

Clinical Observation of *Vibrio parahaemolyticus* Infections In Thailand

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OBJECTIVE: To determine the prevalence and clinical pattern of *V. parahemolyticus* gastroenteritis in Thai patients, and to evaluate the efficacy of common antimicrobial agents in the treatment of the disease.

BACKGROUND: Studies on *V. parahemolyticus* infection in Thailand were initiated by SEATO Medical Research Laboratory (SMRL) in 1970. The preliminary study indicated that *V. parahemolyticus* is a major cause of gastroenteritis in adults in Bangkok (1). At the Bumrasnaradura Infectious Disease Hospital located in Nonthaburi, this organism has been isolated from approximately 25% of the diarrheal patients admitted to the hospital ward. Marine life and the marine environment, including sea water, sea fish, crabs, oysters, etc., have been found heavily contaminated with this halophilic bacillus throughout the year. These findings suggest that sea foods may be the major source of the *V. parahemolyticus* diarrheal outbreaks in this community. The detailed clinical picture of this disease, its mode of transmission in Thailand, and the efficacy of antimicrobial therapy have not been previously described.

DESCRIPTION: All patients admitted to the Infectious Disease Hospital, Nonthaburi, with symptoms of acute gastroenteritis between September 1973 and February 1974 were included in the study. Rectal swabs for bacterial cultures were obtained daily for 3 consecutive days. Those patients with positive stool cultures for *V. parahemolyticus* were selected for the study as soon as they were identified.

RESULTS:

Clinical Manifestations of V. parahemolyticus Gastroenteritis.

Sixty-six patients admitted to the hospital during the study period were found to harbor *V. parahemolyticus* in their diarrheal stools. Only 42 of these patients were available for the clinical analysis (Table 1). The disease was characterized by acute, profound diarrhea with fever, nausea and vomiting. Consistency of the stool was watery or semisolid without mucus. Only one patient presented with bloody stool. Colicky abdominal pain was a prominent symptom. Fifty-seven (88%) of these patients had a history of sea food ingestion.

Sensitivity of V. parahemolyticus to Antimicrobial Agents.

Sensitivity profiles of the vibrios isolated from the patients are presented in Table 2. Using the standardized single disc method of Bauer and Kirby (2), it was found that the majority of the isolates (94% to 100%) were sensitive to chloramphenicol, tetracycline, co-trimoxazole, neomycin, erythromycin and streptomycin. Only 3% and 15% of the vibrios tested were sensitive to ampicillin and colistin respectively.

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Table 1. Clinical Findings of *V. parahemolyticus* Gastroenteritis

Symptoms	Number of Patients	%
Characteristics of the stools		
Watery	29	69
Semisolid	13	31
Bloody	1	2
Mucus	0	0
Vomiting	32	76
Fever	7	17
Headache	19	45
Abdominal pain	38	90
History of sea food ingestion	37	88
TOTAL	42	

Table 2. Sensitivities* of *V. parahemolyticus* to 8 Antimicrobial Agents

Antimicrobial Agents	No. of Strains Tested	Sensitive	Intermediate Sensitivity	% Sensitive
Chloramphenicol	66	66	—	100
Tetracycline	66	35	31	100
Ampicillin	66	1	1	3
Colistin	66	6	4	15
Co-trimoxazole	66	66	—	100
Neomycin	66	17	48	98
Erythromycin	66	29	36	98
Streptomycin	66	13	49	94

* Sensitivity is based on Zone—Site Interpretation Chart (2).

Antimicrobial therapy trials comparing oral tetracycline, co-trimoxazole and placebos are being continued. Three groups of patients, 14 in each group, were compared in terms of age, sex and severity of the disease at the time of the admission. Data from these trials will be presented at a later time.

DISCUSSION: The patients in this study probably represent only a small proportion of the total illness in the population. Diarrheal patients are hospitalized only if the illness is severe. The clinical syndrome we observed in these patients, therefore, may represent only the severe form of the infection. A complete clinical picture of the mild form of the disease needs to be described.

The fact that patients were suffering from diarrheal symptoms without bacteremia or toxic symptoms suggests that the infection may localize in the lumen of the intestine. Previous experiments on the pathogenicity of *V. parahemolyticus* by using the infant rabbit model indicated that the organism elaborated toxic substances, presumably the enterotoxins, into the intestinal fluid (1). Enterotoxic substances may play a major role in the pathogenesis of this disease.

SUMMARY: The clinical picture of *V. parahemolyticus* gastroenteritis and the sensitivities of the organism to 8 antimicrobial agents *in vitro* are described. Patients exhibited a febrile diarrhea with abdominal pain in the majority of the cases. Stools were watery or semisolid without bloody mucus. The majority of *V. parahemolyticus* strains isolated from the patients were sensitive to chloramphenicol, tetracycline, co-trimoxazole, neomycin, erythromycin and streptomycin, but resistant to ampicillin and colistin.

REFERENCES:

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2. Bauer, A.W., Kirby, W.M., Sherris, J.C., and Turck, M.: Antibiotic susceptibility testing by a standardized single method. *Am. J. Clin. Path.* 45: 493, 1966.