possible the establishment of an appropriate dosage. Doses of chloramphenicol required to achieve therapeutic levels ranged from 20 to 95 mg/kg daily. Our experience demonstrates the importance of monitoring serum levels and then individualizing dosage of the drug during the course of the illness.

Unmonitored dosage schedules can quickly result either in inadequate therapeutic or in toxic levels of chloramphenicol. Weiss has recommended treating all newborn infants with 25 mg/kg daily of chloramphenicol, and increasing the dose to 50 mg/kg daily by one month of age.[6] Such a standardized regimen may be unsafe in some cases or may result in ineffective blood levels in others.

It is possible that the concomitant use of phenobarbital and Dilantin in our patient may have stimulated increased hepatic conjugation of chloramphenicol and thus increased dosage requirements. Since newborn infants with meningitis commonly require treatment with phenobarbital, this drug interaction might affect chloramphenicol dosage requirements.[7]

SUMMARY

Chloramphenicol can be an effective agent in the treatment of ampicillin-resistant *E. coli* meningitis due to susceptible organisms in the premature or term infant. However, it can be used safely and effectively only if careful monitoring of serum levels is undertaken.

The authors gratefully acknowledge the assistance of Dr. George McCracken and his laboratory for studies related to the *E. coli.*

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Comparison of bacterial contamination with two methods of human milk collection

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THE FEEDING of banked human milk to premature infants has become popular. In Santa Clara County this milk is pasteurized if the bacterial count is greater than 10,000 colonies/ml. We and others have shown that pasteurization decreases the immune factor content of the milk.[1, 2] Twenty percent of the 40,000 ounces of human milk collected per year requires such treatment. We compared milk collected by two methods, hand expression and suction breast pump, to quantify differences in the degree of bacterial contamination.

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MATERIALS AND METHODS

We did a retrospective study of 195 samples of breast milk brought to the Mother's Milk Unit of the Northern California Transplant Bank, San Jose, CA. Donors, with a mean age of 26 years and a mean lactation period of three months, provided milk either by direct expression into a sterile 4-ounce bottle or by the use of a rubber bulb breast pump (Davol pump, Davol Company, Providence, RI) or Faultless pump, (Abbott Laboratories, Chicago, IL) with transfer into a sterile container. Donors were directed to immerse the pumps in boiling water for 10 minutes or place them in the home dishwasher, provided that the water temperature was 60°C. The milk was stored in the home refrigerator freezer compartment at −23°C for two to three days and brought to the milk bank. Milk was diluted 1:100 with buffer, added to 15 ml tryptone-glucose-yeast agar, and incubated at 32°C for 48 hours.

0022-3476/78/0292-0236$00.20/0

Colonies were counted with the Quebec colony counter (Scientific Applications, Philadelphia, PA).[3] As a separate study, ten donors provided milk using both methods of expression; this milk was handled and processed as above.

RESULTS

One hundred fifty-two of the samples in the retrospective study had been manually expressed. The mean colony count for these was 2,500 colonies/ml (1 SEM = ± 290 colonies/ml). Forty-three of the samples had been collected with the breast pump. The mean colony count for these was 135,000 colonies/ml (1 SEM = ± 43,000 colonies/ml). This difference was significant by Student's t test for unpaired specimens ($P < 0.001$). Ninety-four percent of the hand-expressed samples, compared to 53% of the pump-expressed samples, could have been used without pasteurization. In the paired study, colony count for the hand-expressed samples was 1,400 colonies/ml (1 SEM = ± 600 colonies/ml), and for the pump expressed samples 300,000 colonies/ml (1 SEM = ± 116,000/ml). This difference was significant by Student's t test for paired samples ($P < 0.05$). *Staphylococcus aureus* and *Pseudomonas aeruginosa* were cultured from the pump-expressed samples with the highest colony counts. Greater than one million colonies per milliliter were cultured from sterile washes of "clean" rubber suction bulbs.

DISCUSSION

Sources of organisms in raw human milk include nipples, fingers, and containers.[4] To this list we add breast milk pump bulbs. Currently there is no adequate way to sterilize these bulbs. Since the preservation of immune factors in human milk seems important, we recommend that milk for feeding premature infants be collected by manual expression directly into sterile containers whenever possible, to eliminate the need for pasteurization.

We thank the Mother's Milk Unit, Northern California Transplant Bank, for providing milk donor information and milk samples.

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Metabolic alkalosis in an anephric child caused by the combined use of Kayexalate and Basaljel

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METABOLIC ALKALOSIS is an unusual finding in children with chronic renal failure, unless they are receiving alkali therapy. We report a case of metabolic alkalosis occurring as a consequence of the combined administration of sodium polystyrene sulfonate and aluminum carbonate in a child undergoing maintenance hemodialysis.

Supported in part by grants from the National Institute of Health, Clinical Research Center (RR-75) and General Research Support (RR-5624).

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CASE REPORT

A 13-year-old girl was admitted with chronic renal failure due to obstructive uropathy. Hemodialysis was initiated five days prior to the removal of her solitary pyelonephritic left kidney. Laboratory evaluation on admission revealed a hemoglobin concentration of 6.3 gm/dl, blood urea nitrogen 100 mg/dl, creatinine 9.4 mg/dl, sodium 134 mEq/l, potassium 4.2 mEq/l, chloride 106 mEq/l, bicarbonate 18 mEq/l, calcium 8.2 mg/dl, phosphorus 7.4 mg/dl, and alkaline phosphatase 612 IU. Medications included aluminum carbonate (Basaljel) 1.2 gm three times a day, sodium bicarbonate 650 mg three times a day, calcium glubionate (Neo-Calglucon) 3 teaspoons three times a day (828 mg of elemental calcium), dihydrotachysterol 0.2 mg/daily, and hydralazine (Apresoline) 20 mg every six hours.

Shortly after the uneventful nephrectomy the serum potassium concentration increased to levels ranging from 5.8 to 6.2 mEq/l; therapy was initiated with sodium polystyrene sulfonate (Kayexalate) 60 gm/day (1 gm/kg/day) in order to maintain the serum

0022-3476/78/0292-0237$00.30/0