PUBLIC HEALTH

Measles in your office

Epidemiology: Until this year, no cases of measles had been seen in Hamilton, Ont., since 1995. But by the end of March, 3 cases had been reported; in 2 the patients appeared to have been vaccinated only once. Measles, also called rubeola or red measles, is one of the most highly communicable infectious diseases. It is a viral respiratory tract infection that is transmitted by nasal or throat secretions through airborne spread or direct contact.[1] Outbreaks are possible unless a population has nearly 100% immunity. In 1995 more than 2300 cases of measles were reported in Canada, evidence that the disease was still circulating despite immunization. This prompted a national commitment to implement a routine, 2-dose vaccination program.[2] Since then 12, 29 and 199 cases of measles were reported in 1998, 1999 and 2000 respectively (Health Canada: unpublished data).

Clinical management: The first signs and symptoms appear 8 to 10 days after exposure. Fever and malaise are followed by cough, coryza and conjunctivitis. Koplik's spots and a maculopapular rash appear 2 to 4 days after the onset of fever. The rash starts on the face and hairline and spreads to the trunk and extremities. Measles is infectious from 1–2 days before the first symptoms appear to 4 days after the rash has appeared.[1] Patients whose symptoms suggest measles should not be seen in the office or emergency department. If this is unavoidable, they should be booked at the end of the day or kept in respiratory isolation.

Canapress

Student in Belleville, Ont., receives measles vaccination during province-wide vaccination program in 1996.

When measles is suspected, the local public health unit should be contacted immediately. The health unit will have information about local measles activity and laboratory testing. Measurement of serum IgM levels can provide an early result, but the result may be falsely negative if taken within 72 hours of the onset of rash. Tests for rubella and parvovirus B19, diseases that also present with a rash that can be confused with measles, should be requested simultaneously.[3] A repeat IgM test is warranted if the test taken within the first 72 hours gives a negative result. Because the incidence of measles is so low, many IgM test results are false positive. There are 3 definitive tests for measles: acute and convalescent serology for measles-specific IgG; viral culture of a nasopharyngeal swab within 4 days of rash onset; and viral culture of a urine specimen within 7 days of rash onset.

Treatment is supportive. The rash lasts 5 to 7 days, and the entire illness resolves completely 10 to 14 days after the onset of the rash. The most common complications are diarrhea, otitis media and pneumonia. Encephalitis occurs in about 1 per 1000 reported cases of measles; the death rate is estimated to be 1 in 3000 cases. In the immunocompromised host, measles can often be severe and prolonged. In developing countries it has a far greater impact, with case-fatality rates of up to 25%.[4]

Prevention: All children and adolescents should receive 2 doses of measles vaccine, which is usually given with mumps and rubella vaccine. The first dose must be given on or after the first birthday; vaccination before 12 months usually does not provide adequate protection. The second dose should be given at least 3 months after the first and preferably before the child begins school.

During an outbreak, all contacts born after 1956 who do not have documented evidence of immunization or laboratory evidence of immunity should be considered susceptible.[5] Vaccination within 72 hours after exposure will provide protection in some cases.[6] Immune globulin can prevent or modify measles up to 6 days after exposure. It is recommended for contacts aged 6 to 11 months and for people for whom vaccine is contraindicated. Anyone receiving immune globulin must wait at least 5 months before being vaccinated with live measles vaccine or measles–mumps–rubella vaccine. Health workers with no proof of immunity may be required to stay home until 2 weeks after the onset of the last case.

Measles accounts for most of the estimated 1.6 million child deaths that occur annually worldwide because of vaccine-preventable diseases. A move to reduce this number is under way (see page 1609). — *Howard Shapiro*, resident in community medicine, *Erica Weir*, CMAJ

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References

1. Centers for Disease Control and Prevention. *Epidemiology and prevention of vaccine-preventable diseases*. 6th ed. Atlanta: Centers for Disease Control and Prevention; 2000. Available: www.cdc.gov/nip/publications/pink (accessed 2001 Apr 24).
2. National Advisory Committee on Immunization. Supplementary statement on measles elimination in Canada. *Can Commun Dis Rep* 1996;22(2). Available: www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr/96vol22/dr2202ea.html (accessed 2001 Apr 24).
3. Health Canada. Measles surveillance: guidelines for laboratory support. *Can Commun Dis Rep* 1999; 25(24):201-16. Available: www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr/99vol25/dr2524e.html (accessed 2001 Apr 24).
4. Centers for Disease Control and Prevention. Measles, mumps, and rubella — vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1998;47(RR-8):1-57. Available: www.cdc.gov/mmwr/preview/mmwrhtml/00053391.htm (accessed 2001 Apr 24).
5. Advisory Committee on Epidemiology. Guidelines for control of measles outbreaks in Canada (revised 1995). *Can Commun Dis Rep* 1995;21(21): F1-4. Available: www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr/95vol21/dr2121ea.html (accessed 2001 Apr 24).
6. National Advisory Committee on Immunization. *Canadian immunization guide*. 5th ed. Ottawa: Health Canada; 1998. Available: www.hc-sc.gc.ca/hpb/lcdc/publicat/immguide/index.html (accessed 2001 Apr 24).