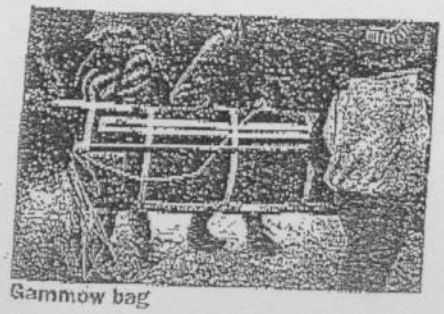
Gammow bag for acute mountain sickness

Sir—On a trekking trip to the Himalayas, one of my trekking party developed sudden and striking acute mountain sickness. The patient was a previously healthy 16-year-old woman. The group had acclimatised well after taking 2 weeks to reach Namche Bazaar (3505 m).

We were trekking at 3505 m when it began to snow and became very cold, so we decided to retreat downhill. The patient then told me she had felt unwell since early morning. She had a Glasgow Coma Score (GCS) of 15/15, but was cold and dehydrated. After rehydration and warmer clothing we continued downhill. During the trip back she became progressively more unwell—she was ataxic with a GCS of 13/15—we then carried her, but she continued to deteriorate. When we reached the tea house where we were staying she had a GCS of 7/15 with papilloedema. I treated her in our Gammow bag (an airtight tube, pressurised with a foot pump that increases the ambient pressure, the equivalent of a quick descent), and after 15 min she had completely recovered. Treatment was continued for 2 h. At this time she was conscious, appropriate, and oriented, but 1 h after treatment she deteriorated to GCS 8/15. Once more I treated her in the bag for 6 h and began intravenous dexamethasone 4 mg every 6 h.

Over the next 4 days, a similar pattern evolved—recovery in the bag and deterioration outside. I kept her in the Gammow bag for 4 days apart from food and toilet stops. Once in Namche, we flew back to Kathmandu by helicopter where we had no further problems. In New Zealand she was examined by a neurologist who could find no abnormality. Computed tomography was done, but the scan was normal. Others have described similar cases in which small tumours of the fourth ventricle are found on computed-tomography scan and a small amount of cerebral oedema causes cerebrospinal-fluid outflow obstruction.

To date she has remained well, though has not ventured back to altitude. The cause of such fulminant cerebral oedema at a moderate altitude after good acclimatisation is unclear. This case illustrates that a Gammow bag may be lifesaving and that it can be used for lengthy periods.



Gammow bag

David Austin

Intensive Care Unit, Waikato Hospital, Private Bag 3200, Hamilton, New Zealand

Human-milk lactadherin in protection against rotavirus

Sir—David Newburg and colleagues (April 18, p 1160)[1] show that potential protection against rotavirus is associated with the glycoprotein lactadherin in human milk. *The Lancet* press release of this report says this "may eventually lead to the development of a new therapeutic agent that could be taken as a tablet by new mothers in order to protect their babies from childhood diseases". *The Lancet* makes a fundamental error in interpretation—any such therapeutic agent would need to be taken orally by the baby and not the mother.

Journalists and media channels frequently rely on research article summaries, particularly when the content of a paper is technical. Journals such as *The Lancet* are regarded as expert sources of information. This story has now spread far and wide, even local newspapers such as *The Cairns Post* have printed it.[2]

We wish to highlight three important factors that could have affected the results reported by Newburg and co-workers—breastmilk sampling, degree of breastfeeding, and weaning.

Sampling of breastmilk is important yet receives less than four lines in the paper. The investigators say, "The entire milk content of one breast was collected by breast pump between 0800 h and 1200 h", which is a technical impossibility and a common misconception. Lactation is a dynamic process and the breast is not merely a container that can be emptied. In a lactating woman, right and left breasts can work independently and produce milk of consistently different quantity and fat content (mucin and lactadherin are found in the fat globule membrane). We suggest that use of the same breast in each woman each time could give rise to less individual variations over time in concentrations of lactadherin. The type of breast pump used (manual, electric, or battery-powered pump) was not described. The type of pump used, the frequency and length of time for expression of milk, the expertise user, and the hormonal res during pumping will all affect qu and fat content.[3] Pumped milk i likely to differ from milk obtained feeding baby.[4] We sincerely hope the mothers were not attached to breast pump for the full 4 h, w would be pretty uncomfortable!

The investigators use a non-stand measure of breastfeeding status wh they call degree of breastfeedi calculted as the percentage of feedi in the past 24 h that was breastmi This measure does not make sense us. A baby who has six breastfeeds a six other feeds will have the same rat as one that has one breastfeed and o other feed, yet many have ingested much bigger volume of breastmilk. decreasing frequency of breastfeeds i associated with higher concentration of immunoglobulin, possibly as protective effect as exposure to other foods and fluids increases. Thus, frequency is important. A better measure would be the number of breastfeeds in the previous 24 h.

Weaning is not defined in the paper, an important omission. Definitions range from the introduction of foods other than breastmilk or breastmilk substitutes to the end of lactation. Since there is no recognised and agreed definition of weaning, it is inadvisable to use it in research without clarification.

Another point is whether freezing or long-term storage would affect the concentrations of lactadherin. Newburg and co-workers also state that the groups of infants with symptomless and symptomatic infections had a similar profile in terms of sex, yet there are more girls with rotavirus infection than boys (22 *vs* 9). Does this mean that the study enrolled a much bigger group of female than male infants? If so, we think this point is worth reporting.

Finally, we hope that the international rush to identify and synthesise the many active components of breastmilk will not obscure reality—even the best breastmilk substitute in the world will never be the real thing.

**Mary E Black, Debbie Armstrong*

*Department of Social and Preventive Medicine, North Queensland Clinical School, University of Queensland, PO Box 1103, Cairns, Queensland 4870, Australia; and Maternity Unit, Cairns Base Hospital, Queensland, Australia

1 Newburg DS, Peterson JA, Ruiz-Palacios GM, et al. Role of human-milk lactadherin in protection against symptomatic rotavirus infection. *Lancet* 1998; 351: 1160–64.

2 Ross E. Breastmilk breakthrough. *Cairns Post*, April 18, 1998.