

Screening positive for the virus patients' stool components for Infection with *Helicobacter*.

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ABSTRACT

A bacteria called *Helicobacter Pylori* inhabits human stomach mucous and naturally colonises people. There is ample evidence linking stomach *H. pylori* colonisation to gastric cancer, peptic ulcer disease, and chronic gastritis. The purpose of this study was to use PCR to detect the presence of *H. pylori* in the faeces of HIV-positive patients. Subjects included forty-three patients with verified HIV infection. Precise primers for *hpaA* (flagellar sheath adhesin) and *ureB* (urea amidohydrolase) of *Helicobacter pylori* were created, and the existence of the *Helicobacter* genome was examined using the PCR technique. Thirty patients (69.76%) had *H. pylori*, while 35 patients (81.39%) had a CD4+ count < 200. The results of screening HIV-positive patients' stool for *H. pylori* bacteria indicate that this bacterium is highly prevalent in these patients. This prevalence is comparable to that of *H. pylori* in the population that is not HIV-positive.

Keywords : *Helicobacter pylori*, HIV, flagellar sheath adhesin (*hpaA*), urea amidohydrolase (*ureB*), gastric.

INTRODUCTION

The helical, flagellate, gram-negative bacillus *Helicobacter pylori* (*H. pylori*) inhabits the gastrointestinal mucous of humans by nature. According to Frenck et al. (2003), the prevalence of *H. pylori* infection among teenagers in the United States is 20%, but infection rates in poor nations surpass 90%. There is ample evidence linking stomach *H. pylori* colonisation to gastric cancer, peptic ulcer disease, and chronic gastritis (Everhart, 2000). Even so, only a small percentage of infected people progress beyond gastritis to form peptic ulcers or stomach cancers, despite the high rate of infection.

Eighty percent of people in Iran have *H. pylori* infection. *H. pylori*-related gastritis has been reported to occur less frequently (that is, in 5 to 59% of cases) in adult patients with acquired immunodeficiency syndrome (AIDS) than in immunocompetent subjects in HIV-infected patients.

MATERIALS AND METHODS

43 patients with proven HIV infection who were either hospitalised or routinely visited the hospital for infection monitoring were included in this study. Every sample was taken from the Imam Khomeini Hospital's sexual infection control centre in Tehran, Iran. We encountered difficulties compiling all demographic data due to hospital privacy policies restricting access to patient data. Formalin and sterile containers were used to collect patient stools for sample collection. A positive control, *H. pylori* 26695, was employed. The stool was suspended in 400 millilitres of TE buffer (pH 8.0, 10 mM Tris-HCL, 1 mM EDTA, or ethylenediaminetetraacetic acid), filtered, and then DNA extraction was performed.

RESULTS

The age range of the 43 patients (20–52 years old; 38 men and 5 women) included a history of stomach ulcers as well as proven HIV infection. Patients' peripheral CD4+ lymphocyte counts were recorded from their medical records; 81.39% of the patients, or 35, had counts below 200. Seventy-five percent of the patients had received antibiotic therapy. The presence of *H. pylori* and CD4+ count did not significantly correlate (*P* value > 0.05). Through the use of *hpaA* and *ureB* screening, 30 patients (69.76%) with HIV infection had *H. pylori* detected in their stool. Both *ureB* and *hpaA* were present, which supported the results.

DISCUSSION

Over 33.2 million individuals worldwide are presently infected with HIV/AIDS, and the disease has already claimed almost 21 million lives (UNAIDS, 2008). There is debate on the prevalence of *H. pylori* in HIV patients, however reports indicate that it is significantly lower than in non-HIV infected people (Chiu et al., 2004; Blondon et al., 1998; Nielsen et al., 1995; Fabris et al., 1997). The purpose of this study was to determine whether HIV-positive individuals who were admitted to our hospital or just visited would have *H. pylori*. In order to identify *H. pylori* in the faeces of HIV-positive patients, we amplified two of

the bacteria's conserved genes. It is yet unknown what the decreased rates' results mean (Shelton et al., 1998; Benz et al., 1993). A causative agent in some studies is thought to be the variation in the ratio of CD4\CD8 in the gastric mucosa between HIV patients with and without *H. pylori* infection. The concept states that a distinct presentation of *H. pylori* infection may be linked to CD4 cells, which are reduced in AIDS patients (Yamaoka et al., 2002; Scarpellini et al., 2001; Bamford et al., 1998). Another theory explains the reduced incidence observed in this population: HIV-positive patients' regular use of antibiotics may cause *H. pylori* to be eradicated from the stomach mucosa.

According to recent research, screening for the presence of *H. pylori* by culture revealed that the infection has spread from 48.9% of people. *H. pylori* was also discovered in 41.1 to 51% of patients in another study (Olmos et al., 2004; Fabris et al., 1997). Patients with advanced immunosuppression from HIV/AIDS had a greater risk of *H. pylori* infection. Previous investigations found that 80% of the examined region had *H. pylori* (Massarrat et al., 1995). In our investigation, we employed the PCR method to test for the presence of *H. pylori* in the stool of HIV-positive patients, particularly those who were immunosuppressed. We detected *H. pylori* in 69.76% of the patients. This finding was quite similar to our population's *H. pylori* prevalence. In an attempt to eliminate any false positives, we attempted to employ two conserved *H. pylori* genes, and the existence of both genes supported every result. There are many different HIV strains, which are grouped into two main categories:

HIV-1 is the most common type of the virus worldwide. HIV-2 was mostly found in West Africa, Asia, and Europe. It is possible for one HIV-positive person to carry multiple different strains of the virus at the same time. HIV continues to be one of the most serious global health threats in recent memory. 1.8 million people tested positive for HIV in 2017, and 940,000 of them passed away from AIDS-related illnesses. We agree that the AIDS epidemic can be stopped. There has been a 35% decrease in AIDS-related deaths in the area of reality where we work since 2010. More people than ever before are receiving therapy.

CONCLUSION

Finally, by testing the faeces of HIV-positive individuals for the presence of *H. pylori*, our findings demonstrated a significant prevalence of this bacterium in these patients. In actuality, this prevalence is comparable to that of *H. pylori* in the general population; nevertheless, it is unclear why this bacterium does not cause stomach symptoms in these people, and further research is required to address this issue.

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