

# **CHALLENGES OF PREMATURITY**

## **PART I**

### **NEC**

Premature infants, those born before 37 weeks gestation, often face immediate medical challenges not confronted by a full term newborn. Most of the health problems faced by preemies are caused by the immaturity of their organs and the fact that these organs are forced to adapt to the environment of the outside world before they are prepared to. Generally, the more premature the baby is, the more help and interventions they will need to be stabilized.

One of the most serious problems that can be faced by a preemie in the first two weeks of life is necrotizing enterocolitis (NEC). "Necrotizing" means tissue death, "entero" refers to the small intestine, "colo" refers to the large intestine, and "itis" means inflammation. NEC accounts for about 15% of the deaths in infants weighing less than 1600 grams (3½ pounds) and is the most common and most serious disorder of the GI tract in hospitalized babies. The overall mortality from NEC is 25%.

The cause of NEC remains unknown but there are theories as to why it occurs that involve the association of several factors. NEC occurs almost exclusively within the first two weeks of life after milk feedings are started. One contributing factor is thought to be that the infant's immature pulmonary and circulatory systems do not provide the baby's bowel with enough blood flow and oxygen. When the carbohydrate based milk feeding is introduced, the added stress on the bowel allows normal bacteria to invade the bowel walls and cause damage and inflammation of the tissue. Lactose, the sugar present in milk, is hard for premature infants to digest completely. The residual undigested sugar in the bowel ferments and encourages growth of bacteria; this also contributes to bacterial overload and inflammation.

NEC can be difficult to diagnose. Usually the baby will appear sick, lethargic, and will not be able to continue its feedings. Some of the other signs and symptoms seen are: abdominal distension, abdominal tenderness, bilious vomiting, diminished bowel sounds, bloody stools, periumbilical darkening or abdominal erythema, apnea, and bradycardia. X-rays are frequently done to show fixed or distended loops of bowel and to see if air, fluid, or holes can be seen in the intestines.

Most of the time NEC can be managed medically. This management consists of stopping feedings, nasogastric drainage, IV fluids and nutrition, antibiotics (if infection is suspected), and frequent assessment and x-ray of the abdomen. If the baby responds well, feedings can be restarted in about three days. If medical management is not effective, surgery may be necessary to remove the diseased portion of the bowel and sew the healthy ends together. Sometimes if the baby is very sick, a colostomy is necessary to rest the bowel before the ends are reattached. Nutritional prognosis is somewhat dependent on how much diseased and/or dead bowel needs to be removed. If a large amount of the bowel has to be resected, infants are at risk for malabsorption and decreased growth.