CASE REPORTS

The Importance of Breastmilk in Acute Neonatal Enterocolitis and Other Enteric Disease.

by

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Abstract

Breast milk as "a biological infant feeding" in babies especially in low birth weight infants with necrotizing enterocolitis was very important because it contain many protective factors (Jelliffe, 1976).

Jelliffe and Jelliffe (1976) stated that in industrialized areas about 3500 babies with necrotizing enterocolitis died annually, while Santulli et al. (1975) get the mortality rate 78% i.e. 70% with operation and 84% without operation.

In the Department of Child Health, Dr. Cipto Mangunkusumo Hospital, a case of necrotizing enterocolitis with resection about 50 cm of the ileum was reported.

Breast milk was introduced to this baby in addition to the MCT formula.

The growth and development were excellent on follow up until 6 months and thereafter. In conclusion breast milk should always be given for patients suffering from necrotizing enterocolitis or other enteric diseases besides the other routine treatment.

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Introduction

Acute necrotizing enterocolitis is a highly lethal disease of the gastrointestinal tract in newborn infants. (Barlow et al,. 1974). It is seen primarily in low birth weight infant and is characterized by ischemic necrosis of the bowel wall frequently leading to perforation and death (Mizrahi et al., 1965).

The prognosis of acute necrotizing enterocolitis is serious. Only 14 of 64 patients who were hospitalized at the Babies Hospital, New York, from 1955 to 1974, survived (22%). It means that the mortality rate was 78% i.e. 70% with operation and 84% without operation (Santulli et al., 1975). Jelliffe and Jelliffe (1976) stated that in industrialized areas about 3500 babies with necrotizing enterocolitis died annually.

During the initial neonatal period, particularly in low birth weight infants, a temporary absence of local gut defences may predispose the gut of those infants to penetration of sensitizing antigen, microflora and other biologically active substances (Walker, 1976).

Many protective factors are present in breastmilk, i.e. : Secretory Ig.A (S-Ig.A.), other immunoglobulines (Ig. G., Ig.M., Ig.E.), lactoferrin, lysozyme, growth factor of Lactobacillus bividus, anti staphylococci factor, lacto-peroxydase-thiocyanate, leucocytes, C 4 and C 5 (Goldman and Smith, 1973; Walker, 1976, Suharyono, 1977). In general, Indonesian mothers still have enough protective factors in their breastmilk, except lactoferrin (Sunoto et al., 1975).

In this study the importance of breastmilk in necrotizing enterocolitis and other enteric diseases will be discussed.

Case reports

1. Necrotizing enterocolitis.

S, a male baby was born in the obstetric ward, Dr. Cipto Mangunkusumo Hospital, and hospitalized in the Neonatal ward of the same hospital on December 6, 1975 with a working diagnosis of full term neonates delivered by sectio caesaria due to antepartum haemorrhage. Prenatal care was good. This delivery was the 5th out of 7 pregnancies, with 2 abortions.

Physical examination:

A three day old baby with a body weight of 4100 gram and body length of 49 cm, with a reddish skin. The general condition was good, the head circumference was 37 cm, abdomen 35 cm, no abnormality was detected. On the third day of hospitalization, the baby showed a distended abdomen (meteoristic abdomen). After consulting the surgeon, the diagnosis of suspected paralytic ileus and peritonitis was made.

Plain foto abdomen revealed a high intestinal obstruction. Operation was done on 11th December 1975 revealing

a necrotizing enterocolitis. Resection was done of about 50 cm of the ileum. Three perforation holes and some predilected areas for perforation were detected. Proximally 70 cm and distally 40 cm of the ileum were left. An end to end anastomosis (single layer) was performed.

Intravenous solution containing glucose and sodium chloride 3 : 1 and potassium chloride 12 meq/bottle, was given for 5 days beside aminofucin and antibiotics.

On December 17, 1975 a milkformula (SGM) was given. The baby got frequent diarrhea and the body weight decreased very rapidly i.e. from 4.000 gram to 3.150 gram. On December 23, 1975 the baby was consulted again to the Pediatric gastroenterology subdivision revealing a severe fat malabsorption, so that a Medium Chain Triglyceride (M.C.T.) formula was recommended. The S.G.M. was discontinued and Caprilon (M.C.T.) was introduced.

Though the diarrhea stopped immediately after introducing M.C.T. for 2 weeks, the child did not gain weight properly, i.e. from 3.150 to 3.200 gram. On December 31, 1973, the child was transferred to the Pediatric Gastroenterology ward.

Three weeks after introducing breastmilk and M.C.T., no diarrhea was seen and the body weight increased well i.e. from 3.150 to 3.750 gram.

On January 20, 1976, the baby was discharged and a continous and regular follow up was done at home until the child was 2 years old. Breast feeding was still given until the age of two years, in addition to the proper normal feeding. The body weight of the child was 12.400 gram in December 10, 1977. The growth and development were excellent, no important disease was noted during the time the child was breastfed i.e. until he was 2 years old.

Comment

There are reasons to expect, that breastmilk will prevent necrotizing enterocolitis in human premature infants (Barlow et al., 1974). Breastmilk is ideally suited to provide passive enteric immunity to the premature infant until its own enteric immunity is established. Breastmilk contains a large amount of S. Ig.A., a smaller amount of Ig.G., active lymphocytes and macrophages, specific antibodies against many types of microorganism (especially the most important bacterial pathogen of the neonate, E. Coli), a growth factor of gram positive lactobacilli, an anti staphylococcus agent, complement component, lysozyme, lacto peroxydase and lactoferrin (Goldman and Smith, 1973).

The current theory of the pathogenesis of necrotizing enterocolitis (Barlow et al., 1974) is as follow: hypoxia leads to the development of necrotizing enterocolitis by decreasing enteric perfusion. The result is decreased cellular metabo-

lism and decreased mucous production. The loss of enteric mucous expose the mucosal cells to enzymatic digestion and allows bacterial invasion. Without the passive immunity and intestinal control of breastmilk, this loss of the enteric immunity barrier leads to a series of pathologic events of which necrotizing enterocolitis is characteristic.

By introducing breastmilk, which contains passive enteric immunity, overgrowth of enteric bacteriae were not found and the disease will disappear.

2. Intussusception due to coecal duplication.

F, a three months old girl was hospitalized for the first time on December 20, 1975, with a working diagnosis of dehydration with acidosis due to vomiting and observation of meteorism.

Anamnesis :

Since 3 days before admission, the abdomen was meteoristic, the baby vomited 4 times a day producing yellowish material.

Physical examination :

A three - month - old girl, with a body length of 58 cm and body weight of 3.800 gram. The temperature was 40°C, the patient was in a rather serious condition. A plain foto of the abdomen showed an obstruction in the area of the jejunum. Consultation to the surgeon revealed an obstruction due to intussusception. On December 21, 1975 a resection of about 5 cm was done and an ileo-colica end to end anastomosis was performed. The post operative diagnosis was coecal duplication. Due to spasticity of the extremities, consultation to the Paediatric neurology subdivision was done. The possibility of spastic tetraparesis due to encephalitis was considered and valium 4 times 1 mg and glycerol 2 times 10 ml daily were given.

On 26 December 1975, a consultation to the Paediatric gastroenterology subdivision was done revealing that the child suffered from sugar intolerance and severe fat malabsorption. So, a low lactose and M.C.T. formula was introduced beside the continuation of breastmilk feeding. The stool culture of this child showed Enteropathogenic E. coli, Proteus species, Diphtheroid, Staphylococcus nonhemolyticus. The resistency test showed that the microorganism was still sensitive to rifampicin and minocine. On January 13, 1976, the parents asked for discharge. During 3 weeks hospitalization the body weight increased very well although not similar to the case of necrotizing enterocolitis. Unfortunately a follow up could not be done since the address of this child is not correct.

Comment.

An ileocoecal resection usually gives a rather bad prognosis since contamination from the colon to the small intesti-

nes usually occurs. Fortunately, based on the experience of treating a child suffering from enterocolitis, breastmilk was given, this making the prognosis better although not as good as the first case.

Summary

Breastmilk should always be used for patients suffering from necrotizing enterocolitis or other enteric diseases, since it contains protective factors against pathogenic microorganisms in the gut.

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