

- practices in an urban community. *Indian Pediatr* 1976, 13; 827-832.
3. Gopujkar PV, Chaudhury SM, Ramaswamy MA, Gore MS, Gopalan C. Infant feeding practices with special reference to the use of commercial infant foods. Nutrition Foundation of India. Scientific Report 4, Nutrition Foundation of India, 1984, pp 51-58.
 4. Ghosh S. The Feeding and Care of Infants and Young Children, 3rd edn. New Delhi, Voluntary Health Association of India, 1990, p 198.
 5. Indian Academy of Pediatrics: Special Committee on breast feeding. *Indian Pediatr* 1988, 25: 873-874.
 6. WHO/UNICEF. Infant and Young Child Feeding: Current Issues. Geneva, WHO, 1981, pp 54-76.
 7. WHO. Contemporary Patterns of Breast feeding, Report of the WHO Collaborative Study of Breast Feeding, Geneva, WHO, 1981, pp 31-46.

Breast Feeding Practices Amongst Mothers Having Undergone Cesarean Section

U. Kapil
S. Kaul
G. Vohra
S. Chaturvedi

The immunological and nutritive values of breast milk are most suited for an infant.

From the Department of Human Nutrition Unit, All India Institute of Medical Sciences, New Delhi 110 029.

Reprint requests: Dr. Umesh Kapil, Assistant Professor, Department of Human Nutrition, AIIMS, New Delhi 110 029.

Received for publication October 24, 1990;

Accepted October 17, 1991

With the increase in incidence of cesarean section, delayed 'rooming-in' of the neonates and problems in breast feeding in the first 24-48 hours have increased. The mother who has undergone a cesarean section has a relatively higher risk of lactation failure due to the following reasons; (i) post operative sedation, (ii) intravenous fluid therapy causing physical discomfort, (iii) exhaustion after the surgery, (iv) traditional belief that complete rest is essential after an operation, and (v) delayed 'rooming-in' of child particularly if he suffers from any disease like respiratory distress syndrome(1).

This study was conducted to evaluate the practices regarding breast feeding amongst mothers who had undergone cesarean section.

Material and Methods

The study was conducted on 60 consecutive mothers who had a cesarean section from September, 1989 to February, 1990 at the All India Institute of Medical Sciences, New Delhi. All the mothers were interviewed in the hospital on 5th day after surgery. The aims of the study were briefed and a pretested open ended questionnaire was administered to each mother by an experienced dietician.

Results

The mean age and parity of mothers was 26.4 yr and 2.6, respectively and 50% were primipara, 40% para 2 and 10% para 3. The per capita monthly income was below Rs. 500 in 34, between Rs. 500-1000 in 14, and more than Rs. 1000 in 12. Twenty three mothers were graduates, 8 post-graduates and 17 had received schooling till class 8th only. A majority (83%) of

mothers were housewives and 17% were engaged in teaching or clerical work.

The majority (67%) belonged to urban areas. The cesarean section was done as an emergency procedure in 34, while in 26 it was elective. Almost half (53%) of mothers received spinal and the rest general anesthesia.

One half of the newborns had birth weight between 2.5 and 3 kg, 27% between 3 to 3.5 kg, 8% more than 3.5 kg and 15% less than 2.5 kg. Fifty five neonates were born at term.

Two-thirds of mothers mentioned about physical discomfort in breast feeding within the first 5 days after surgery. Major difficulties reported were pain in stitches (52%), difficulty, in sitting (44%) and pain in lower abdomen (17%).

Forty eight of mothers fed colostrum, while 12 discarded it. Five per cent reported breast milk output to be sufficient on the first, 30% on day 3, and 45% on day 4. However, 20% complained of insufficient breast milk even after the 4 days. Fifty five per cent of mothers considered comfortable sleep in the baby and 37% rejection of breast as the criteria for sufficient breast milk.

Six mothers were manually extracting the milk and feeding the child; 38% of mothers used tinned milk in addition to breast milk during the first five days after birth. Nearly, a third (29%) were advised for use of tinned milk by hospital staff and 15% by relatives.

Hospital milk, ghutti and honey was received by babies as their first feed by 93%, 4% and 3% of newborns, respectively. Forty per cent of children were breast fed within 4 h of birth, 33% within 4-8 h, 11% within 9-12 h and 12% after 12 h.

Post-operative sedation and physical discomfort of mother were reported as the

major reasons (83%) for delayed initiation of breast feeding; other reasons included delayed 'rooming-in' of infant (23%) and the impression that complete bed rest was essential after the operation (13%).

Discussion

All the mothers were able to successfully breast feed their children by the 5th day after cesarean section. Similar observations have been reported earlier(1). The findings of present study strengthen the concept that adequate support to mothers is essential to minimise lactation failure in post-operative period.

Nearly 40% mothers fed top milk in addition to breast milk to the neonates. Half of these mothers were advised by the hospital staff to use tinned milk. This is due to the impact of publicity campaigns by the companies producing commercial weaning food, and lack of 'in service' continuing education to the paramedical staff. Similar findings have been reported by other workers(2,3).

Physical discomfort and drowsiness were the major reasons for delayed initiation of breast feeding. To avoid delay in initiation of breast feeding in mothers in whom cesarean section has been planned, counselling during antenatal period has been recommended(4).

Nearly two thirds (65%) of mothers complained of insufficient breast milk secretion until 4th day after delivery. All mothers especially primiparas should be made aware of the advantages of breast feeding, the need to avoid top feeds, appropriate techniques in breast feeding, etc.

The findings of present study revealed that there is a need of in-service continuing education of paramedical staff about possible factors which may delay initiation of

breast feeding amongst post cesarean section mothers and possibly prevent successful establishment of breast feeding.

REFERENCES

1. Arora AK, Gupta BD. Cesarean section and lactation failure. *Indian Pediatr* 1987, 24: 954.
2. Srivastava DK, Sahni OP, Kumar A. Infant feeding with commercial milk formula in an urban community of central India. *Indian Pediatr* 1987, 24: 889-894.
3. Sharma P, Dutta AK, Naryanan I, Mullick DN. Attitudes of medical and nursing personnel to breast feeding practice. *Indian Pediatr* 1987, 24: 911-915.
4. Datta T. Breast feeding in cesarean babies. *Indian Pediatr* 1990, 27: 86-87.

Vitamin D Requirements of Children in Haryana

J. Singh
R.K. Marya
V.P. Sood
P. Khanna

Diet of Indian infants and children consists primarily of cereals and provides very little vitamin D. Therefore, we in India rely heavily on sunshine as natural source of vitamin D. A study designed to determine

From the Departments of Social and Preventive Medicine and Physiology, Medical College, Rohtak.

Reprint requests: Dr. Jagvir Singh, Assistant Director, Epidemiology, National Institute of Communicable Diseases, 22, Sham Nath Marg, Delhi 110 054.

*Received for publication December 31, 1990;
Accepted June 13, 1991*

vitamin D requirements of Indian children has shown that under the existing dietary and environmental conditions supplementation of 200 IU of vitamin D promotes maximum calcium absorption(1). A level of 200 IU of vitamin D was therefore, suggested by the Indian Council of Medical Research (ICMR) as dietary allowances for Indian children(2). However, levels less than this could also prove adequate.

Vitamin D deficiency is known to cause rickets and retarded skeletal growth in children(3). It is therefore, reasonable to assume that the amount of vitamin D consumed by the children, who are free from rickets clinically and had adequate growth, will be the requirements of vitamin D of these children.

On the basis of this surmise, an attempt has been made in this study to find out the vitamin D requirements of children in Haryana where sunshine is available throughout the year.

Material and Methods

The present study was conducted in the Integrated Child Development Services (ICDS) covered area of the slums of Rohtak town during the period from September, 1987 to April, 1988. Three colonies were selected by simple random sampling. A "Hindu" infants and children in the age group of 6 months to <5 years available in the 'Anganwadis' of these selected colonies were weighed on a hanging beam balance to the nearest of 50 grams. Children having 80% of the reference weight for age (50th percentile of Harvard standard) were sorted out. All these children were examined clinically to rule out ricks.

These children were divided in three age groups, i.e., 6 months to <1 year, 1 year to <3 years, and 3 years to <5 years.