

Norovirus outbreak among nursing home residents and staff in Clare, Michigan

V Subbanna, S Rama

Citation

V Subbanna, S Rama. *Norovirus outbreak among nursing home residents and staff in Clare, Michigan*. The Internet Journal of Geriatrics and Gerontology. 2008 Volume 5 Number 1.

Abstract

On 23 January 2009, an outbreak of gastrointestinal infection in a nursing home was reported to the public health authorities in Clare, Michigan. The Michigan State Public Health authorities were notified and they obtained stool samples of their own and confirmed the diagnosis of Norovirus. The medical director and appropriate State authorities should be notified immediately to obtain orders regarding care and investigations. All common kitchen items, dining items and ice machines must be sanitized. Direct care givers must follow enhanced hand washing and hygienic procedures to prevent spread. Switching the nurses, aides and other caregivers from other floors should be avoided to prevent spread in new or uninfected regions. The facility should be closed for new admissions or readmissions until no new symptoms are reported. The visiting family members must maintain the same hygienic procedures as staff to prevent spread and being self-infected.

On 23 January 2009, an outbreak of gastrointestinal infection in a nursing home was reported to the public health authorities in Clare, Michigan. The investigation revealed Norovirus as the cause of this outbreak.

The first symptomatic resident was on 18 January 2009. The medical director of the nursing home was informed and the resident was placed on contact isolation suspecting possible *Clostridium difficile*. There was an epidemic peak on the 23 January when further studies were ordered and stool samples were sent out for investigation, of which, 5 were positive for Norovirus.

The Michigan State Public Health authorities were notified and they obtained stool samples of their own and confirmed the diagnosis of Norovirus.

The facility was closed for new admissions and notices were placed at the entrance regarding a possible gastrointestinal infection. However, two (2) admissions were approved before the epidemic in spite of the outbreak because the residents wanted to be closer to their family members in Clare, Michigan. Among the two (2) new residents one (1) developed symptoms three days later and was positive for Norovirus. None of the residents needed to go to hospital for treatment.

There were 53 staff members who became symptomatic during this outbreak. All the staff members were asked to

follow up with their primary care physician. The frontline staff involving LPN nurses and aides could return to work after they were symptom free for 12 hours. However, the kitchen and the dietary staff could not return to work until they were symptom free for no less than 72 hours.

The last symptomatic case was on 11 February 2009. No more stool samples were obtained after 25 January 2009. All symptomatic cases were presumed to be Norwalk virus and were treated accordingly.

EPIDEMIOLOGICAL INVESTIGATION

The following case definition was used: A probable case was defined as any resident or employee of the nursing home or their household contact with an acute onset of diarrhea (>3 loose stools/day), vomiting, fever (>37°C), or abdominal pain from 18 January 2009.

Among the 105 residents of the nursing home, 55 cases were identified (16 male, 39 female).

No cases were identified among the staff household contacts or among visitors of the residents. The most frequent symptoms were diarrhea (73%), vomiting (40%), abdominal pain (33%), malaise (30%), and fever (10%). The duration of symptoms ranged from 1 to 2 days.

LABORATORY ANALYSIS

Stool samples from 20 patients with an onset of symptoms

were taken for culture, parasitic ova, and parasites. The samples were also tested for rotaviruses and noroviruses, *Clostridium difficile*, *Salmonella*, *Shigella*, *Campylobacter*, enteropathogenic, enterotoxigenic, and enterohaemorrhagic *Escherichia coli*.

Six samples were negative for all tested pathogens and Norovirus was identified in 14 samples. No other laboratory tests for Norovirus have been performed.

CONTROL MEASURES

A sanitary and hygienic inspection of the kitchen and the dining room was performed and the ice machines were inspected. No obvious causes were seen or reported.

During the outbreak, enhanced hand hygiene practices were implemented, and disinfection was recommended besides the usual cleaning of dishes and tableware as well as the toilets and doorknobs. Special recommendations for people handling food were also issued. The ice machines were cleaned. The kitchen staff and dietary department were isolated and not allowed to come and distribute the food. The floor nurses took the trays and distributed the food to the patients.

TREATMENT

Brat or clear liquid diet for all symptomatic residents until resolved. Since most of the residents were frail and elderly, a basic metabolic panel, vitals every shift and intake, and outputs were monitored on a regular basis. No new foley catheters were placed for this purpose.

DISCUSSION

Norovirus is an RNA virus of the Calciviridae family. This virus is transmitted by fecally contaminated food or water and by person-to-person contact. Therefore it is essential to first isolate and then identify the source of infection.

The medical director and appropriate State authorities should be notified immediately to obtain orders regarding care and investigations.

All common kitchen items, dining items and ice machines must be sanitized. Direct care givers must follow enhanced hand washing and hygienic procedures to prevent spread.

Switching the nurses, aides and other caregivers from other floors should be avoided to prevent spread in new or uninfected regions.

The facility should be closed for new admissions or readmissions until no new symptoms are reported. The visiting family members must maintain the same hygienic procedures as staff to prevent spread and being self-infected.

Following the outbreak the existing policy on handling outbreaks was revised. The new policy emphasizes more on hygiene and hand washing techniques.

ACKNOWLEDGMENTS

I would like to thank Sirisha Madipatla Venkata Rama, MD for helping me with writing this manuscript.

References

Author Information

Vijay Kumar Gorintala Subbanna, MD, MPH

Geriatrician, Synergy Medical Education Alliance 1000 Houghton Ave. Saginaw, MI 48602

Sirisha Madipatla Venkata Rama, MD

PGY-2 Internal Medicine Synergy Medical Education Alliance 1000 Houghton Ave. Saginaw, MI 48602