Family Practice Grand Rounds

Multiple Obstetric and Neonatal Complications in a Cross Cultural Family

Sam Cullison, MD, Robert Alston, MD
Ruth Emerson, MD, Fred Heidrich, MD
John H. Leversee, MD and James Merrill, MD
Seattle, Washington

DR. JOHN LEVERSEE *(Assistant Professor, Family Medicine):* Today's conference will center around a family who presented to this center for routine obstetric care. The woman's pregnancy turned out to be problematic and, as a result, the family has experienced multiple obstetric, perinatal, and neonatal problems. In addition to dealing with the stress caused by medical complications, this couple, both partners of which are natives of India, has been in the process of adjusting to a relatively new marriage and a new culture.

After the case history is presented, discussion will center around the important issues it raises, such as treating a family of a different culture, family life cycle, implications of cleft palate and neonatal seizures, and living with a chronically ill or handicapped child. Paramount in this case is the interaction of these issues as they relate to the family as a whole; as Bruce points out, "In the management of illness, the family can be an asset or a liability."[1]

DR. SAM CULLISON *(Family Practice Resident):* This family presented to the Family Medical Center in April 1976. The family consisted of the father, a 34-year-old banking executive and five-year resident of the United States, and the mother, a 24-year-old, college-educated housewife who has lived in the United States one year. The mother-to-be was a primigravida of six weeks with unremarkable gynecological, medical, and surgical histories: family history showed her maternal grandfather as hypertensive. Laboratory test results were unremarkable. Physical examination revealed a six-week-sized uterus after a painful, inadequate pelvic examination which required repetition later. Fetal heart tones first were heard by fetoscope at 21 weeks. Ultrasound at 30 weeks showed the fetus to be 28 to 30 week size, both by Hellman and Brown criteria.

Until the 36th week, the course of the pregnancy was grossly unremarkable except for slight weight gain and many somatic complaints by the patient. Between the 36th and 39th weeks, fundal growth stopped. Blood pressure, urinalysis, fetal heart tones, and fetal movements all were normal. A repeat ultrasound at 39 weeks showed that fetal growth was continuing. However, during the 39th and 40th weeks, two oxytocin stress tests and two 24-hour urine estriol tests were run. (The first estriol specimens were lost temporarily.) The oxytocin stress tests were negative. The tests for estriol showed good volumes but low levels indicating impending fetal distress. After consultation with members of the Department of Obstetrics and Gynecology, amniocentesis was recommended.

A visit was made to the family's home to explain the previous test results and new recommendations. The most important outcome of this visit was the establishment of a new and deeper level of communication with the expectant mother and father. In addition, they consented to the amniocentesis, which was attempted the following day; but two taps were nonproductive for fluid.

That night the patient went into labor with spontaneous rupture of her membranes. She had elevated blood pressure, increased deep tendon reflexes, and albumin in her urine: a diagnosis of toxemia of pregnancy was made. Several times that night she was treated with a bolus of magnesium sulfate ($MgSO_4$). Her blood pressure continued to run high and the next morning a magnesium sulfate drip was started along with placement of internal fetal monitoring. By midafternoon, after a caudal anesthetic and Pitocin (oxytocin) augmentation were begun, the cervix was completely effaced, but the fetus had not descended after an hour in this second stage of labor. After a drop in fetal heart tones was noted, the patient was taken to the delivery room and a low forceps delivery over a midline episiotomy was performed yielding a single six-pound, five-ounce male child with a cleft palate. His Apgar scores were 8 and 10 at 1 and 5 minutes respectively. After the delivery, the new mother's blood pressure rapidly dropped to normal and she was discharged two days later.

The dysmorphology group and otolaryngology services were asked to see the infant to evaluate and begin treatment of his cleft palate. During the dysmorphology examination, the child had two seizures – a Jacksonian type

From the Department of Family Medicine, University of Washington, Seattle, Washington. Requests for reprints should be addressed to Dr. Sam Cullison, Family Medical Center, 1959 N.E. Pacific RC-98, University of Washington, Seattle, WA 98159.

first and then a generalized grand mal seizure. As a result, the child was admitted to the newborn Intensive Care Unit and anticonvulsants were begun. The following tests and procedures were done with results all within normal limits: lumbar puncture, toxic and metabolic screens, thyroid screen, serum levels of glucose, calcium, magnesium, and electrolytes, and skull x-rays. Bilirubin was found to be slightly elevated and an EEG showed increased transients in the left temporal/parietal area, but no epileptiform activity.

On the sixth day of life, the antibiotics were discontinued and the child was discharged home on phenobarbital. Follow-up at two and three weeks of age showed excellent growth and an active child with no observed seizures. Since then, head growth and neurological examinations have been normal. The child has subsequently been taken off phenobarbital without further seizure activity.

Concerning Toxemia of Pregnancy[2,3]

DR. ROBERT ALSTON *(Family Practice Resident):* Acute toxemia (pre-eclampsia and eclampsia) occurs after the 24th week of gestation. Mild pre-eclampsia is defined in the following way: proteinuria usually less than 2 gm/24 hr, systolic blood pressure greater than 140 mm Hg or a rise above baseline greater than 30 mm Hg, diastolic blood pressure greater than 90 mm Hg or a rise above baseline greater than 15 mm Hg, and edema. Its etiology is unknown. It makes up five to seven percent of all pregnancies, one fifth of all maternal deaths, and 25/1,000 of the stillbirths each year. Eclampsia, of course, also causes a very high rate of fetal mortality (25 to 35 percent). Those patients at risk for both conditions are young primagravidas, multiple pregnancies, diabetics, hypertensives, and malnourished patients. One popular pathophysiologic theory of toxemia is that the uterus, suffering from decreased blood flow due to any of the factors noted above, increases uterine renin, thereby increasing angiotensin I and II levels, which then increase placental prostaglandins. These substances are uterine vasodilators, normally allowing increased blood flow to come to the uterus. Theoretically, toxemia is initiated if any defect in prostaglandin production or prostaglandin response to angiotensin occurs. If a defect exists, the uterus cannot augment its blood flow and uterine ischemia results. A complication of toxemia of great importance is cerebral vascular accident (CVA). It is the leading cause of maternal death in toxemia. Other complications include: abruptio placentae, hypofibrinogenemia, glomerular endotheliosis, and intravascular hemolysis. A hallmark of toxemia is edema formation. However, diuretics are not recommended for pre-eclampsia, since bedrest is felt to be the best and safest diuretic. If the patient does not respond to this measure, she should be hospitalized for the treatment of her hypertension, proteinuria, and edema with sedation (phenobarbital), and a low-salt diet. Treatment for moderate and severe pre-eclampsia is hospitalization in most all cases. One must watch out for symptoms of visual changes, abdominal pain, and headache, all of which are precursors of frank eclampsia and seizures. Magnesium sulfate was used in the care of this patient for her hypertension which reached the 145/105 mm Hg range with 1+ proteinuria. Appropriate doses for $MgSO_4$ are: 2 gm intravenous bolus, then 60 gm in 500 cc five percent dextrose in water (D_5W), titrated. One must check the reflexes and titrate the amount of magnesium sulfate to make reflexes hypoactive, but not absent. These correlate with therapeutic magnesium levels in the blood. One must also watch the urinary output. A person with a decreased urinary output will run into problems with magnesium toxicity. Antihypertensives may be started when the diastolic pressure rises above 100 mm Hg, and hydralazine by intravenous drip (20 mg in 500 cc D_5W) adjusted to keep diastolic blood pressure in the 90 to 100 mm Hg range is appropriate, or one may use a bolus methodology. One attempts to stabilize a severe pre-eclamptic patient and to obtain improvement within 12 to 24 hours. If no improvement is noted and delivery is not imminent, one should obtain delivery in the term pregnancy. Induction is usually done with amniotomy and Pitocin (oxytocin). Since the uterus is hyperresponsive to Pitocin in this situation, one must use small amounts. Postpartum, one must watch carefully for 24 to 48 hours, since seizures can rarely occur after the first 48 hours.

In closing, it is important to note that pre-eclampsia can first present itself after delivery and is said to occur in this way in 25 percent of patients with pre-eclampsia. Therefore, blood pressure monitoring is an important part of routine postpartum care in the hospital.

DR. RUTH EMERSON *(Family Practice Resident):* Crossing cultural boundaries isolates one from his/her traditional and, therefore, expected support system and requires a change in sets of assumptions about behavior. In spotting trouble areas, it helps to have an idea of the various ways different cultures deal with life stresses, including transition points, and to have knowledge of stresses for people of a particular background within the culture.

India is a society based on male dominance: it is the male son who must carry out the ritual purification of the parents;* female children are a liability for many reasons, including the large dowry required for a good marriage. Having their firstborn be a male child was extremely important to this couple. Women have little independence in the traditional, male-dominated framework. Upon marrying, they break with their own family and are expected to fill the role of devoted, uncomplaining wife and daughter-in-law. As Dr. Cullison observed, these rigid expectations often resulted in numerous somatic complaints.

Within a culture it is important to remember that values differ from caste to caste, family to family, and individual to individual. We asked this family directly about things that were important to them, as well as made ourselves aware of level of education, region of origin, caste/class traditions, and family background. Both the wife and the husband are from the mercantile caste (and employed in business), both are college educated, and both are fairly traditional in that they accepted an arranged marriage. The household also includes extended family members: the husband's mother and brother and sister-in-law live in the same house, and I am following the sister-in-law for her pregnancy.

Theories on the origin of illness are

*In a conversation with Frank Conlon, PhD, February 1977.

Table 1. Empirical Risk Figures for Cleft Lip and Palate and Cleft Palate*

Affected Parent	Affected Sibling	Affected Other Relative	Percent risk to subsequent child CL+P	CP
-	-	-	0.1	0.04
-	1	-	4	2
-	1	1	4	7
-	2	-	9	1
1	-	-	4	6
1	1	-	17	15

*The risk of a subsequent child (data is for caucasians) being born with either cleft lip and palate (CL+P) or cleft palate (CP) is given in the fourth and fifth columns, respectively, for a family in which the anomaly is present in the members listed in the first three columns.[7]

Table 2. Neonatal Seizures

Clinical Findings
(in order of descending frequency):

1. Subtle – tonic eye deviation or limb posturing; repetitive blinking, drooling, sucking.
2. Multifocal clonic – non-ordered progression of clonic movements, eg, right arm to left leg.
3. Focal clonic – generally indicative of bilateral pathology, eg, metabolic problem.
4. Tonic – focal or general decerebrate posturing.
5. Myoclonic – synchronous jerks of flexion of upper or lower limbs.

another important factor which varies greatly from culture to culture. Persons with seizures, for example, are treated in some cultures as possessed by gods and therefore holy, whereas in other cultures they may be treated as socially marginal.[4,5] A knowledge of these beliefs, in turn, is vital to an understanding of how the patient is perceived and treated within his society. Fortunately, to this family seizures simply mean there might be some malfunction within the child's brain.

DR. CULLISON: Looking at this family in terms of the *family life cycle*[6] it is evident that they were facing two of the five stages almost simultaneously: not only were they adjusting to a relatively recent marriage *(establishment stage),* but they were entering the *expansion stage* with the birth of their first child.

Within each stage are stressful, phase-specific tasks which require reciprocal changes among family members. During the *expansion stage,* both parents will be under pressure to provide a facilitory environment for the child as well as to come to grips with the child's responsiveness to them and their new roles as mother and father. In this case, they must also face the question of why their baby is not normal and who is at fault. In the years to come, they will face different issues as they pass through the *dispersion stage* when their children enter adolescence, the *independence stage* with the children leaving home, and the *replacement stage* with the death of a spouse and the redefinition of relationships.

Awareness of these family life concepts enables the physician to better meet the patient's needs as an individual as well as family member and, in turn, therefore, to practice preventive family behavioral medicine.

DR. FRED HEIDRICH *(Family Practice Resident): Cleft palate* occurs in two major genetically separate syndromes: cleft palate alone and cleft lip with or without cleft palate. Cleft palate is half as common as cleft lip with or without cleft palate, and has an incidence which varies with race (4/10,000 for caucasians, 2/10,000 for American blacks).[7] Once one child has been affected there is significant increase in the risk to subsequent offspring. In the family we are discussing, future children have a two percent chance of having cleft palate (Table 1); there is no increased risk of cleft lip.

Numerous complications occur with cleft palate. Feeding is difficult – this child had to be changed from breast feeding to bottle feeding. Otitis media is found in 100 percent of the children with cleft palate[8] – these children must be watched closely for ear effusion and treated vigorously as soon as it occurs. Malocclusion of teeth can become a problem, especially with cleft lip. Speech difficulty secondary to an incompetent closure between the nasopharynx and oropharynx is a problem if surgical correction is unsuccessful or not instituted before speech begins. Surgical correction usually is recommended sometime during the first two years of life. The otolaryngologists plan to reevaluate

this child at age one year.

Neonatal seizures are quite different in form from seizures of older persons.[9] (See Table 2 for a listing of seizures most common to neonates.) The child under discussion today had multifocal clonic seizures which may show classic Jacksonian progression, progression from right arm to left leg, or which may be multifocal without the classic march.

There are numerous etiologies of neonatal seizures, the most common being perinatal complication including anoxia or birth trauma. The only known factor that might have some relationship to this infant's seizures is the maternal pre-eclampsia. In a Boston Children's Hospital study of 144 infants with neonatal seizures,[10] five of the mothers had pre-eclampsia. The largest group of neonates in that study had seizures of unknown etiology, the category into which this baby probably fits.

Prognosis is an important consideration in treating the infant and in working with the family. Because this child's seizures were of unknown etiology, prognosis is hard to establish; however, about two thirds of such cases do well while only one third do poorly.[10] Of the infants with seizures secondary to pre-eclampsia 80 percent do well.[10] This child's EEG showed a unifocal abnormality which in only one third of the cases is associated with permanent neurological damage.

DR. JAMES MERRILL *(Family Practice Resident):* Most of the subsequent ideas on the *chronically ill or handicapped child* are taken from an in-depth article by Dr. James Hughes discussing the emotional impact of chronic disease in children.[11]

Living with a chronically ill or handicapped child in the home requires of all family members their adjustment to numerous problems. Understanding the following aspects of a chronic disease or handicap is necessary for the adjustment to be successful: the nature of the disease or handicap; accuracy of diagnosis; prognosis; disfigurement; activity restriction; therapy and its availability; and treatment cost. Finally, the pre-illness attitudes and emotional balance of the parents and family greatly influence the ease of adjustment to a chronic disease within the family.

Stress within the family is the natural result of a member's being victim of a chronic disease or handicap. Siblings, if present, often are most greatly affected; usually, the sibling closest in age to the sick child is at risk not to receive an adequate amount of attention or affection. Therefore, it is important to involve siblings in the therapy and to keep them informed of what is happening. The physician has the responsibility of anticipating this problem and making the parents aware of it before it arises.

Discord secondary to the anxiety and burden of having a chronically ill child may occur in what has been a stable marriage.[12] Parents may blame each other, extended family members, or the physician for the child's illness. If these problems are anticipated and discussed openly before they occur, they may well be avoided.

It is important to encourage the parents to maintain their normal lifestyle and not to become overly involved with the sick child. Inform the extended family about the disease process, involve them as much as possible in the treatment, and encourage them to support the parents' normalization of their business, social, and home lives. If the parents read of a miracle cure and ask the physician about it, it is wise for the physician to then write the author for further information. Showing the parents the author's reply, which often is a repudiation of the article's content as misquotation, will do much to continue the trusting relationship between parents and physician.

Only through anticipation of problems is severe emotional trauma to an entire family prevented.

DR. CULLISON: Many of these points have been addressed in working with this family. To assure accuracy of diagnosis, consultants were called in to evaluate and treat the cleft palate and seizures. The family has been informed of the possible complications of the cleft palate and, at the same time, assured that their child's prognosis is good. Because of the family's concern about the treatment cost, financial assistance is being sought with the help of the Crippled Children's Services.

The parents are being encouraged to spend time together, away from the child. However, they now are in a protective phase and have not left the house either together as a couple or with the child during this first month. In addition, the child is sleeping in the parents' room. These are choices they must make, but it is the physician's responsibility to stress to them that their constant vigil is not medically necessary.

The agenda for the next conference with this couple includes reviewing the diagnosis, prognosis, and treatment plans; carefully discussing the parents' venturing outside the house and alternative sleeping arrangements; determining whether the parents feel responsible for the child's physical problems and, if so, beginning to reduce these feelings as much as possible;[13] giving the parents the opportunity to ask any questions they may have.

DR. LEVERSEE: During the past several weeks, this family has had new physical and emotional experiences, including amniocentesis and giving birth to a chronically handicapped child, that could have been extremely traumatic. The primary physicians on this case have been called upon to use skills important to family medicine in handling many of the health problems, in coordinating and interpreting specialty consultation and care, and in helping the family to understand its special problems. Great effort has been made to understand the major cultural differences so as to minimize misunderstanding and the level of stress and to maximize the effectiveness of the health care provided.

References

1. Bruce J: Family practice and the family: A sociological view. J Comp Fam Studies 4:4, 1973
2. Speroff L: Toxemia of pregnancy. Am J Cardiol 32:582, 1973
3. Zuspen F: Toxemia of pregnancy. J Reprod Med 2:3, 1969
4. Neutra R: Navajo seizure disorders. Culture, Medicine, and Psychiatry, to be published
5. Kleinman A: medical and psychiatric anthropology in Chinese culture. J Instit Ethnology Academica Sirica 39:107, 1975
6. Worby C: The family life cycle: An orienting concept for the family practice specialist. J Med Educ 46:4, 1973
7. Witkop CJ Jr: Cleft palate. In Bergsma D (ed): Birth Defects: Atlas and Compendium. Baltimore, Williams and Wilkins, 1973, pp 264-265
8. Paradise J, Bluestone C: Early treatment of universal otitis media of infants with cleft palate. Pediatrics 53:48, 1974
9. Volpe J: Neonatal seizures. N Engl J Med 289:413, 1973
10. Rose A, Lombroso C: Neonatal seizure states. Pediatrics 45:404, 1970
11. Hughes J: The emotional impact of chronic disease. Am J Dis Child 13:1199, 1975
12. Findlay I, Smith G, Graves H, et al: Chronic disease in childhood: A study of family reactions. Br J Med Educ 3:66, 1969
13. Gardner R: The guilt reaction of parents of children with severe physical disease. Am J Psych 126:5, 1969