

보툴리누스 중독증

Botulism

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Abstract

Botulism is a life threatening disorder caused by a neurotoxin produced from the anaerobic, spore - forming bacterium *Clostridium botulinum*. There are seven antigenically distinct types of botulinum neurotoxins (types A through G), and the human botulism is primarily caused by toxin types A, B, and E. Four clinical forms of botulism occur in humans: foodborne botulism, wound botulism, infant botulism, and adult infectious botulism. Botulism is characterized by symmetric, descending, flaccid paralysis of motor and autonomic nerves, usually beginning with the cranial nerves. Dry mouth, blurred vision, and diplopia are usually the earliest neurologic symptoms. Botulism should be suspected in a patient with an acute onset of gastrointestinal, autonomic, and cranial nerve dysfunction. Confirmation of the diagnosis of botulism depends on the detection of the toxin or the organism in the patient. The most reliable method for the detection of the toxin is the mouse inoculation test. The mainstay of treatment for severe botulism is supportive therapy with mechanical ventilation. The administration of antitoxin is the only specific pharmacologic treatment available for botulism. Botulism is a rare but potentially fatal illness, so timely recognition of the clinical symptoms plays an important role in decreasing the mortality rate.

Keywords : **Botulism; Neurotoxin; Mouse bioassay**

(*Clostridium botulinum*)

(botulus)가

가 18

, 1897

van Ermengem

(1).

가

가

(mouse bioassay)

PCR

A

가

가

(2)

2002 3 , 가

4

가

(bacilli) 가

.

,

(low - acid ; pH >4.6) ,

(low solute condition)

(3).

47가

A ~ G 가

A, B, E 가 (foodborne botulism), (infant

(*Clostridium* botulism), (wound botulism)

(*Clostridium* (adult infectious

baratii) F 가 botulism) . 1973 1996

butyricum) E 가

. 100 - kd (heavy chain) CDC(Centers for Disease Control and Prevention)

50 - kd (light chain)가 (disulfied

bond) , 724 24 가 ,

(presynaptic 1,444 71 ,

nerve ending) 가 103 3 ,

39 (7).

(4).

, , A 53%, B

, , 22%, E 24% , A

, , A

. B

가 A 80%, B 20% .

(proteolytic strain) 0.05 ~ 0.1 μ g, (8) 가

(nonproteolytic strain) 0.1 ~ 0.5 μ g 5 가 가

(5), 1995 , (2) (bioassay)

15,000 ~ 100,000

(6).

PCR(poly-merase chain reation) PCR

1058

1.

Test	Result Consistent with Botulism
Initial test	
Brain imagin(CT or MRI)	Normal
Lumbar puncture	Normal
Electromyography	Decreased amplitude of action potentials in involved muscle groups
Rapid repetitive electromyography(20~50Hz)	Facilitation(increasing pattern of action potential amplitude)
Edrophonium chloride test	Negative
Confirmation test	
Mouse inoculation test for toxin(serum, stool, or food)	Positive
Stool culture for Clostridium botulism	Positive

Shapiro RL, et al. Ann intern Med 1998 ; 129 : 221 - 8

CT =computed tomography, MRI=magnetic resonance imaging

2

(10).

85%

15%

2.

4.

4 14

7 (11), 10~15%

3.

가 .

가

가

, 2 가

1~3

Guillain - Barré

가 가

가 가 ,

(12).

가 .

가 가

가 . (

Guillain - Barré (Miller - Fisher), : 02 - 380 - 1466)

, Eaton - Lambert ,

, aminoglycosides

(13).

가

1 10ml, 10gm 가

가 , ,

Guillain - Barré

가 , in vivo in vitro

Tensilon 가 . (15, 16),

(action potential) 가

, 20Hz 50Hz .

가 가

Guillain - Barré 46% ,

가 ,

가

가 (7).

가 (14).

(

)

(,),

가

가

(trivalent equine antitoxin)

A, B, E 가 A 7,500

IU, B 5,500 IU, E antitoxin

1

5~8 9%

(17). A

134 24

46% 10%

56 10 (18).

(human botu-

lism immune globulin)

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