Public Health

Hypertrophic pyloric stenosis caused by erythromycin

Epidemiology

In March 1999 pediatric surgeons in Knoxville, Tenn., were startled by an increase in the number of cases of infantile hypertrophic pyloric stenosis (IHPS).[1] Seven cases were discovered within 2 weeks, all involving infants born at the same hospital. An investigation by public health authorities revealed that pertussis had been diagnosed in 6 neonates at the same hospital about a month earlier. On Feb. 25, in response to that epidemic, physicians had prescribed erythromycin as postexposure prophylaxis for the 166 infants born at the hospital during the preceding 3 weeks (Feb. 1–24, 1999). None of the infants treated with erythromycin prophylaxis developed pertussis.

An investigation of all cases of IHPS requiring surgical treatment in the previous 2 years revealed 40 cases. This demonstrated that the rate of IHPS per 1000 live births in February 1999 was nearly 7 times higher than during 1997/98 (relative risk 6.8, 95% confidence interval 3.0–15.7). No further cases of IHPS were detected in infants born in March through May in the region.

The clinical features of the 7 patients were similar to those of the earlier patients, although these infants were slightly younger at the onset of illness (mean age of onset 25.6 days v. 35.4 days for the historical cases). Among infants born in January and February 1999, erythromycin was associated with IHPS (relative risk 1.7 to infinity).[2]

The cause of IHPS is unknown, although a family history is sometimes apparent. The condition is 5 times more common in boys and occurs 1–3 times per 1000 live births.[3] An association between IHPS and erythromycin had been reported previously but was discounted.[4]

Clinical management

IHPS is a hypertrophy of the pyloric muscle that usually results in nonbilious projectile vomiting. The illness usually begins at about 3 weeks of age. Ultrasound will usually reveal a thickened pylorus. Measures of the length and thickness confirm the diagnosis. Treatment is surgical pyloromyotomy.

Pertussis is caused by *Bordetella pertussis*. The disease affects people of all ages, but in infants and the very young it causes a severe respiratory illness with excessive coughing that is often followed by a prolonged inspiration, resulting in a peculiar "whoop" sound. In adults the disease presents as an upper respiratory illness accompanied by a pronounced cough. The disease is highly contagious. About half of all cases occur in adults, and it is believed that adults are responsible for infecting most children who contract the disease. In Knoxville a hospital employee who had pertussis most likely caused the infection in the 6 neonates.

Prevention

Pertussis in neonates has a very high case-fatality rate;[5] prevention is therefore important. Erythromycin is recommended for prophylaxis; none of the 166 infants exposed to pertussis in Knoxville who subsequently received erythromycin developed pertussis. As well, there is no evidence that there is a safe and effective alternative to erythromycin for the prevention of pertussis.

However, the report of this epidemic provides convincing evidence that the use of erythromycin during early infancy should be re-evaluated. All patients involved in this epidemic were between 2 and 17 days of age (median 14 days, mean 12.2 days) when they began receiving the drug.

Because of this epidemic, it will be important to re-examine recommendations for pertussis prophylaxis in neonates. The use of erythromycin for other reasons during this period should also be avoided if possible.

Pertussis vaccine should be administered in 5 consecutive doses beginning at 2 months of age. Cases of IHPS following the use of oral erythromycin can be reported to the Adverse Drug Reaction Reporting Unit, Health Canada, (fax 613-957-0335). The form is available at **www.hc-sc.gc.ca/hpb-dgps/therapeut/zfiles/english/forms/adverse_e.pdf**. — *John Hoey*, CMAJ

References

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