

Neurologic Disease after Yellow Fever Vaccination, São Paulo, Brazil, 2017–2018

Appendix 2

A

Case ascertainment

Level 1: neurologic disease

- One or more of the following signs and symptoms:
 - fever ($\geq 100.5^{\circ}\text{F}$ [$>38.1^{\circ}\text{C}$] for >24 hours) and headache (>24 hours)
 - focal neurologic dysfunction (including but not limited to ataxia, aphasia, and paresis)
 - mental status change (confusion, lethargy, or personality change lasting >24 hours)
 - new onset seizure or recurrence of previously controlled seizures
 - cerebrospinal fluid (CSF) pleocytosis (>5 WBC/ mm^3)
 - elevated CSF protein (>1.5 times the normal limit)

Level 2: neurotropic disease

- Level 1 neurologic disease, and
- one or more of the following:
 - neuroimaging consistent with inflammation, (with or without demyelination)
 - electroencephalogram finding consistent with encephalopathy

Level 2: autoimmune disease with central nervous system involvement

- Level 1 neurologic disease, and
- neuroimaging consistent with multifocal or disseminated areas of demyelination

Level 2: autoimmune disease with peripheral nervous system involvement

- Level 1 neurologic disease,[†] and
- two or more of the following signs and symptoms:
 - limb weakness with decreased or absent tendon reflexes
 - cranial nerve abnormalities
 - autonomic dysfunction (including but not limited to postural hypotension, arrhythmias, abnormal sweating, and gastric motility abnormalities)
 - numbness or paresthesias in the extremities
 - electromyography finding consistent with Guillain-Barré syndrome

B

Case definitions

Yellow fever vaccine-associated neurotropic disease

Suspect neurotropic disease

- Onset of symptoms and signs occurs within 1--30 days of vaccination with yellow fever vaccine, either given alone or in combination with other vaccinations;
- level 2 neurotropic disease; and
- no evidence of other diagnoses

Probable neurotropic disease

- Suspect YEL-AND, and
- one or more of the following:
 - vaccine-type yellow fever viral isolation from blood (>7 days postvaccination)
 - yellow fever 17D^s virus concentration in serum on any day exceeds 3 log₁₀ pfu/mL

Definite neurotropic disease

- Suspect YEL-AND, and
- one or more of the following:
 - YF-specific CSF IgM
 - yellow fever 17D^s virus isolation from CSF
 - amplification of vaccine type virus^s from CSF

Yellow fever vaccine-associated autoimmune disease with central nervous system involvement (YEL-AAD-CNS)

Suspect YEL-AAD-CNS

- Onset of symptoms and signs occurs within 1--30 days of vaccination with yellow fever vaccine, either given alone or in combination with other vaccinations;
- level 2 autoimmune disease with central nervous system involvement; and
- no evidence of other diagnoses

Probable YEL-AAD-CNS

- Suspect autoimmune disease with central nervous system involvement, and
- YEL administered alone

Yellow fever vaccine-associated autoimmune disease with peripheral nervous system involvement (YEL-AAD-PNS)

Suspect YEL-AAD-PNS

- Onset of symptoms and signs occurs within 1--30 days of vaccination with yellow fever vaccine, either given alone or in combination with other vaccinations;
- level 2 autoimmune disease with PNS involvement; and
- no evidence of other diagnoses

Probable YEL-AAD-PNS

- Suspect autoimmune disease with PNS involvement, and
- YEL administered alone

Figure. Case ascertainment (A) and CDC's Yellow Fever Vaccine Safety (YFVS) Working Group Case Definition for yellow fever–vaccine associated neurologic disease (YEL-AND) (B). Data from Staples JE, Gershman M, Fischer M; Centers for Disease Control and Prevention (CDC). Yellow fever vaccine: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep.* 2010;59(RR-7):1–27.