CORRESPONDENCE

Neonatal infection with *Haemophilus influenzae* biotype III

To the editor: Neonatal infection with *Haemophilus influenzae* is rare.[1] The organism is acquired perinatally from the maternal genital tract, which infrequently is colonized with *H. influenzae*.[2] *H. influenzae* biotype III has been associated with the genitourinary tract.[3] We report a case of neonatal sepsis due to *H. influenzae* biotype III associated with colonization of the maternal genital tract.

Case report

A 2760-g boy was born at 33 weeks' gestation to a 23-year-old woman (gravida 1, para 0). For 1 month before delivery the woman had experienced light leakage of amniotic fluid; she had heavy fluid leakage 2 days before delivery and was admitted to hospital the next day. Because her temperature was 38.8°C and her leukocyte count 26 × 10^9/l she was given ampicillin, 500 mg orally, just before delivery. Labour lasted 6 hours. Delivery was vaginal with a vertex presentation; low forceps extraction under epidural anesthesia was used. The mother was afebrile 12 hours post partum.

Meconium staining of the infant was present. The Apgar score was 4 at 1 minute and 5 at 5 minutes. Despite suctioning and the administration of oxygen by mask the baby remained flaccid, with nail bed cyanosis, and was transferred to our hospital. At the time of admission he was pale and flaccid. His temperature was 38.5°C, respiration 50/min with grunting and indrawing, heart rate 160 beats/min and blood pressure 60 mm Hg. Initial laboratory investigations gave the following results: hemoglobin level 18.3 g/dl, hematocrit 63%, leukocyte count 16 × 10^9/l and blood glucose level 3.3 mmol/l (60 mg/dl). The pH was 7.26, partial pressure of carbon dioxide 52 mm Hg, partial pressure of oxygen 170 mm Hg, bicarbonate level 20 mmol/l and base excess −5 mmol/l. A chest roentgenogram showed patchy infiltration in all lobes. A diagnosis of prematurity with respiratory distress syndrome or sepsis or both was made, and intravenous administration of ampicillin, 200 mg/kg and gentamicin, 7.5 mg/kg daily was started.

Specimens of cord blood, placenta and gastric aspirate, and three vaginal swabs from the mother taken at the referring hospital all yielded a heavy growth of *H. influenzae*. The original isolate from the cord blood and a second isolate from the gastric aspirate were biotype III as judged by Kilian's method.[4] Neither isolate could be serologically typed. All the isolates were sensitive to ampicillin (β-lactamase-negative) and chloramphenicol. The samples of blood and cerebrospinal fluid obtained at the time of the baby's admission to our hospital were sterile.

The infant began to improve over the next 2 days. When on the second day of therapy the culture results indicated the presence of *H. influenzae* chloramphenicol, 25 mg/kg daily, was substituted for the gentamicin. The chloramphenicol was discontinued the next day when the isolates were reported as being sensitive to ampicillin. After 10 days of ampicillin therapy the infection had resolved and the infant was sent home.

Discussion

This case illustrates the main clinical and bacteriologic features of neonatal *H. influenzae* sepsis:[2,5] prematurity, a long interval between rupture of the membranes and delivery, onset of symptoms at or shortly after birth, respiratory distress syndrome and absence of meningitis. The organism can be recovered from the infant, the placenta and the maternal genital tract. Generally the isolates cannot be serologically typed, although some have been noted to be capsular type b.

H. influenzae can be divided into six biotypes, primarily on the basis of the reaction patterns in three biochemicals — indole, urease and ornithine decarboxylase.[4] It has also been shown[3,4,6,7] that most strains causing invasive disease are biotype I. In contrast, most commensal strains belong to biotype II or III. *H. influenzae* is not usually considered to be part of the normal flora of the genital tract in women, nor is biotype III usually associated with invasive disease. However, previous reports of bacteremic disease originating from the genitourinary tract have implicated biotypes II and III.[3,8] Our isolation of a biotype III organism is consistent with the previous findings.

Neonatal infection with *H. in-*

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fluenzae may be increasing in incidence.[2] Since the presence of a type b capsule does not appear to be necessary for the development of neonatal sepsis, further study is needed to define the properties of *H. influenzae* biotypes II and III that allow colonization of the maternal genital tract and subsequent infection of the neonate.

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Shigella sonnei resistant to cotrimoxazole

To the editor: During the past 7 months we have isolated cotrimoxazole (trimethoprim–sulfamethoxazole)-resistant strains of *Shigella sonnei* from 18 patients. Except for one instance the infections appear to have been acquired in Canada, the exception being in a Korean child who was probably infected while travelling outside Canada.

Epidemiologic data concerning the indigenous cases are not yet complete. In two instances resistant strains were isolated from two members of one family. While in the remaining patients no immediate family relationships have been discerned, at least five unrelated patients were from the same Indian reserve. Other patients were from other parts of Alberta or adjacent areas of the Northwest Territories.

Antibiotic resistance patterns of *Shigella* strains isolated in Alberta last winter indicate two dominant lines of *S. sonnei* originating in distinct geographic areas. The strain from northwestern Alberta was resistant to ampicillin, sulfonamides and tetracyclines, and that from eastern Alberta was resistant to sulfonamides and tetracyclines but sensitive to ampicillin. Cotrimoxazole-resistant strains have been isolated from patients infected with each type of strain. More recently the northwestern strain appears to have been replaced by the eastern one.

The minimum inhibitory concentrations of trimethoprim are generally low, ranging between 50 and 100 μg/ml. Thus far we have been unable to either transfer the trimethoprim resistance to *Escherichia coli* K 12 or to mobilize it for transfer by adding two different plasmids to the in vitro transfer test system, although some of the accompanying resistances have readily been transferred. Detailed studies of the Korean strain have yet to be undertaken.

Routine monitoring of antibiotic resistance in the enteric investigative unit of the Provincial Laboratory of Public Health in Edmonton has revealed rare instances of cotrimoxazole resistance in *Salmonella* and in one serotype of *E. coli* that is part of the "normal" fecal flora of children in hospital. There is good evidence that the resistant *Salmonella* strains were acquired outside Canada.

Bannatyne and colleagues[1] and Taylor, Keystone and Devlin[2] have also reported the isolation of trimethoprim-resistant shigellae. Our

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CLASSIFICATION: Reglan® brand of metoclopramide hydrochloride is a modifier of upper gastrointestinal tract motility.

INDICATIONS: Reglan is indicated as an adjunct in the management of delayed gastric emptying associated with subacute and chronic gastritis and sequelae of surgical operations such as vagotomy and pyloroplasty. In such indications, when there is delayed gastric emptying, Reglan may relieve symptoms such as nausea, vomiting, bloating and epigastric distress.

Reglan has been found useful in facilitating small bowel intubation.

CONTRAINDICATIONS: Reglan should not be administered to patients in combination with MAO inhibitors, tricyclic antidepressants, sympathomimetics or foods with high tyramine content, since safety of such an association has not been established. As a safety measure, a two-week period should elapse between using any of these drugs and administration of Reglan.

The safety of use of Reglan in pregnancy has not been established. Therefore, Reglan should not be used in women of child-bearing potential unless in the opinion of the physician expected benefits to the patient outweigh the potential risks to the fetus.

WARNINGS: Drugs with atropine-like action should not be used simultaneously with Reglan since they have a tendency to antagonize the effects of this drug on gastrointestinal motility. Reglan should not be used in conjunction with potent ganglioplegic or neuroleptic drugs or drugs with acetylcholine-like action since potentiation of effect may occur. Additive sedative effects may occur when Reglan is administered concurrently with sedatives, hypnotics, narcotics or tranquilizers.

PRECAUTIONS: Reglan should not be used in patients with epilepsy and extrapyramidal syndromes unless its expected benefits outweigh the risk of aggravating these symptoms. Reglan does not appear to aggravate the manifestations of Parkinson's disease in patients treated with L-dopa. In view of the risk of extrapyramidal manifestations, metoclopramide should not be used in children unless a clear indication has been established.

The recommended dosage of Reglan should not be exceeded since a further increase in dosage will not produce a corresponding increase in the clinical response. The dosage recommended for children should not exceed 0.5 mg/kg daily.

Since metoclopramide accelerates abnormally slow gastric and small bowel peristaltic activity, it may change absorption of orally administered drugs. The absorption of drugs from the small bowel may be accelerated (e.g., acetaminophen, tetracycline, L-dopa, etc.), whereas absorption of drugs from the stomach may be diminished (e.g., digoxin).

ADVERSE REACTIONS: Drowsiness, fatigue and lassitude occur in approximately 10 percent of patients at recommended dosage. Less frequent adverse reactions, occurring in approximately 5 percent of patients, are: insomnia, headache, dizziness or bowel disturbances.

Parkinsonism and/or other extrapyramidal symptoms have been reported in approximately 1 percent of patients. They consist most often of a feeling of restlessness, facial grimacing, involuntary movement, rarely may manifest as torticollis, muscular twitching, oculogyric crisis, rhythmic protrusion of tongue or trismus. Such reactions appear to occur more frequently in children and young adults, and particularly at higher-than-recommended dosage. An increase in the frequency and severity of seizures has been reported in conjunction with the administration of Reglan to epileptic patients.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Extrapyramidal side effects as described in the preceding section are the most frequently reported adverse reaction to overdosage. Management of overdosage consists of gastric emptying, close observation and supportive therapy. Antiparkinson and antihistamine/anticholinergic drugs such as diphenhydramine hydrochloride have effectively controlled extrapyramidal reactions.

DOSAGE AND ADMINISTRATION: *Note: Total daily dosage must not exceed 0.5 mg/kg body weight.* **Adults:** *Tablets:* ½ to 1 tablet (5-10 mg) three or four times a day before meals and at bedtime. *Syrup:* 5 to 10 ml (5-10 mg) three or four times a day before meals and at bedtime. *Injectable:* When parenteral administration is required, one ampule (10 mg) I.M. or I.V. (slowly), two or three times a day if necessary. **Children:** (5-14 years): *Syrup:* 2.5 to 5 ml (2.5-5 mg) three times a day before meals.

For small bowel intubation: **Adults:** One ampule (10 mg) slowly I.V.—preferably at the time when the tip of the tube reaches the pyloric region. **Children:** Single dose of 0.1 mg/kg slowly I.V.

Availability: *Tablets:* Each blue scored compressed tablet contains 10 mg of metoclopramide monohydrochloride. Available in bottles of 100 and 500 tablets. DIN 386014. *Syrup:* Each ml contains 1 mg of metoclopramide monohydrochloride. Available in bottles of 4 fl. oz. DIN 386022. *Injectable:* Each 2 ml ampule contains 10 mg of metoclopramide monohydrochloride in a clear, colorless solution. Keep away from light and heat. Available in boxes of 5 and 50 ampules. DIN 386006.

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