Original Research Article

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Study of morbidity and mortality in HIV positive surgical patients in Western Rajasthan

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ABSTRACT

Background: HIV infection affects the differential diagnosis of surgical disease nutritional status and life expectancy. Some have suggested that HIV infection may also influence post-operative wound healing and complication rates. Others have stated that HIV infection should have only minor influence on decision-making for many surgical conditions and therefore standard surgical approaches are appropriate.

Methods: All HIV positive patients admitted in general surgical wards were divided into two groups- 1. Conservative, 2. Operative. Operative patients were placed into 4 subgroups according to CDC surgical wound classification-Clean, clean-contaminated, contaminated and dirty-infected. Patients were followed up in postoperative ward till discharge or mortality. At the time of discharge outcome were rated as-Good, fair and poor.

Results: Patients between age 31-30 and 41-50 years were commonly and equally affected (60.6%). Farmer males were predominantly involved in all age groups except of age group >50 years, 28 (84.85%) patients were on ART therapy. Most common affected body part is abdomen (60.60%). In 22 (66.67%) cases operative procedure done; among them 14 (63.63%) were emergency and 8 (36.37%) were elective. Fistulectomy (25%) was commonest in elective surgeries and open appendicectomy (35.71%) was commonest in emergency surgeries. In 4 cases systemic complications occurred and one case had local complication. 30 patients were discharged in satisfactory condition and 3 patients expired.

Conclusions: No significant correlation between survival outcomes (mortality and morbidity) with hospital stay (p=0.444), between type of operation (emergency or elective) and mortality (p=0.502) and demographic and clinical variables (age, gender, hospital stay, effective antiretroviral therapy (ART) duration) to survival outcome of HIV patients.

Keywords: HIV, ART, Surgical outcome

INTRODUCTION

Effective antiretroviral therapy (ART) for people living with HIV has resulted in a life expectancy that approaches that of the general population. Hence both emergency and elective surgical procedures are common to HIV patients also. Reliable predictors of surgical outcome depend upon nutritional status of the patient (serum albumin <2.5 g/dl), presence or absence of organ

failure and CD4 count or viral load. Some studies have shown poorer surgical outcomes for individuals with low CD4 counts, although this is not a consistent finding. 1-3

Surgical risk assessment for HIV-infected individuals is highly individualized, and all aspects of the HIV-infected patient's clinical profile, including the indication for surgery, should be evaluated and discussed with the patient.4,5

The preoperative evaluation of HIV-infected patients should be the same as that for non-HIV-infected patients with extra focus on the LFT, RFT, cardiac status, history of previous infection with MRSA. Universal surgical precautions that apply to all patients should be followed. ART should be continued in the perioperative period. For patients who are unable to receive medications orally (NPO), a period of withholding ART will be necessary. HIV-infected patients are at increased risk for hypercoagulability and may be at increased risk for thromboembolic complications in the postoperative period and hence early ambulation is advised.⁶⁻⁸

Objective of this prospective study was to study the age, sex and occupation wise distribution, various surgical presentation and management modalities (conservative, elective surgery, emergency surgery) and their outcomes in HIV positive patients admitted in general surgical wards with study the HIV positive patients taking ART therapy and duration and impact on surgical outcome. mainly concerned with morbidity and mortality in HIV positive surgical patients in reference with western Rajasthan, particularly Jodhpur as its centre.

METHODS

This prospective study was conducted in department of general surgery, Mathura Das Mathur Hospital, Jodhpur during January 2017 to November 2018.

Following approval of the institutional ethics committee and written informed consent, total 33 male and female patients admitted in general surgical ward having HIV and fulfilling inclusion criteria were enrolled.

Inclusion criteria

It includes all the HIV positives surgical patients irrespective of sex; whether the problem is acute or chronic; required surgical procedure or managed conservatively were included in study. Surgical procedure may be minor which done under local anaesthesia or major which done under regional or general anaesthesia.

Exclusion criteria

Exclusion criteria excluded OPD HIV positives patients and patients having age less than 12 years.

Patients were followed up in post-operative ward till discharge or mortality. At the time of discharge outcomes were rated as-A) Good if patient will be well after surgery and discharge is uneventful. B) Fair if patient's discharge is delayed for few days beyond expected date of discharge or with minor complication. C) Poor if patient has prolonged stay in hospital or patient is very ill following surgery or has severe complication.

For purpose of study patients were divided into two groups: 1. Conservative, 2. Operative. Operative patients were placed into 4 subgroups according to cdc surgical wound classification: clean, clean-contaminate, contaminated and dirty-infected.

Local complications were analysed according to CDC surgical wound classification.

Systemic complications of both conservative and operative patients were analysed accordingly.

Statistical analysis

Sample size was calculated on basis of pilot study. Statistical analysis was undertaken using SPSS 22. Descriptive statistics were represented as median. Differences in variables by ART status were sought by Mann Whitney test and chi-square test as appropriate. Demographic and available laboratory data were compared according to survival status (i.e., died or survived). An unconditional binary logistic regression analysis checked for model fitness and interactions, and represented in odds ratio (OR) with 95% confidence interval (CI) was used to determine independent predictors of mortality. For regression analysis, we categorized age into young adults (13-45 years) and middle age/elderly (>45 years), and hospital stay into ≤3 days and >3 days. Gender (male/female) and ART status (group 1/group 2) were also included in the regression analysis. Differences in survival between group 1 and 2 patients were represented in a Kaplan-Meir survival curve. P<0.05 was considered statistically significant for all analyses.

RESULTS

Patients between age 31-30 and 41-50 years were most commonly and equally affected (60.6%). Second most commonly and equally affected age groups were 21-30 and >50 years (24.24%).

Males were predominantly involved in all age groups except of age group >50 years. In age group of >50 male and female equally affected. Male to female ratio was 6.5.

Occupation wise farmers and housewives were most commonly and equally affected. There was also increase in number of cases in students and decrease number of cases in drivers. Least affected were shopkeepers (6.07%). 28 (84.85%) patients were on ART therapy.

Most common affected body part/region is abdomen (60.60%) as compare to scroto-inguinal and perineal region (27.28%).

11 (33.33%) cases managed conservatively. In 22 (66.67%) cases operative procedure done, among them

14 (63.63%) were emergency and 8 (36.37%) were elective.

Among elective cases fistulectomy (25%) was commonest.

Among emergency cases open appendicectomy (35.71%) was commonest.

In 4 cases systemic complications occurred (12.12%) and one case (3.03%) had local complication.

One patient developed ARDS. Another one developed pancytopenia and acute renal failure, both patients were taking ART.

In no ART given group one patient developed pulmonary embolism and local wound infection. Another patient developed MODS.

In present study 30 patients were discharged in satisfactory condition and 3 patients expired.

No significant difference was found between the duration mean of hospital stay in patients not taking ART and patients taking ART.

No significant correlation between survival outcomes (mortality and morbidity) with hospital stay (p=0.444) (Table 1).

Table 1: Correlation between outcome with hospital stay.

Outcome	Number of patients (%)	Mean duration of hospital stays (days)
Survivors	30 (90.90)	6.20±4.78
Expired	03 (9.10)	4.00±3.00
Total	33	P=0.444

No significant correlation between type of operation (emergency or elective) and mortality (p value=0.502) (Table 2).

Table 2: Correlation between type of operation and mortality.

Operation	Survivors (n=30) (%)	Expired (n=03) (%)	P value
Elective	08 (42.10)	00	0.748
Emergency	11 (57.90)	03 (100)	0.132
Total	19	03	0.502

In present study there is no significant correlation of demographic and clinical variables (age, gender, hospital stay, ART duration) to survival outcome of HIV patients (Table 3).

Table 3: Comparison of demographic and clinical variables in relation to survival outcome of HIV patients.

Variable	Survival status		P		
Variable	Expired	Survivors	value		
Age (years)					
Median	44.0	40.0	0.195		
(95% CL)	(29.0-76.0)	(12.0-75.0)	(NS)		
Gender					
Male	03	22	0.748		
Female	00	08	(NS)		
Hospital stays (days)					
Median	4.00	5.0	0.444		
(95% CL)	(1.0-7.0)	(1.0-26.0)	(NS)		
ART duration (years)					
Median	0.0 (0.0 0.0)	4.00			
(95% CL)	9.0 (9.0-9.0)	(0.08-15.0)	-		

DISCUSSION

This study was conducted on 33 cases of HIV positive patients admitted in surgical wards of Mathura Das Mathur hospital, attached to Dr. S. N. Medical College, Jodhpur (Rajasthan) during the period of January 2017 to November 2018 according to our inclusion and exclusion criteria.

After filling details in proforma, master chart was prepared. A detailed analysis was done and various observations were derived, discussed and concluded.

Patients between age 31-30 and 41-50 years were most commonly and equally affected (60.6%). Second most commonly and equally affected age groups were 21-30 and >50 years (24.24%). As per HIV Estimations 2017: Technical report by NACO and ICMR in 2017, there was an estimated adult (15-49 years) prevalence of 0.22% [0.16-0.30] in India. Almost 97% of the total HIV positive patients belonged to the 15 and more year's age group. Females constituted 42% of estimated HIV positive patients (15 and more years). Sharma et al in their study revealed that maximum number of HIV positive patients were in age group of 35-49 years 205 (41%), followed by 153 (30.6%) in age group of 25-34 years, 81 (16.2%) in age group of more than 50 years.

Males were predominantly involved in all age groups except of age group >50 years. In age group of >50 male and female equally affected. Male to female ratio was 6.5. Sharma et al in their study revealed that out of 500 patients 316 were (63.20%) males and 182 (36.40%) were females. ¹⁰ Reason is male is dominating in India and outdoor activity of male is more than female. Mostly infected women acquire the infection from their husbands.

In this study occupation wise farmers and housewives were most commonly and equally affected. Our study also shows increase number of cases in students. Reason of decrease number of cases in drivers might be due to increased awareness among them. Least affected were shopkeepers (6.07%).

Kumawat et al in their study a total of 300 HIV/AIDS patients were enrolled and distribution of patients by occupation depicts that most common occupation group, which harboured the HIV infection, was labourers group accounting for 79 (26.33%) of total study population, labourers include the agricultural as well as nonagricultural labourers. Labourer which was the most common occupation found to be affected acts as a link population between high-risk groups to general population. Of total study population 102 (34%) were house wives, all of them were having HIV positive husbands engaged in different occupations. 36 (12%) patients were Skilled worker/ self-employed, 30 (10%) were drivers, 24 (8%) patients were students, while govt. employee (in different sectors) and army/BSF persons accounted for 16 (5.33%) and 13 (4.33%) of patients respectively.11

In present study 84.85% patients were on ART therapy. Study conducted by NACO shows that more than 80% of people testing HIV positive from at risk groups were linked to ART centres. 12

Present study shows that durations of ART given were 1 to <3 years and 3 to <5 years in 8 and 8 cases respectively (28.57 and 28.5%). For 2 patients ART duration was <1 month and for another 2 patients' duration of ART was <1 year. Even 4 cases were on ART for 8 or >8 years of duration (14.28%). Sathyabama et al studied 60 patients with HIV had surgical problems and found that durations of ART were 0-4 years in 38.33% cases, 5-8 years in 40% cases and 9-12 years in 21.67% cases.¹³

Most common affected body part/region is abdomen (60.60%) as compared to scroto-inguinal and perineal region (27.28%). Reason behind this might be that most of scroto-inguinal and perineal region cases were treated at periphery and as our institute is tertiary centre so more abdominal cases were referred here. Head and neck, chest involved in (12.12%). Least involved body parts are upper and lower limbs (6.07%). Hitesh et al observed in HIV positive patients (n=72) that most common affected body part/region is abdomen (51.4%), followed by head and neck, chest (25%), scroto inguinal and perineal region (20.6%), upper and lower limb (3%).¹⁴

Antunes et al observed in HIV positive patients that the most frequent surgical site for the operation was the abdomen (n=174; 73.4%), followed by perineum (n=42; 17.7%) and thorax (n=21; 8.8%).¹⁵

In present study 11(33.33%) cases were managed conservatively. In 22 (66.67%) cases operative procedure done, among them 14 (63.63%) were emergency and 8 (36.37%) were elective. Among elective cases

fistulectomy (25%) was commonest. Among emergency cases open appendicectomy (35.71%) was commonest. Sathyabama et al in their study (n=60) revealed that 29 (48.33%) cases were managed conservatively. In 31 (51.66%) cases operative procedure done, among them 14 (45.16%) were emergency and 17 (54.84%) were elective. Among elective surgeries, surgery for hernia was commonest. Among the emergencies complicated appendicitis/abscess was common.

In present study, in 4 cases systemic complications occurred (12.12%) and one case (3.03%) shows local complication. One patient developed complication ARDS. Another one developed complication pancytopenia and acute renal failure. These both patients were given ART. In no ART Given group one patient developed pulmonary embolism and local wound infection. Another patient developed MODS.

Present study shows that in "ART Given" patients durations of hospital stays (in days) for 3 (10.71%) patients were 1-2, for 12 (42.85%) patients were 3-5, for 10 (35.71%) patients were 6-10s, for 1(3.57%) patient were 11-15, for 2 (7.14%) patients were >15 days. In "no ART given" patients' duration of hospital stay for one patient were 1-2 days, for 02 patients were 3-5 days, and for another two were 6-10 days. Hajiabdolbaghi et al revealed in their study that no significant difference was found between the duration mean of hospital stay in patients who received ART (n=139) (15.19±12.50 days) and those without ART (n=316) (16.32±20.50 days). Regression analysis showed no significant relation between hospitalization and ART.

Present study shows no significant correlation between survival outcomes (mortality and morbidity) with hospital stay (p=0.444). Green et al revealed that HIV positive patients with a CD4 count of <200 cells/µl, the mortality rate was 66.7% (14/21) while the mortality rate for individuals with HIV and a CD4 count of $\geq\!200$ cells/µl was 2.5% (2/121). This difference was statistically significant (p<0.001). In patients with a CD4 count of <200 cells/µl, the length of hospital stays and mortality is significantly higher. However, we did not include CD4 count in our study. 17

Chauhan et al, in their study found more complications following emergency laparotomy (n=128; 36.57%) than after elective laparotomy (n=11;22%).¹⁸

In present study there is no significant correlation between type of operation (emergency or elective) and mortality (p=0.502). This may be because in our study in emergency surgery most cases were abdominal whereas in elective surgery only one case was abdominal and Dua et al concluded that overall postoperative complication rate was significantly greater in those undergoing intra-abdominal surgery and emergency procedures. So, it may due to heterogeneity in our study these above result found.¹⁹

In present study there is no significant correlation of demographic and clinical variables (age, gender, hospital stay, ART duration) to survival outcome of HIV patients. No significant correlation between ART and survival outcome might be due to not inclusion of CD4 count status in our study so that patients not taking ART might had CD4 count >200 cells/mm³ (<200 cells/mm³ is AIDS defining) leads to insignificant hospital stay and mortality as above stated by Green et al.

Limitations

Some patients cannot be included in this study like; Absconded and LAMA patients and OPD patients. Study was conducted on small group of patients so to apply on general population large group study is required.

CONCLUSION

Present study showed that there is no significant correlation of demographic and clinical variables (age, gender, hospital stay, ART duration) to survival outcome of HIV patients.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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