients had the highest number of seropositive patients.
- In the University Teaching Hospital acute appendicitis, peritonitis, volvulus and strangulated hernia were the commonest causes of acute abdomen in surgery.

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Appendix

DATA FORM

1. PERSONAL DATA

Name:.....

File No:

Date of Admission:

Date of Discharge:

Sex: Male: Female:

Age:

2. CAUSE OF ACUTE ABDOMEN

3. HIV TEST POSITIVE NEGATIVE

4. POST OPERATION COMPLICATIONS: Any complication related to surgery directly:

i. EARLY

- a. Secondary Haemorrhage
- b. Infection e.g
 - i. Wound infection
 - ii. Residual abscesses
- c. Wound dehiscence

ii. LATE COMPLICATION

- a. Sinus formation
- b. Fistula formation
- c. Incisional hernia
- d. Recurrence of original problem

5. HOSPITAL STAY IN DAYS

6. MORTALITY

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