Selected Summaries

Transfusion of Child's Own Blood

[Kemmotsu H, Joe K, Nakamura H, Yamashita M. Predeposited autologous blood transfusion for surgery in infants and children. J Pediatr Surg 1995, 30: 659-661].

Homologous blood transfusions have the associated risks of causing infections, immunological reactions, and graft-versus-host disease. Autologous blood transfusion in which the patient's own blood is collected and reinfused is considered to be an ideal method of avoiding these risks. Since 1989 the authors have conducted predeposited autologous blood transfusions (PABT) for infants and children in whom transfusions were expected to be required during an elective operation. Autologous blood was deposited in 13 patients aged 9 mo to 10 yrs (median 21 mo) with weight from 7.3 to 33.6 kg (median, 10.5 kg). They included 8 patients with Hirschsprung's disease, 3 patients with benign tumors, and 2 others. The volume of predeposition was calculated to maintain the patient's hematocrit at 30% after collection. Blood was deposited once or twice, 1 to 2 wks before the operation. The actual volume of predeposited blood was 19.1 + 2.4 ml/kg in infants with Hirschsprung's disease, 2.18 + 10.0 ml/kg in children with Hirschprung's disease, and 12.6 + 2.2 ml/kg in children with.other diseases. Nine patients were operated on using only PABT, 2 patients required homologous blood transfusions in addition to PABT, and 2 patients did not require any blood transfusions. No complications occurred as a result of PABT except preoperative anemia. Authors conclude that PABT is a safe and effective means of procuring blood for intraoperative transfusions in infants and children undergoing major elective pediatric surgical procedures.

Comments

The possibility of transmission of hepatitis B, malaria, or syphilis through transfused blood was enough reason to avoid blood transfusion unless. Now that AIDS incidence is rising, every one has become even more cautious. The situation is worst in those patients where for some reason the use of commercially available blood (from professional donors) becomes unavoidable. Naturally, everyone (including the patients families) is looking for alternatives. It is in this backdrop that autologous transfusion appears to be attractive.

There are three recognized categories of autologous transfusion : (i) preoperative collection, storage, and retransfusion of blood during or after surgery; *(ii)* immediate preoperative phlebotomy (after anesthetic induction), and artifical hemodilution accomplished with simultaneous replacement with crystalloids or colloids; and *(iii)* intraoperative or postoperative blood salvage procedures and retransfusion of salvaged blood.

The following method for collection of blood from the child was adopted. The blood to be predeposited was withdrawn 1 to 2 weeks before surgery from an arterial, venous, or central venous line. The amount of blood was calculated to maintain the patient's hematocrit at 30% after donation. The blood was collected in a bag containing acid-citrate-dextrose solution, labelled, and stored at the Blood Center of the hospital. Lactated Ringer's solution was infused rapidly 1.5 to 2 ml per 1 g of the blood withdrawn during or/and after collection. During phlebotomy, blood pressure and heart rate were monitored and the physical condition of the patient was observed carefully. All patients received oral iron from the day of phlebotomy until the day of surgery.

Several investigators have reported the use of predeposited autologous blood transfusion in older children and adults and found no serious side effects. However, one should not be over enthusiastic about the use of FABT. For example, if blood has been predeposited from a particular patient and during surgery he does not bleed much and does not need a blood transfusion it is not advisable to give him the collected blood. Simpson *et al.(l)* emphasized that it is erroneous for patients to get their unused own blood back simply because it is available, for the following reasons: (z) there is a potential for volume overload, especially in children, *(it)* bacterial contamination of stored blood can occur, *(Hi)* mechanical hemolysis can occur, especially with frozen units that have been deglycerolized, and *(iv)* human clerical errors can occur during the administration of the transfusions.

REFERENCE

1. Simpson MB, Georgopoulos G, Orsini E, *et al.* Autologous transfusion for orthopedic procedures at a children's hospital. J Bone Joint Surg 1992, 74A: 652-658.

Lactobacillus GG in Acute Diarrhea

Lactobacillus casei has been promoted by the pharmaceutical industry for the treatment of diarrhea. But, scientific bodies have always condemned its use. Now, another variant human Lactobacillus GG (which unlike other strains of *Lactobactfltts casei* does not ferment lactose) is being studied.

Summary 1: [Raza S, Graham SM, Allen SJ, Sultana S, Cuevas L, Hart CA. Lactobacillus GG promotes recovery from acute non bloody diarrhea in Pakistan. Pediatr Infect DisJ1995,14:107-111].

A prospective, placebo-controlled, triple blind clinical trial was carried out in Pakistan to determine the effect of *Lactobacillus* GG (supplied by Scientific Hospital Supplies, UK) on the course of acute diarrhea in hospitalized children. Forty children (mean age, 13 months) were enrolled and after rehydration received either oral *Lactobacillus* GG (n=21) or placebo *(n-19)* twice daily for 2 days, in addition to the usual diet. The clinical course of diarrhea was followed during the treatment period. Features on admission into the study groups were similar and were characterized by severe diarrhea, malnutrition and inappropriate

management before presentation. Response was evident on Day 2 when the frequency of both vomiting and diarrhea .was less in the Lactobacillus group. In those who had presented with acute nonbloody diarrhea (n=32), the percentage of children with persistent watery diarrhea at 48 hours was significantly less in the Lactobacillus group: 31% vs. 75% ($p < 0.01$). No significant difference was observed by 48 hours in those presenting with bloody diarrhea. Thus, the use of oral bacteria, *Lactobacillus GG,* to colonize the intestine may have a practical role in nonbloody diarrhea.

Summary 2: *[Kaila M, Isolauri E, Saxelin M, Arvilommi H, Vesikari T. Viable versus inactivated lactobacillus strain GG in acute ro.tavirus diarrhea. Arch Dis Child 1995, 72:51-53].*

Peroral administration of *Lactobacillus casei* strain GG during acute diarrhea has been shown to enhance the^ immune response to rotavirus as measured by circulating IgM and IgA producing cells at the acute stage of the infection. Using measurement of this immune response as a tool, the present randomized double blind two cell clinical trial was designed to address specifically the question for stimulation of rotavirus immune responses. Rotavirus serum IgA enzyme immunoassay antibody responses were higher in infants treated with viable L. *casei* strain GG than in those treated with inactivated *L. casei* strain GG. There was a significant difference at convalescence with rotavirus specific IgA secreting cells found in 10/12 infants receiving viable but only 2/13 infants receiving inactivated *L. casei* strain GG. The results indicate that viable *L. casei* strain GG stimulates rotavirus specific IgA antibody responses, theoretically significant in the prevention of reinfections.

Comments

Many investigators have shown interest in *L. casei* strain GG ever since its isolation from man in 1987. It has properties favorable for survival, adhesion and antimicrobial activity in the gastrointestinal tract. It can colonize the human intestine when given orally in doses of 10-77 colony forming units. Workers in Finland(l) have shown that it can accelerated recovery from acute diarrhea among well nourished children, the majority having rotavirus gastroenteritis. Now, a study from Pakistan shown that it may be useful in diarrhea in a tropical country also, where the nutritional status of children is poor and the etiology may also be bacterial more frequently than in a society like that of Finland (only 22% of the cases in *Summary 1* tested positive for rotavirus).

Lactobacillus GG has been shown to have a stimulatory effect on immune responses in rotavirus diarrhea(2). There was an enhanced activity of circulating IgM and IgA producing cells at the acute stage of rotavirus infection. Study 2 shows that viable *Lactobacillus* GG stimulates specific IgA antibody responses. Therefore, using viable *L.casei* strain GG as an adjunct in the diet during acute rotavirus diarrhea may promote immunity against reinfection. In this second study, clinical recovery from rotavirus diarrhea was equal in the two groups receiving viable or heat inactivated *L. casei* GG during diarrhea. Authors have suggested that in developing countries using heat inactivated *L.casei* GG might ob-

viate the need to preserve viability of the bacteria, while maintaining the beneficial clinical effect.

Evidently, further confirmatory evidence is imperative before the use of *Lactobacillus* GG can be recommended as a routine in acute diarrhea.

REFERENCES

1. Isolauri E, Juntunen M, Rautanen T,*et al.* T. A human *Lactobacillus* strain *(Lac tobacillus casei* sp. strain GG) promotes recovery from acute diarrhea in children. Pediatrics 1991, 88: 9012-9017).
2. Kaila M, Isolauri E, Soppy E, *et al.* En hancement of the circulating antibody secreting cell response in human diarrhea by a human *Lactobacillus* strain. Pediatr Res 1992, 32:141-144.

The Squash Drinking Syndrome

[Hourihance J, Rolles C. Morbidity from excessive intake of high energy fluids; The 'squash drinking syndrome'. Arch Dis Child 1995,72:141-143].

Children self regulate their energy intake by compensating at one meal for their high or low intake of energy at the previous meal or snack. It is, therefore, theoretically possible for the practice of excessive drinking of fluids that are rich in energy but poor in other nutrients to cause poor appetite at mealtimes and poor weight gain. The high fluid intake may cause loose stools and other nonspecific symptoms. This study was undertaken to identify children with morbidity due to excessive intake of energy from fluids. Eight children (4 boys, mean age 20.8 mo, mean duration of symptoms 7 mo) who were referred with nonspecific symptoms such as poor appetite, poor behavior at meal times, poor weight gain and loose stools were enrolled from a Pediatric Clinic. They were subjected to a supervised reduction of energy rich fluids. All children were able to reduce their intake of energy rich fluids, as prescribed. All children demonstrated an improvement in symptoms and an increase in weight. A careful dietary history, which includes documentation of fluid intake may identify children whose intake of high energy drinks may be excessive. The pathogenesis, symptoms, and response to treatment of these patients are consistent enough to be regarded as a distinct clinical entity; the 'squash drinking syndrome'.

Comments

Mouth watering advertisements of soft drinks, squashes and other drinks on the television alongwith sustained door to door campaigns of manufacturers of these items have penetrated the barriers of almost all households. Obviously, children are, the most vulnerable. If we are going to follow, in due course of time, what is happening in UK then signs are ominous. Fifty per cent of infants and more than 70% of preschool children never drink plain water(l). Yes, they all liked squashes or carbonated soft drinks.

Occasionally children are brought to the pediatrician's clinic with complaints similar to those described as 'squash drinking syndrome'. Indeed, many children who visit the pediatrician's office for 'poor feeding habits' are avid drinkers of these drinks besides being fond of

candies and chocolates. All these things give calories without any other useful nutrients ("empty calories"). Due to diminished appetite this could lead to a child missing out on valuable nutrients at meal times, or conversely encourage excessive energy intake and obesity.

Whatever is stated in the above two paragraphs is well known. Yet, our children fall prey to them. Can't we do something!

REFERENCES

1. Petter L, Hourihane J, Rolles C. Is water out of vogue? A survey of the drinking habits of 2-7 year olds. Arch Dis Child 1995, 72: 137-140.

Krishan Chugh,
Department of Pediatrics,
Sir Ganga Ram Hospital,
New Delhi 110 060.