Campylobacter-Like Organisms Are Uncommon Pathogens in Patients Infected with the Human Immunodeficiency Virus

C. MEL WILCOX,1,2 BARRY A. BYFORD,3,4 CHRISTOPHER E. FORSMARK,1,2 W. KEITH HADLEY,4,5 JOHN P. CELLO,1,2 AND MARK A. JACOBSON2,6*

Divisions of Gastroenterology1 and Infectious Diseases,4,* Medical Service,3 and Department of Laboratory Medicine and Microbiology,4 San Francisco General Hospital, San Francisco, California 94110, and Departments of Medicine3 and Laboratory Medicine and Microbiology,7 University of California, San Francisco, California 94143

Received 12 April 1990/Accepted 19 July 1990

Over a 25-month period, we prospectively evaluated 36 patients with symptomatic human immunodeficiency virus disease (including 27 with unexplained chronic diarrhea) by flexible sigmoidoscopy for the presence of Campylobacter-like organisms. No Campylobacter-like organisms were isolated. Campylobacter-like organisms appear to be an uncommon cause of idiopathic chronic diarrhea in symptomatic human immunodeficiency virus disease.

Diarrhea is one of the most common complications associated with symptomatic human immunodeficiency virus (HIV) disease. An infectious pathogen can be found in 59 to 85% of patients with this disease after careful analysis of multiple stool specimens together with an endoscopic evaluation (3, 5). Although typical pathogenic Campylobacter species (C. jejuni, C. fetus, and C. coli) are well-recognized pathogens in patients with symptomatic HIV disease (E. Bernard, P. M. Roger, V. Bonaldi, J. P. Fournier, and P. Delfamconica. Letter. J. Infect. Dis. 159:143–144, 1989), recent studies suggest that other Campylobacter-like organisms (CLOs) may be pathogens as well (1, 2). Given these observations, we undertook a prospective study to determine the role of CLOs in our patients with HIV-associated diarrhea.

Over the 25-month period from January 1988 to January 1990, all patients referred to the Division of Gastroenterology at the San Francisco General Hospital for sigmoidoscopy were eligible for participation. Study patients were randomly selected from patients with acquired immunodeficiency syndrome (AIDS) or AIDS-related complex or from patients at risk for HIV disease who were referred because of diarrhea or symptoms of proctitis (anorectal pain, rectal discharge or bleeding, or urgency). A control group was randomly selected from patients referred because of both diarrheal and nondiarrheal gastrointestinal disorders. Multiple stool specimens from patients with symptomatic HIV disease were routinely evaluated for bacteria, ova, and parasites (including cryptosporidia) prior to sigmoidoscopy. Patients with diarrhea were instructed to drink only clear liquids for 12 h prior to the examination. A Fleet enema (Fleet Co., Lynchburg, Va.) was used in these patients only if semiformal stools were still present at the time of sigmoidoscopy. Flexible sigmoidoscopy was performed by one of the authors with a 60-cm flexible fiberoptic sigmoidoscope. Any endoscopically identified mucosal abnormalities were brushed with a sterile cytology brush (Microvasive, Watertown, Mass.). If no abnormalities were seen, samples were taken from the distal colon or rectum by brushing overlying mucus on mucosa that appeared normal. Following mucosal brushing, the cytology brush contents were transferred by swabbing to the surface of media on each of two Skirrow culture plates (4). Next, the cytology brush tip was cut off with sterile scissors into a tube of brucella broth. After the samples (for CLOs) were obtained, all endoscopically identified abnormalities were biopsied and submitted for routine histopathologic testing and viral culturing. The samples were immediately transported to the laboratory for processing. The protocol was approved by the University of California Committee on Human Research.

The Skirrow culture plates (4) were incubated under microaerobic conditions (5% oxygen, 10% carbon dioxide, and 85% nitrogen) at 35°C for 5 days, and a duplicate plate was incubated at 42°C for 3 days. The tube of brucella broth containing the cytology brush tip was gently agitated to remove material from the brush. The broth was aseptically plated onto each of three different agar media: (i) a standard brucella blood plate; (ii) a modified brucella blood plate (a 0.45-μm-pore-size membrane was placed on a standard brucella blood plate, 5 drops of broth were pipetted on top of the membrane and allowed to sink through, the membrane was removed, and the brucella plate was incubated); and (iii) a freshly prepared CLO plate (6) (brucella agar base supplemented with 10% sheep blood and containing vancomycin [10 μg/ml], polymyxin B [25 IU/ml], trimethoprim [5 μg/ml], and amphotericin B [2 μg/ml]). These three plates were incubated for 7 days at 35°C in a jar under microaerobic conditions. Using this technique, we previously isolated CLOs (C. fennelliae) from 1 of 720 stool specimens submitted to the San Francisco General Hospital Microbiology Laboratory. As a positive control, C. fennelliae, C. cinaedi, and C. lariiders were suspended in Alibms brucella broth (GIBCO Diagnostics, Madison, Wis.) to the turbidity of a 0.5 McFarland standard. Aliquots (10 g) of stool specimens were seeded with 1 ml of an undiluted or 1:10-diluted suspension of each CLO, resulting in approximately 100,000 or 10,000 CFU/g of stool, respectively. Seeded stool specimens were plated onto each of the three agar media. All stool cultures on all three media were positive for CLOs.

Of the 52 patients evaluated, none had positive cultures for CLOs. Twelve patients (controls) were evaluated for diarrhea, rectal bleeding, or abdominal pain. Of the 36 patients with HIV infection, all but 3 were homosexual. Three of the four patients with risk factors for HIV infection

* Corresponding author.
also were homosexual. Of the 32 patients with AIDS-related complex or AIDS and diarrhea, 5 (16%) had pathogens identified by a routine stool examination (cryptosporidia, 2 patients; Mycobacterium avium complex, 1 patient; Isospora sp., 1 patient; and Endolimax nana, 1 patient). In four additional patients, one or more pathogens were identified by sigmoidoscopy and biopsy (cytomegalovirus, two patients; herpes simplex virus type 1, one patient; and cytomegalovirus and M. avium complex, one patient).

For a nonelected group of patients with and without HIV disease (including 27 with symptomatic HIV disease and previously unexplained chronic diarrhea) referred to the Division of Gastroenterology at the San Francisco General Hospital for sigmoidoscopy, we were unable to identify any CLO infections. Our findings contrast with those of a previous study in Seattle (2) and may be partially explained by the patient populations studied. Quinn et al. (2) found CLOs in anoscopically obtained rectal swabs in 8% of asymptomatic and 16% of symptomatic homosexual or bisexual men. Their patient population consisted of homosexual or bisexual men attending a sexually transmitted diseases clinic. Nearly all the men in each group engaged in receptive anal intercourse and oral-anal contact. On the other hand, Laughon et al. (1) found CLOs in 1.2% of asymptomatic and 8.2% of symptomatic homosexual or bisexual men. As in our study, no individual with AIDS had CLOs identified through anorectal swabbing. Current sexual practices were not reported.

The difference in the frequency of CLO isolation cannot be readily explained by differences in culture techniques. As in the above-mentioned studies (1, 2), special isolation media were used for CLOs. In fact, the sensitivity might be expected to be greater in our study than in the previously mentioned ones, since we directly sampled abnormal colonic mucosa and immediately transferred the samples to Skirrow plates.

In summary, CLOs appear to be an uncommon cause of idiopathic chronic diarrhea in a predominantly homosexual population with symptomatic HIV disease.

We thank Muriel Osugi for invaluable assistance in the processing of the specimens.

**LITERATURE CITED**


