
Mercedes de Simón, Antonio Moreno, Efren Razquín, Sandra Manzanares, Susana Guix, Angela Domínguez
Impact of NV infections in nursing homes

- Particulary vulnerable patient population.

- NV introduction by infected patients, staff, visitors or contaminated food.

- Rapid spread of secondary infections: static environments, high levels of contact and reduced personal hygiene. Environmental surfaces contamination.

- Difficult outbreak onset identification.
Objectives

- Determine epidemiological characteristics of outbreaks occurred in nursery homes in the city of Barcelona between January 1, 2011 and October 31, 2015.

- Explore the circumstances of reporting and its possible association with severity of outbreaks.

- Evaluate the effectiveness of the RT-PCR technique to confirm NV outbreaks.

- Characterize the NV strains involved in outbreaks.
Epidemiological Surveys

Data documented in outbreaks:
- Notification date
- Date of onset of first case and the last one
- Total number at-risk of illness (resident and staff)
- Total number ill (resident and staff). Hospitalisations and deaths

Laboratory Testing. Confirmation of outbreaks.
- Collection of faecal specimens of resident and staff (> 2 specimens collected per outbreak)
- Suspected food involved in food-borne associated outbreak

Control measures and follow up of outbreaks.
10 outbreaks were analysed for NV detection and identification of genogroup I, II:

**Real Time RT-PCR (CEERAM Tools NoV GI & GII Detection kit)**
ASPB Laboratory

In 4 outbreaks NV strains were genotyped:

**Sequencing by RT-PCR semi-nested (Noronet Genotyping Tool).**
Enteric viruses Laboratory. UAB.

In 1 outbreak microbiological investigation of enteropathogens in food items was performed.

ASPB Laboratory
Results. Epidemiological data.

- 37 NV outbreaks were reported over 2011-2015.
  12 outbreaks occurred in nursery homes: 32.4%.

- Global attack rate among residents: 26.7% (285 ill /1064 exposed)

- Global attack rate among staff members: 23.3% (49 ill /210 exposed)
  (Outbreaks included in analysis: 6)

- Average global attack rate among outbreaks: 39.2%.
  Range 20.3% - 52.3%. (Outbreaks included in analysis: 6)
Results. Epidemiological data

- Symptoms were mild. Two residents hospitalized and one died.
  - Lethality: 0.3%
  - Mean duration of symptoms: 2.2 days (1-7 days)

- Means of transmission: 90.9% interpersonal (one food borne outbreak with interpersonal secondary cases)

- Seasonality: 83.3% in autumn-winter months (one outbreak in July)

- Duration of outbreaks: 4-90 days.
  - Median: 10 days. Mean: 16.5 days
Results. Outbreak reporting

- 42% of outbreaks were not reported by nursery homes (primary health care…)

- Days to reporting: 1 - 85
  - Median: 7
  - Mean: 14

- Cases before reporting: 5 - 71
  - Median: 16
  - Mean: 25
  - 36.3% were reported after the last case

- The delay in reporting >10 days was statistically associated with a higher attack rate.
Distribution of cases in an outbreak with delayed notification.

Outbreak data:
- 85 days to notification
- 79 total cases
- 71 before notification
- 90 days duration
Results. Laboratory testing.

- In all outbreaks with faecal specimens sent to laboratory (n=10) the presence of NV was confirmed.

- Average NV detection rate in faecal specimens: 61.4% (5% - 87.5%).

- In nine outbreaks (90%) genogroup G.II was detected in both residents and staff. In the July outbreak G.I was detected.

- NV GII.4 was identified in 3 outbreaks and GII. 6 in one outbreak (n=4)

- No bacterial enteropathogens detected in food items in food-borne outbreak. NV presence was not analyzed.
Conclusions

- The NV outbreaks in nursery homes in Barcelona are common and place a considerable burden on residents, facilities and on public resources.

- The attack rates among residents and staff are similar.

- The interpersonal transmission of NV in nursing homes is the most frequent.

- The NV strains detected in nursery homes outbreaks are the circulating ones in the community.

- Long delay in reporting is usual in nursery homes and is associated with higher outbreak attack rates.
Control of NoVs outbreaks in nursery homes remains a challenge

- Encourage nursery homes to notify any gastroenteritis outbreak and notify it promptly.

- Promote early recognition of progressive NV infection transmission. Identification of digestive symptoms threshold.

- Meticulous enforcement of infection control measures and prevention by administrators and staff.
This study is only an approach to a very complex problem

THANK YOU

MOLTES GRÀCIES