

An outbreak of hepatitis A caused by consumption of raw oysters

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(Received 26 October 1982; accepted 1 March 1983)

SUMMARY

An outbreak of hepatitis A occurred among the members of the Japan Overseas Corporation Volunteers (JOCV) stationed in the Philippines. Seven out of 10 youths who ate, but none of five youths who did not eat raw oysters developed hepatitis. All these seven cases were positive for hepatitis A antibody (anti-HAV) and six of them were also positive for anti-HAV IgM (immunoglobulin M) 111 days after the infection.

Various foods including raw oysters, green salads and others are responsible for the transmission of hepatitis A (James & Wilbert, 1962; Osterholm *et al.* 1980, Latham & Schable, 1982). We report here an outbreak of hepatitis A among the Japanese Overseas Corporation Volunteers (JOCV) which was attributed to the consumption of raw oysters.

A reunion party of 15 youths, 14 males and a female, was held at a town in the northern Luzon Island from the evening of 17 October to the morning of 19 October 1980. All attendants took the same meals during the reunion, although some youths did not attend the whole party. The raw oysters were consumed on 18 October by 10 youths. The first case of hepatitis developed on 9 November, 22 days later. This was followed by a case each on 11, 13, 17 and 19 and two cases on 15 November.

All 15 attendants were investigated regarding the foods consumed during the party and the occurrence of hepatitis. Clinical laboratory data were obtained from the hospital in Bauio where the patients were admitted. Ten ml of blood were taken twice, 111 and 291 days after ingestion of the suspected meal. The sera were sent to the laboratory in Tokyo, and serologic tests for total antibody to hepatitis A virus (anti-HAV) and anti-HAV IgM were performed using commercial radio-immunoassay kits (HAVAB[®], Abbott Laboratories). The tests were carried out according to the manufacturer's instructions. Sera obtained before their assignment overseas were available from 8 of the 15 attendants and they could be investigated by examining paired serum specimens. Serological tests for hepatitis B surface

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Table 1. *Food consumption and hepatitis A among party attendants*

Date	Food	Food consumed			Food not taken			<i>P</i>
		Total	Hepatitis		Total	Hepatitis		
Yes	No		Yes	No				
17 Oct.	Barbecue	11	5	6	4	2	2	ns*
	Fried egg, vegetables	10	5	5	5	2	3	ns
18 Oct.	Curry rice, baked scallop	8	5	3	7	2	5	ns
	Raw oysters	10	7	3	5	0	5	0.0186
	Miscellaneous, no raw food	11	7	4	4	0	4	ns
19 Oct.	Toast and fried egg	10	7	3	5	0	5	0.0186

* ns = not significant.

antigen (HBsAg) and antibody (HBsAb) were performed employing commercial radioimmunoassay kits (Fuji Zoki Co., Tokyo).

The mean values of the age, incubation period, the maximal serum alanine aminotransferase (SALT) in i.u./ml, and total bilirubin during admission of seven male patients were 24.4 years, 26.9 days, 442.1 i.u./ml and 127 μ M/ml, respectively. The investigation of the foods consumed and the development of hepatitis revealed a significant relation as regards the consumption of raw oysters on 18 October and that of toast and fried egg on 19 October. Seven out of 10 youths who ate these foods developed hepatitis, while none of 5 youths who did not take them became ill (Table 1, $P = 0.0186$, Fisher's exact test). We incriminated raw oysters as the most likely food responsible for hepatitis and excluded toast and fried egg as unrelated to the illness.

None of eight pre-assignment serum specimens, including six from individuals who developed hepatitis, was positive for anti-HAV. The serum specimens obtained 111 days after exposure to raw oysters were positive for anti-HAV in all seven patients. Anti-HAV IgM was positive in six out of seven patients. A youth who did not consume raw oysters was positive for both anti-HAV and anti-HAV IgM. He had hepatitis seven months before the reunion, that is 11 months before he was bled. The serum specimens taken 291 days after exposure revealed the following. Seven hepatitis patients were positive for anti-HAV and two of them were still positive for anti-HAV IgM. Out of five youths who did not eat raw oysters at the reunion, the one who was seropositive at 111 days was positive for anti-HAV alone, while another of them had become positive for both anti-HAV and anti-HAV IgM. This latter individual had developed hepatitis four months before the second bleeding. The pre-assignment serum specimens of these two youths were negative for anti-HAV. The serological tests for hepatitis B revealed no significant results.

The study indicates a high prevalence of hepatitis A in the Philippines and susceptibility of antibody-negative youths to the infection. All eight youths from whom a pre-assignment serum specimen was available were found to be negative

for anti-HAV and all became ill with hepatitis in less than a year. The usefulness of serological methods for the retrospective analysis of cases of hepatitis (Latham & Schable, 1982; Skidmore *et al.* 1982) was confirmed.

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