

Adenovirus 14 Tied to Cluster of Hospitalizations

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SAN DIEGO — In the winter of 2006 and the spring of 2007, adenovirus 14 caused a community outbreak of respiratory disease in Oregon, with a fatality rate of 19%, Dr. Paul Lewis said at the annual meeting of the Infectious Diseases Society of America.

"This seemed to come out of nowhere," Dr. Lewis, a public health physician with the state of Oregon and a pediatric infec-

tious disease physician with Oregon Health and Science University, Portland, said of the outbreak. "In patients with serious respiratory illness without an identified etiology, clinicians should think about viruses."

The cluster was first identified in the spring of 2007 by his associate, Dr. David Gilbert, who was making rounds in the intensive care unit at Providence Portland Medical Center and thought it was odd that 4 of 13 patients had adenovirus infections, which are typically mild and self-limited.

"We called other hospitals in the Portland area, [and] we almost fell out of our chairs because they all had seen recent severe and fatal cases of adenovirus," Dr. Lewis said.

The researchers studied 45 cases of adenovirus that were detected in Oregon medical laboratories between November 2006 and April 2007. The adenovirus isolates were typed by hexon gene sequencing or by a novel adenovirus 14-specific real-time polymerase chain reaction assay.

More than 75% of all adenovirus cases

were in male patients. Of the 45 cases, 31 (69%) were adenovirus 14, a serotype first identified in 1953 but seen infrequently and never in outbreaks since that time.

Patients infected with adenovirus 14 were significantly older than patients infected with other adenovirus isolates (a mean of 59 years vs. 1 year, respectively). They also had significantly higher rates of hospitalization (71% vs. 14%, respectively).

Clinical features of patients with adenovirus 14 included fever (84%), tachypnea (77%), hypoxia (48%), and hypotension (43%). Of the 24 chest x-rays obtained, 21 (88%) had abnormal findings. Lobar consolidation was the most common pattern.

Dr. Lewis noted that 22 (71%) of the adenovirus 14 patients required hospitalization, and 6 (19%) died. Of the hospitalized patients, 16 (73%) required ICU care, 13 (59%) mechanical ventilation, and 8 (36%) blood pressure support with vasopressors.

"Infection control was a great concern," he said. "Many patients were isolated with [severe acute respiratory syndrome]-like precaution. There was a health care worker at an ICU taking care of one of these patients who was subsequently admitted to that ICU with adenovirus 14. That's our only known possible case of transmission, but we cannot be sure it was not acquired in the community." Treatment included "lots of empiric antibiotics." Cidofovir was used in six patients, two of whom died.

Dr. Lewis said there are 51 known adenovirus serotypes. Types 1, 2, and 5 are nearly universal in children, whereas types 3, 4, and 7 are common in adults. No adenovirus vaccine is available in the United States. Previous vaccines developed for the military do not cover adenovirus 14. ■

GENITAL WARTS THE UNSPOKEN BURDEN

- ▶ ~1 million new cases every year*¹
- ▶ Increased prevalence in 15- to 24-year-old females^{†,2}
- ▶ Can develop in as little as 3 months after infection³
- ▶ Can be distressing and embarrassing⁴

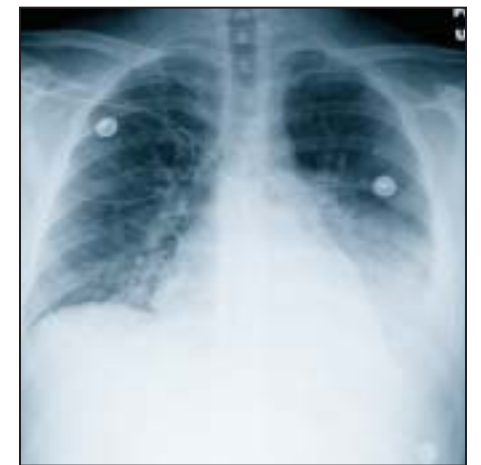
HPV[‡] Types 6 and 11 cause ~90% of genital warts cases⁵

*Estimate includes men and women.

†Peak prevalence occurs in females 20 to 24 years of age.²

‡HPV=human papillomavirus.

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Lobar consolidation is shown in a patient on day one of hospitalization.



The same patient is shown above at day four of hospitalization.



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