

Original Research Article

Evaluation of upper gastro intestinal endoscopy among HIV positive and negative patients at a tertiary care hospital: a comparative study

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ABSTRACT

Background: Endoscopy is the diagnostic test of choice for most HIV-associated GI diseases, as endoscopic and histopathologic evaluation can render diagnoses in patients with non-specific symptoms. The objective of the present research was to study the gastrointestinal endoscopic findings among HIV positive patients and compare them with HIV negative patients.

Methods: A comparative study was carried out in the department of General Medicine to study the gastrointestinal endoscopic findings among HIV positive patients and compare them with HIV negative patients for a period of two years. 101 cases who were HIV positive were compared with equal number of HIV negative subjects. The subjects in the case group as well as control group were chosen randomly.

Results: There was a significant lower incidence of *Helicobacter pylori* positivity (38.6%) among HIV positive patients when compared to controls (73.6%). There were overall 63 patients with abnormal biopsy findings in HIV group and 75 patients with abnormal biopsy findings in the control group. Among HIV positive patients who were also RUT positive approximately 80% had abnormal histopathological findings. Similarly, among the RUT positive control 81% of the patients had abnormal biopsy findings. Incidence of normal biopsy findings was more in the control group (57.1%) compared to the study group (48.4%). But this difference was not found to be statistically significant.

Conclusions: The histology of gastric mucosa was no different in *Helicobacter pylori* positive or negative subjects with HIV. But *Helicobacter pylori* incidence was significantly less in HIV positive persons compared to HIV negative.

Keywords: Endoscopic findings, Gastrointestinal, Gastritis

INTRODUCTION

HIV-AIDS has been the recent infectious disease of great interest, due to its extreme immunosuppressive effect in humans. Of late many studies have been conducted on HIV and its manifestation of various organ system disorders.

The most dreaded complications of HIV infection are due to the opportunistic infections following severe immunosuppression, rather than the virus itself, such as pneumocystis carinii pneumonia, tuberculous and cryptococcal meningitis.¹ HIV-AIDS has been identified as an important public health challenge by World Health Organization (WHO) in the year 2004. This was due to

its attribution to “greatest lethal epidemic” recently all over the world. HIV virus infection is most commonly found affecting gastrointestinal system in more than 50% of the cases.

These more than 50% of the HIV positive patients present with symptoms of gastrointestinal tract. Almost everyone develops complications of gastrointestinal tract.²

Symptoms of gastrointestinal tract like weight loss, anorexia, odynophagia, dysphagia, diarrhea and abdominal pain are commonly seen in HIV positive patients but these are not very specific among them. “Endoscopy is the diagnostic test of choice for most HIV-associated GI diseases, as endoscopic and histopathologic evaluation can render diagnoses in patients with non-specific symptoms.” Specimen taken with the help of gastrointestinal endoscopy can be pathologically evaluated by using light and electron microscopes, as well as special stains. Other methods include “immunohistochemical techniques”, “fluorescent in situ hybridization (FISH)”, and “polymerase chain reaction (PCR).”³

For confirmation of diagnosis, H and E staining and then use of light microscope is more than enough. For identification of protozoan infections in small intestine, electron microscopy must be used. By electron microscopy, Microsporidia and Cryptosporidia can be easily diagnosed. Special stains are required in special cases.⁴

Gastrointestinal infections are also increased in patients with HIV. Various organisms not usually found in immuno-competent persons colonize the gastrointestinal tract in HIV patients, such as cytomegalovirus, isospora, Cryptospora, herpes etc. But *Helicobacter pylori* has been shown to take a different scenario in HIV infected patients in many studies. While *Helicobacter pylori* has been found to be the most common organism in peptic ulcer disease and even in non-ulcer dyspepsia in the general population, its incidence in HIV positive patients in some studies has been low. Hypochlorhydria has been postulated to be one of the causes for this decreased incidence. But still there are some studies that have shown no difference from the general population. Such studies in Indian population are also very few.⁵

In the light of above background, present study was carried out to study the gastrointestinal endoscopic findings among HIV positive patients and compare them with HIV negative patients.

METHODS

A comparative study was carried out in the department of General Medicine to study the gastrointestinal endoscopic findings among HIV positive patients and compare them with HIV negative patients for a period of two years. 101

cases who were HIV positive were compared with equal number of HIV negative subjects.

The subjects in the case group as well as control group were chosen randomly. Institutional Ethics Committee permission was taken. Informed consent was taken from all eligible subjects who were included in the present study as per inclusion and exclusion criteria.

Inclusion criteria

- Only those patients who were above the age of 18 years and patients with symptoms of dyspepsia were included in the present study.
- For the case group, only those were included who were confirmed as HIV positive.
- Only HIV negative patients were included in the control group.

Exclusion criteria

- Those subjects who were severely ill and not able to give history and examination
- Pregnant women
- Those patients who gave history of intake of antibiotics of metronidazole or PPI within a period of two weeks, patients on NSAIDs,
- Those with acute gastrointestinal bleeding.

The patients were divided into two groups. The study cases included the HIV positive patients (101) and the control included the HIV negative patients (106).

The data was recorded in the pre-formed questionnaire. Major systemic diseases were ruled out by investigations. Endoscopy was done in patients after obtaining informed consent and an overnight fast. OGD was done using flexible fiberoptic endoscope. Three mucosal samples were obtained from stomach, two from antrum and one from body of stomach. One of the samples was used for RUT test. The other two samples were sent for histopathology using hematoxylin and eosin stains for presence of any lymphocytic cell infiltrates. Separate biopsy forceps were used in HIV patients. The scope and biopsy forceps were sterilized with glutaraldehyde and washed with distilled water after every procedure.

Statistical analysis

EPI statistical software was used for data entry. Descriptive statistics was applied in the form of proportions and mean values. Chi square test was utilized to assess the statistical significance. Significant relationship was denoted by using p value of less than 0.05.

RESULTS

The incidence of gastritis in controls was 20% when compared to 3% in HIV cases. the incidence of moniliasis

in HIV cases was 10% overall. There was one case of antral growth in controls and one case of multiple esophageal ulcers in HIV group.

Table 1: Endoscopy findings in cases and controls.

Endoscopy findings	Study group		Control group	
	No.	%	No.	%
Normal	87	86.1	83	78.3
Esophageal moniliasis	10	9.9	0	0
Antral growth	0	0	1	1
Multiple ulcers of esophagus	1	1	0	0
Gastritis	3	3	22	20.7
Total	101	100	106	100
P value	0.1972 (Not significant)			

Table 2: RUT positivity among HIV positive and controls.

RUT	Study group		Control group	
	No.	%	No.	%
Positive	39	38.6	78	73.6
Negative	62	61.4	28	26.4
P value	0.0001 (Highly significant)			

The number of rapid urease test positivity among HIV positive patients in 39 cases compared to 78 cases among controls. This shows a significant lower incidence of *Helicobacter pylori* positivity (38.6%) among HIV positive patients when compared to controls (73.6%) with a significant p value of 0.0001. There were overall 63 patients with abnormal biopsy findings in HIV group and 75 patients with abnormal biopsy findings in the control group. The incidence of gastritis and lymphoplasmacytic infiltration was higher in HIV negative group though not statistically significant.

Among HIV positive patients who were also RUT positive approximately 80% had abnormal histopathological findings. Similarly, among the RUT positive control 81% of the patients had abnormal biopsy findings.

Table 3: Biopsy findings among HIV positive and controls.

Biopsy findings	Study group		Control group	
	No.	%	No.	%
Normal	38	37.6	31	29.2
Antral gastritis/body gastritis	56	55.4	63	59.4
Lymphoplasmacytic infiltration	4	4	10	9.4
Adenocarcinoma	1	1	1	1
Intestinal metaplasia	2	2	1	1
Total	101	100	106	100
P value	0.2582 (Not significant)			

Incidence of normal biopsy findings was more in the control group (57.1%) compared to the study group (48.4%). But this difference was not found to be statistically significant.

Table 4: Biopsy in RUT positive cases in both cases and controls.

Biopsy findings	RUT positive cases			
	Study group		Control group	
	No.	%	No.	%
Normal	8	20.5	15	19.2
Antral gastritis/body gastritis	27	69.2	52	66.7
Lymphoplasmacytic infiltration	1	2.6	10	12.8
Adenocarcinoma	1	2.6	0	0
Intestinal metaplasia	2	5.1	1	1.3
Total	39	100	78	100
P value	0.9345 (Not significant)			

Table 5: Biopsy in RUT negative cases in both cases and controls.

Biopsy findings	RUT negative cases			
	Study group		Control group	
	No.	%	No.	%
Normal	30	48.4	16	57.1
Antral gastritis/body gastritis	29	46.8	11	39.3
Lymphoplasmacytic infiltration	3	4.8	0	0
Adenocarcinoma	0	0	1	3.6
Intestinal metaplasia	0	0	0	0
Total	62	100	28	100
P value	0.5881 (Not significant)			

DISCUSSION

A comparative study was carried out in the department of General Medicine to study the gastrointestinal endoscopic findings among HIV positive patients and compare them with HIV negative patients for a period of two years. 101 cases who were HIV positive were compared with equal number of HIV negative subjects.

The subjects in the case group as well as control group were chosen randomly. There was a significant lower incidence of *Helicobacter pylori* positivity (38.6%) among HIV positive patients when compared to controls (73.6%). There were overall 63 patients with abnormal biopsy findings in HIV group and 75 patients with abnormal biopsy findings in the control group.

It was observed that though the RUT was negative, 51.6% of these patients had abnormal biopsy findings. Similarly, 42.9% of control patients who were RUT negative had abnormal biopsy findings. The incidence of

gastritis in controls was 20% when compared to 3% in HIV cases.

Among the control group, *Helicobacter pylori* positivity was seen in 82.1% of patients with gastritis and patients who had intestinal metaplasia, adeno-carcinoma and 100% of patients who had lympho-plasmocytic infiltrations were *Helicobacter pylori* positive. Hence *Helicobacter pylori* has proven to be the most common cause of gastritis in general population as shown in world literature.⁶⁻⁹

One conflicting observation noted in this study was the presence of significant gastritis (50%) in HIV patients who were RUT negative. Other causes of gastritis in HIV patients are opportunistic infections such as gastric cytomegalovirus infection, herpes, toxoplasmosis and cryptosporidiosis.

But neither did authors find any endoscopic lesions or biopsy findings suggestive of these organisms in our cases. Due to the patchy distribution of these organisms multiple biopsy samples are required and also these organisms require immuno-histological staining and cultures. Reaching a specific diagnosis of gastritis in HIV patients has been difficult in many studies. In two studies, Rolston et al, and Lim SG et al, in which patients with HIV and gastro-duodenal disease underwent endoscopy with biopsies specific diagnoses could be made in only 42% and 46% of patients respectively.^{10,11}

Anti retroviral therapy is yet another possibility for dyspepsia and gastritis in HIV patients, as noticed in study conducted by Wernet-Silva AL et al.¹² In present study 13 patients on anti retroviral therapy showed gastritis in the absence of *Helicobacter pylori* positivity. Also, authors have not found any cases of Kaposi's sarcoma or lymphoma in our biopsy samples of HIV patients. May be a higher sample size would have demonstrated these.

CONCLUSION

The histology of gastric mucosa was no different in *Helicobacter pylori* positive or negative subjects with HIV. But *Helicobacter pylori* incidence was significantly more in HIV positive persons compared to HIV negative.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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