

***Vibrio vulnificus* hazard in patients with liver disease.** Kenneth W. Kizer

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Vibrio cholerae has been long recognized as a human pathogen, but only in recent years has the pathogenicity of other Vibrionaceae been recognized. Eleven species of *Vibrio* are now known to be capable of causing serious human illness. Among these, *Vibrio vulnificus* is the most important in the United States.

Vibrio vulnificus is a naturally occurring marine bacterium found most often in warm ocean waters, such as the Gulf of Mexico. Humans may be exposed to the bacteria by swimming or wading in seawater or by eating raw seafood. Eating raw oysters is now recognized as the primary mode of acquiring *V vulnificus* infection in the United States. Indeed, *V vulnificus* has emerged as the leading cause of death from food-borne illness in some areas of the country.

In the 12-year period 1981 through 1992, 72 cases of *V vulnificus* infection from eating raw oysters were reported in Florida; half of these persons died. These 36 deaths accounted for 80% of all food-borne deaths in Florida during this period. (Of note, eight of the nine other food-borne illness fatalities in Florida during these 12 years were due to infection with other *Vibrio* species.) The case-fatality rate (63%) among patients with liver disease was nearly three times higher than for persons with normal livers. During 1991 and 1992, eight of nine persons dying of *V vulnificus* infection after eating raw oysters in Florida had liver disease.

In California, where *Vibrio* infections were made a reportable condition in 1988, a similar relationship between *V vulnificus* infection, raw oysters, and liver disease has been noted. From January 1983 through July 1993, 24 cases of *V vulnificus* infection were reported to the California Department of Health Services; 18 of these persons (75%) died-almost all of primary septicemia. In 15 of the 24 patients (63%) there was a definite history of eating raw oysters before the onset of illness. In all cases where the source of the oysters could be determined, they were from the Gulf Coast. Of the 24 infected persons, 19 (80%) had an underlying chronic illness; in 16 of them (85%) the condition was alcoholic cirrhosis or other liver disease.

The risk of infection after ingesting raw oysters harboring *V vulnificus* in persons having underlying liver disease is 30 times greater than in normally healthy persons, and the risk of death is more than 200 times greater. Even with the advanced medical treatment, persons having liver disease have a 50% to 60% case-fatality rate in the event of *V vulnificus* septicemia.

Because *V vulnificus* is a naturally occurring bacterium whose presence is not due to sewage or other contamination, there are no sanitation or other public health controls that can limit the harvesting of oysters to only areas free of the pathogen. For this reason, California enacted regulations in 1990 requiring restaurants and other establishments that serve or sell Gulf Coast oysters to warn prospective purchasers about possible ill effects. (The regulations also specify requirements for tagging, labeling, and records retention to facilitate prompt identification of the source in the event of illness.) More recently both Florida and Louisiana have enacted similar regulations, and some other states are considering taking action as well.

Although a growing number of areas require a public warning about the potential of raw oysters to cause serious illness in immunocompromised persons, clinicians must advise their patients with liver disease of the potential for illness and death from *V vulnificus* infection secondary to eating raw oysters, even though the oysters have been legally harvested and properly handled. Indeed, persons with liver disease should be strongly advised not to eat any seafood that has not been thoroughly cooked. Likewise, persons having liver disease or who are immunocompromised from other causes should be advised that serious and possibly fatal *V vulnificus* soft tissue infection may result from marine trauma or when open wounds are exposed to seawater. Marine-acquired wounds in immunocompromised persons must be closely observed, and even minor wounds may warrant antibiotic treatment with oral tetracycline, the combination product trimethoprim and sulfamethoxazole, or a quinolone.

REFERENCES

California Department of Health Services. To eat or not to eat (raw shellfish): I - *Vibrio vulnificus* infections in California - A ten-year review. Calif Morbidity, Aug 13. 1993, Nos. 31 and 32 Centers for Disease Control and Prevention: *Vibrio vulnificus* infections associated with raw oyster consumption - Florida, 1981-1992. MMWR 1993; 42:405-407 Hlady WG, Mullen RC, Hopkins RS: *Vibrio vulnificus* from raw oysters. J Florida Med Assoc 1993; 80:536-538