Age itself is a relative risk marker, since the mean age of presentation for sinoatrial disorder in the Shaw and Kekwick study[11] was 62 years. Because of their frequency in this population, spells of lightheadedness, momentary lapses of memory, nocturnal awakening, and generalized fatigue are probably of insufficient sensitivity to warrant extensive routine investigation; nevertheless, these may also be markers for sick sinus syndrome.[15]

High-risk patients should receive 24-hour ambulatory cardiac monitoring prior to and after the initiation of lithium therapy. Atrial pacing and measurement of sinus node recovery time is felt to be the most reproducible diagnostic evaluation for sinus node disease.[12] This invasive procedure is not a reasonable screening test, however, and cardiology consultation would be required for its use. The intervals needed for periodic ambulatory cardiac monitoring for the best cost-benefit ratio are unknown. Further study will be required. At present, however, monitoring is recommended once when therapeutic levels are established, then annually in follow-up. Holter monitoring should be performed immediately if the patient reports symptoms associated with increased incidence of sick sinus syndrome. When cardiac dysfunction is diagnosed, cardiology consultation is suggested. In sinoatrial disorder, pacemaker implantation is indicated in symptomatic bradycardiac patients.[12,18]

It is hoped that health care providers involved with disorders requiring lithium therapy will collaborate with colleagues in cardiology in the study of these dysrhythmias.

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Rickets in a Breast-Fed Infant

Kathleen A. Baron, MD, and Constantine E. Phiripes, PA-C
Fresno, California

A 9-month-old breast-fed infant whose parents were Saudi Arabian is reported. The literature has some references to young infants with rickets,[1-4] but there is evidence that in otherwise healthy breast-fed white infants (less than 6 months old), clinical rickets may be virtually nonexistent.[5-7] Reported cases of rickets suggest such causes as ill health in the mother causing congenital (prenatal) rickets, unsupplemented breast-feeding after six months of age, vegetarian or other unusual diet, pigmented skin, inner-city dwelling, excessive clothing that exposes very little or none of the skin to the sun, increased genetic requirement for vitamin D, or a combination of these factors.

From the Department of Family Practice, Fresno-Central San Joaquin Valley Medical Education Program, University of California, San Francisco, and the Department of Family Practice, School of Medicine, University of California, Davis, California. At the time this paper was written, Mr. Phiripes was a medical student at The Hahnemann Medical College, Philadelphia, Pennsylvania. Requests for reprints should be addressed to Dr. Kathleen A. Baron, 1163 East Warner, Fresno, CA 93710.

Case Report

A 9-month-old male infant was brought to a local emergency room one evening by his parents because his father had noted that he cried whenever his right leg was touched or had to support his body weight. There was no other history of illness or trauma. Nutritional history revealed that the patient had been breast-fed from birth and did not receive supplemental vitamins.

The patient was the second child of Saudi Arabian parents. The father attended the local university on a student visa. The mother accompanied her husband as a housewife. By custom, she was always completely covered by clothing, except for her eyes. She kept the baby similarly clothed, and because of her customs and fears, rarely left the apartment, essentially never exposing either her or her baby's skin to the sun.

The birth weight of the child was 6 lb 15 oz. Delivery was uncomplicated. The mother did not seek prenatal care until her ninth month of pregnancy and did not take vitamin supplements either before or after the birth. The patient was first seen in the office at 19 days of age. Weight at that time was 8 lb 11 oz (75th percentile), length was 21 inches (75th percentile), and head circumference was 14.75 inches (75th percentile). The parents were told that the infant was gaining weight normally, and instructions were given to return in one week. In a week the infant showed an 11-oz weight gain, and physical examination was again unremarkable. A follow-up visit at five weeks showed the child to be essentially normal, with growth progressing along the 75th percentile curve. The parents were advised to return with the child in one month to start immunizations. The next time the infant appeared for medical attention, however, was almost eight months later in the emergency room.

When seen in the emergency room, the patient weighed 17 lb 12 oz (10th percentile), and was 28 inches long (25th percentile). The right lower leg was slightly tender to palpation without redness, warmth, or crepitus. Laboratory values revealed a calcium level of 9.2 mg/100 mL; phosphate, 2.9 mg/100 mL; and alkaline phosphatase, 113 IU/100 mL (normal 80 to 270 IU/100 mL). An x-ray film of the right leg showed mild bone demineralization, cortical thinning, flaring of the metaphyses, and slight widening of the epiphyseal plate consistent with moderately advanced rickets.

The parents were instructed to return to their family physician's office the next morning for care. Treatment of the rickets was then begun with calcium supplementation and 400 IU of vitamin D daily. The patient continued breast-feeding, supplemented with progressively more solid foods.

Two weeks after therapy for the rickets was initiated, the calcium level was 10.5 mg/100 mL, and the phosphate level was 3.5 mg/100 mL. The infant had no evidence of pain. Four months after treatment was instituted, a follow-up x-ray film of the right lower extremity showed healing of the bony defect. When last seen for his 18-month checkup, the infant weighed 22 lb 7 oz (10th to 25th percentile). He was 33 inches long (75th percentile) and had a 19-inch head circumference (50th percentile). The mother, when examined for a subsequent pregnancy, had normal serum calcium, phosphate, and alkaline phosphatase levels, and no clinical evidence of rickets herself.

Discussion

This case illustrates several features of infantile rickets. First of all, the patient's mother herself was at high risk for rickets and did not seek prenatal care until late in her pregnancy. She did not take vitamin supplements during or after her pregnancy, and the cultural garments she and the infant wore minimized their exposure to sunlight. In addition, well-baby appointments were not made or kept by the parents. The patient was at last presented when his parents were seeking care for him because of his inability to support his weight.

The common clinical problem encountered with rickets is the result of skeletal deformities, weakness, decreased muscle strength, and susceptibility to fractures. Features of the disease seen in infants and young children include listlessness, irritability, and hypotonia. Inability to walk without support results as the disorder progresses; in fact, it is frequently a presenting sign.[1,8]

Human milk, commonly thought the perfect nutrition for term infants, has been shown to be deficient in vitamin D in some apparently healthy women.[5,9-11] Interestingly, among recently reported cases of breast-fed infants with nutritional rickets, it was found that most are dark-skinned, heavily clothed patients, with some even reported to be taking vitamin supplement preparations.[1,3,4,8,12]

Rickets caused by vitamin D deficiency that is left untreated may result in permanent stigmata. It

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is easily diagnosed and inexpensively treated. Parents should be encouraged to supplement the diets of their breast-fed infants with a source of vitamin D if they are at a high risk. The recommended daily requirement of 400 IU of vitamin D is found in many pediatric multivitamin preparations, as well as many food products (the major food source being fortified cow's milk), and it is now available in pure form as Drisdol (Winthrop Laboratories). Conversion of endogenous precursors to the active form of vitamin D by adequate sunlight exposure, especially in the first year of life, should not be relied upon by dark-skinned persons, infants of mothers who themselves may be deficient in vitamin D as a result of dietary practices or clothing, and infants who are exclusively breast-fed beyond 6 months of age, even though they may be otherwise healthy.

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Use of Mainframe Computer for Analyzing Family Practice Information

Deborah F. Hotch, PhD
Chicago, Illinois

Maintaining even minimal physician-patient encounter data for a family practice is likely to entail managing a data base of considerable size.[1] Augmenting this with the additional information required for clinical or education research can further increase the scope of the data base. Not surprisingly, computers are being used more frequently to manage and process family practice data. Indeed, the results of a recent survey conducted by Lutz and Green[2] indicated that of 308 family practice residencies surveyed, 61 percent were using computer systems. An additional 23 percent were initiating implementation of a system.

Part of the trend toward the increased use of computers for processing family practice data is the growing popularity of small microcomputers in family practice settings. However, while microcomputers may be well-suited to the needs of some physicians and training programs, others have found the software limitations and programming requirements that may be associated with such computers to be serious drawbacks to their use.

From the Department of Family Practice and the Rush-Christ Family Practice Residency Program, Rush-Presbyterian-St. Luke's Medical Center, Chicago, and Christ Hospital, Oak Lawn, Illinois. Requests for reprints should be addressed to Dr. Deborah F. Hotch, Department of Family Practice, Rush-Presbyterian-St. Luke's Medical Center, Chicago, IL 60612.