Acute Flaccid Paralysis: 17-year’s active epidemiological surveillance in a pediatric hospital in Buenos Aires

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BACKGROUND AND AIMS

- Although poliomyelitis is eliminated in the Americas, there is still the possibility of having imported cases.
- The surveillance of acute flaccid paralysis (AFP) is a key strategy for monitoring the progress of poliomyelitis eradication.
- Epidemiological surveillance of AFP allows ruling out poliovirus infection and quickly detecting other etiologies causing flaccid paralysis.
- The aim of this study was to describe the epidemiological pattern of patients reported with AFP.

MATERIAL AND METHODS

- Study design: prospective, cross sectional study of patients admitted for Acute Flaccid Paralysis (AFP) between 2000 and 2016 at “Ricardo Gutiérrez” Children’s Hospital (RGCH), Buenos Aires, Argentina, a tertiary pediatric hospital serving the greater metropolitan area.
- Active epidemiological surveillance was performed with a specific case report form.
- All children aged <15 years who met the WHO definition for AFP were included. WHO defined AFP as “Any child less than 15 years of age with AFP (including Guillain-Barre syndrome) or any person of any age with paralytic illness if polio is suspected”.
- The stool samples were sent to the national reference laboratory to be tested for enteroviruses (non-polio enterovirus, poliovirus, Sabin, Sabin-derived) in compliance with the AFP protocol. Samples must be collected within 14 days of the onset of paralysis with adequate volume (approximately 8-10g) and with appropriate documentation (i.e. laboratory request form).
- Statistical methods: Epinfo 7 was used for data analysis.

Population

- a total of 174 cases were included
- median age was 62 months (IQR: 29-108)
- 53.5% were males.

Epidemic curve of AFP cases per year. 2000-2016

Results

- 137 (79%) stool samples were tested and no poliovirus was isolated.
- No seasonality pattern was observed along the study period.

Epidemic curve of AFP cases per month. 2000-2016

- The median time between the onset of the paralysis and the admission was 4 days (IQR 2-9).
- Symmetric paralysis (78%) without progression was more frequent clinical presentation.
- The median length of stay at the hospital was 9 days (IQR 1-17).
- None of the patients was diagnosed as having acute poliomyelitis or polio-compatible paralysis.
- Guillain-Barré syndrome was the most frequent final diagnosis.

Prodromal symptoms. 2000-2016

- Fever: 38.3% (n=65)
- Respiratory infection: 34.7% (n=24)
- Digestive: 21.2% (n=14)
- Myalgia: 34.6% (n=23)
- Meningeal: 4.8% (n=4)

AFP cases diagnosis at discharge. 2000-2016

- During winter 2016 a cluster of 6 cases of acute flaccid myelitis (AFM) associated to enterovirus D-68 was reported, 5 of them were detected by PCR in nasopharyngeal aspirates.

D-68 acute flaccid myelitis cluster (n=6) population features. 2016

Demographic   Female (4); Buenos Aires province (6); without comorbidities (6)
Polio vaccines 3 doses (2); 4 doses (2); 5 doses (2)
Prodromal Symptoms respiratory (5); myalgia (5); fever (4); meningeal (1); digestive (1)
Paralysis characteristics proximal (5), without progression (4), asymmetric (4), with cranial nerves involvement (2)
Laboratory diagnosis CSF: increased white blood cell count (4); increased protein concentration (1), albumino-cytological dissociation (1)
Stool Samples: Non polio enterovirus (1)
Electromyogram Lower motor neuron involvement (5)
Magnetic Nuclear Resonance Longitudinal myelitis (6)
Hospitalization ICU required (2), mechanical ventilation assistance (2); length of stay (median): 23 days (range: 16-240 days)
Treatment Intravenous gamma globulin (5); Systemic corticosteroids (2)
Final Diagnosis Longitudinal myelitis (6)
Sequelae Neurologic (6)

CONCLUSIONS

- No seasonal pattern was observed along the study period.
- Guillain-Barré syndrome was the most frequent final diagnosis.
- None of the patients was diagnosed as having acute poliomyelitis or polio-compatible paralysis.
- The enterovirus D-68 AFM cluster was part of an outbreak that occurred in Argentina in 2016.
  - It would be important to perform nasopharyngeal aspirates when AFM is suspected.