ANAPLASMOSIS

Case Definition

Confirmed case

A case that meets c*onfirmatory* laboratory results with or without clinical evidence criteria (can include transfusion transmission).

Probable case

A case that meets *supportive* laboratory results **AND**

- clinical evidence criteria (can include transfusion transmission); **OR**
- is in a blood donor or recipient epidemiologically linked to a confirmed or probable anaplasmosis case.

Laboratory Evidence

Confirmatory laboratory evidence:

- Detection of *Anaplasma phagocytophilum* DNA in an appropriate clinical specimen by amplification of a specific target by Nucleic Acid Amplification Test (NAAT); **OR**
- Serological evidence of a four-fold increase in IgG-specific antibody titre to *A. phagocytophilum* antigen by indirect immunofluorescence assay (IFA) in paired serum samples. The first sample taken in the acute phase (in first week of illness) and the second taken in the convalescent phase, 2-4 weeks apart **OR**
- Demonstration of *A. phagocytophilum* antigen in a biopsy/autopsy sample by immunohistochemical (IHC) methods; **OR**
- Isolation of *A. phagocytophilum* from a clinical specimen in cell culture with confirmation by specific PCR.

Supportive laboratory evidence:

- Serological evidence of elevated IgG antibody to *A. phagocytophilum* in a single specimen by IFA where the endpoint titre is four-fold greater than the screening dilution of the assay, or by enzyme linked immunosorbent assay (ELISA); **OR**
- Identification of typical morulae in the cytoplasm of granulocytes by microscopic examination.

Clinical Evidence

Clinical evidence of infection includes fever and at least one of the following: headache, malaise/asthenia, arthralgia/myalgia, mild anemia, thrombocytopenia, leukopenia, elevated hepatic transaminase concentrations, or elevated numbers of immature neutrophils.[1-3]

Transfusion recipient

A. *phagocytophilum* can survive for prolonged periods in blood products, and cases of transfusion-transmitted anaplasmosis have been reported in the United States.[4-7] Currently, no Health Canada or US Food and Drug Administration licensed test exists for the screening of *A. phagocytophilum* in blood donors.

For the purposes of surveillance, epidemiologic linkage between a transfusion recipient and a blood donor is demonstrated if all the following criteria are met:

1. Laboratory evidence of *A. phagocytophilum* infection in the recipient and donor; **AND**
2. Transfusion recipient received one or more red blood cell (RBC) or platelet unit(s) within one year before the collection date of the recipient's positive specimen; **AND**
3. Transfused unit(s) was/were plausibly infectious based on assessment of donor infectivity at time of donation of implicated unit(s); **AND**
4. Transfusion-associated infection in the recipient is considered at least as plausible as tick-borne transmission.

Reporting Requirements

Report confirmed cases to DHW Surveillance Team via Panorama.

Additional Forms

None.

Data Entry

Complete data entry in Panorama.

Additional comments

- Anaplasmosis is a provincially notifiable disease. Case counting will be applied as of May 23, 2023.
- Laboratory testing for Anaplasma specific PCR is added to any Lyme serology request as part of a strategy to increase the diagnosis of this tick-borne infection. Any positive results that are detected are reported to the ordering physician.
- These are definitions for surveillance and epidemiologic purposes only; they do not represent clinical case definitions.
- Diagnostic testing should be performed by the Provincial Public Health Lab Network, the National Microbiology Lab and/or appropriate reference diagnostic centres (e.g., NML, National Reference Centre for Parasitology, etc.) which employ conventional diagnostic assays and interpretive criteria when conducting these tests. There are currently no commercially available ELISA kits for *A. phagocytophilum* in Canada.
- Cell culture or IHC should are rarely used and not available in most of the laboratories.

- Antibodies to *A. phagocytophilum* might remain elevated for many months after the disease has resolved, and in some cases, high titres have been observed up to four years after the acute illness. Comparison of paired, and appropriately timed, serologic assays provides the best evidence of recent infection. Due to the persistence of elevated antibody titres, single or inappropriately timed serologic tests, in relation to clinical illness, can lead to misinterpretation of results.[3]

References

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