Notes from the Field

Hantavirus Pulmonary Syndrome — Denver, Colorado, 2018

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On February 16, 2018, a previously healthy woman aged 47 years sought treatment at the emergency department of a hospital in Denver, Colorado, for acute onset of chest pain, shortness of breath, tachypnea, fever (103.9°F [40.0°C]), and hypoxemia. Five days earlier, she had developed fever, nausea, vomiting, muscle pains, and diarrhea, associated with progressive dyspnea. A chest radiograph at admission revealed interstitial markings bilaterally. Twelve hours after arrival she was intubated and mechanically ventilated and transferred to the intensive care unit for management of hypoxic respiratory failure, disseminated intravascular coagulation, and shock. The patient had thrombocytopenia, hemoconcentration, and elevated liver enzymes. She was initially treated with broad-spectrum antimicrobials and supportive care. Because the patient had clinically compatible symptoms and suggestive laboratory findings for hantavirus infection, on hospital day 3, specimens were collected and sent for testing. On hospital day 11, results of a hantavirus enzyme-linked immunosorbent assay by a commercial laboratory were positive for antihantavirus immunoglobulin G (IgG) and IgM. Serologic testing for Sin Nombre virus, performed by the Colorado Department of Public Health and Environment Laboratory, was positive for IgM and negative for IgG, consistent with acute Sin Nombre virus infection. Hantavirus pulmonary syndrome was confirmed, and antibiotics were stopped; the patient recovered after a 13-day hospitalization.

Sin Nombre virus was identified as a cause of hantavirus pulmonary syndrome in the United States in 1993; the hantavirus pulmonary syndrome case-fatality rate is approximately 38% (*1*). Sin Nombre virus is typically transmitted by inhalation of contaminated rodent urine or droppings; infected persons can experience symptoms 1–8 weeks after exposure (*1*). Treatment is supportive (*2*).

The patient resided and worked in an apartment building in an urban area of Denver, where she performed plumbing, flooring, and maintenance tasks. Four weeks before her illness, she had cleaned an area after ceiling tiles had fallen. She only reported a single day trip to a casino in Gilpin County, Colorado, taken 6 weeks before her illness. She did not report any activities during that trip that would have put her at risk for contracting hantavirus. Twelve days after onset of the patient's illness, Denver Health and the Colorado Department of Public Health and Environment personnel conducted an environmental investigation at her home and place of employment. All areas of the patient's apartment unit, laundry room, basement, and trash chute were inspected, and no evidence of rodent activity was identified. Two days later, during a second visit, personnel examined the originally inspected areas, as well as the garage entry area, maintenance room, and electrical power supply with a black light; no rodents or rodent droppings were seen during either inspection but could have been present earlier. The patient did state that building tenants had reported seeing mice during construction on multiple occasions, although the time frame was not specified.

This is the first reported case of apparent locally acquired hantavirus pulmonary syndrome in Denver, an urban environment. Since 1993, one hantavirus pulmonary syndrome case was identified in Denver in a patient who reported travel to an area with endemic Sin Nombre virus during the incubation period (*3*). During 1993–2018, a total of 115 hantavirus pulmonary syndrome cases were identified among Colorado residents (*3*). No reports of rodents having been tested for Sin Nombre virus in the Denver metropolitan area could be found.

Sin Nombre virus is typically acquired during spring or summer; however, in Colorado, cases have been identified throughout the year, including in this patient who became ill during winter (*3*). Although hantavirus-infected rodents have been reported in urban areas, humans rarely acquire the disease in these environments (*2–5*). Because urban transmission can occur, clinicians in arid urban environments such as Denver should consider hantavirus pulmonary syndrome in patients with compatible symptoms and possible rodent exposure, even in the absence of recent travel to a rural area (*6*).

Acknowledgments

Grace Marx, Epidemic Intelligence Service, CDC, and Tri-County Department of Public Health, Aurora, Colorado; Ola Bovin, Disease Investigation Preparedness and Response, Denver Public Health, Colorado; Nicol Hogg-Cornejo, Nathan Mueller, Tara Olson, Department of Public Health and Environment, City and County of Denver, Colorado.

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All authors have completed the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed.

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