

Foodborne Botulism Associated with Commercial Food in the State of São Paulo, Brazil, 1997-2007

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Background

Foodborne botulism is a severe paralytic disease caused by the ingestion of food containing preformed *Clostridium botulinum* neurotoxin. Clinical illness is characterized by cranial nerve palsies, followed by symmetrically descending flaccid voluntary muscle weakness possibly progressing to respiratory compromise. In Brazil, reported cases of botulism have usually been caused by toxin type A associated with canned vegetables, fruits or meat, in general, homemade products. In the State of São Paulo, suspected cases are reported to CVE which maintains a 24-hour clinical consultation and emergency antitoxin release service (phone: 08000-55 54 66). Regional and municipal health departments conduct epidemiologic investigations of suspected cases.

Objectives

We report the findings of the botulism outbreaks investigation from 1997 to August 2007 in the State of São Paulo caused by the ingestion of commercial foods.

Methods

Study design: descriptive. Reviewing of foodborne botulism outbreaks and sporadic cases surveillance data reported to CVE, from 1997 to 2007.

Case definition: a person with botulinum toxin detected in serum, stool or gastric fluid samples or with compatible clinical illness who ate the same contaminated food as the laboratorial confirmed case.

Outbreak definition: two or more cases of botulism caused by consuming a common source-contaminated food.

Event definition: the occurrence of a sporadic case or an outbreak of botulism.

Toxin detection was performed at IAL according to standard methods (mouse bioassay).

Results

During this period, a total of nine events affected 13 people (incidence rate per year = 1.2 cases/year; fatality rate = 23.1%): seven sporadic cases and two outbreaks with four and two cases, respectively (Figure).

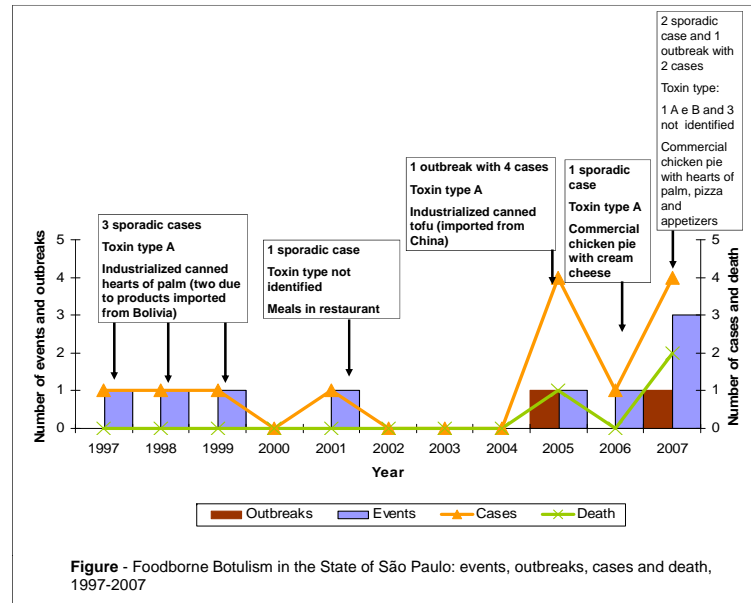


Figure - Foodborne Botulism in the State of São Paulo: events, outbreaks, cases and death, 1997-2007

Characteristics of cases (N = 13 cases)

•City of residence

- São Paulo 7 (53.8%)
- Baixada Santista 4 (30.1%)
- Others 2 (16.1%)

•Age, years

- Median 21
- Range 12-74

•Gender

- Female 7 (54%)

Type of Toxin

- A 8 (61,5%)
- A and B 1 (7,7%)
- Not identified 4 (30,8%)

Botulism x Food: Risk factors identified (N = 13 cases)

•Industrialized foods:

- Canned hearts of palm 3 (23.1%)
(2 imported from Bolivia)

Toxin type:

- Canned tofu (soybean cheese) 4 (30,8%)
(imported from China)

•Meals prepared in restaurant

1 (7.7%)

•Commercial roasted pies

5 (38,5%)

(Chicken pies with hearts of palm and/or cream cheese, pizza and appetizers prepared in bakery/roisserie/pasta house)

Trace Backs - Improper Food Processing/Handling Practices

•Improper industrialized processing of canned hearts of palm allowed germination and growth of *C. botulinum* (products presenting pH >4,6). Canned tofu, in addition to the presence of botulinum toxin, was contaminated by *B. cereus*.

•Roasted pies with chicken and cream cheese or hearts of palm and other salted products were kept at room temperature in the commercial establishments and ingested by consumers without reheating.

•It was not possible to identify the kind of food consumed by the case associated with restaurant. However, sanitary inspections of suspected restaurants frequented by the patient showed that the canned vegetables (eggplants, asparagus, etc.) were low-acid products and stored at the room temperature.

Conclusions

Foodborne botulism, while rare, remains an important public health emergency. Industrialized/commercial foods were responsible for the cases and outbreaks in the State of São Paulo. Cases associated with canned hearts of palms and roasted foods showed failures in manufacturing or preparation/conservation processing of foods requiring new sanitary regulations and the issuing of alerts to consumers. Cases attributed to imported products were notified to ANVISA (Sanitary Surveillance National Agency) in order to update the sanitary regulation for imported foods. In addition, sanitary programs and educational measures were being implemented in the State of São Paulo to prevent new cases.