decreased during diarrhea. Feeding during diarrheal illness should continue to feature in the educational campaigns for management of diarrhea.

The mothers considered the duration and frequency of diarrhea as the only important factors which made them seek medical care. A similar finding was seen in multicentric study(4) where 49% of mothers gave the same reply. It was also seen that parents sought medical care usually within 2 days of onset of an episode but their reasons for seeking this intervention are not due to known danger signs. Educational campaigns need to stress on this point. Future studies should focus on the component of money saved on unnecessary medical consultation. How many of the practicing RMPs knew and advised ORS to these patients of diarrhea was not studied but could have serious implications on efforts to control diarrheal mortality.

Despite the technological revolution in the field of diarrheal diseases management, the information revolution is yet to come. Despite the gains achieved, lot more still needs to be done and a concerted communication strategy is needed.

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Values for Total Hand Length, Palm Length and Middle Finger Length in Newborns from 26-42 Weeks Gestation

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Abnormalities of hand and fingers are important features of some syndromes that are recognizable at birth(1). There are few good studies giving standards for various morphometric measurements for Western infants, children and newborns of different gestational ages(1,2). No standards are available for the size of hand and fingers of Indian newborn babies, in relation to gestational age. These standards for newborns

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are important because, early identification of syndromes at birth is of paramount importance to prognosticate and for genetic counselling for prevention. Many babies with malformation syndromes are born prematurely, therefore, there is a need for norms at different gestational ages. In the present study an attempt is made to establish normal standards for the size of hands and fingers of infants from 26-42 weeks of gestation.

Material and Methods

To define standards for hand measurements in the newborn, 817 full term and preterm (with a range from 26 to 42 weeks) selected from a 1000 consecutive births (excluding still birth and babies with malformation) were subjected for hand measurements defined by Feingold and Bossert(2). Gestational age was calculated from the first day of the last menstrual period and in every case, clinical assessments of gestational age were performed by the Dubowitz scoring system(3). All measurements were made between 36 to 48 hours by one of the authors using a vernier caliper. The data were divided into a series of gestational age groups. As no statistical difference was found between boys and girls the values for both sexes were combined. Similarly, there was no statistical difference between right and left hand measurements. Hence, all measurements were done on right side. Normal values are presented as mean and ±2 SD values for different gestational ages.

Hand length was measured from the distal wrist crease to the tip of the middle finger, and the middle finger length was obtained by measuring the distance from the proximal flexion crease of the middle finger to the tip of the middle finger. The distance between distal wrist crease to proximal crease of middle finger represented palm length.

Results

The normal values at different gestational ages for total hand length, palm length and middle finger lengths (mean ± 2 SD) are presented in *Table*. The mean value for total hand length at 28 weeks was 46.2 mm and 64.1 mm at 41 weeks. The mean value for palm length was 26.0 mm at 28 weeks and 36.4 at 41 weeks. The mean value for middle finger length was 20.1 mm at 28 weeks and 27.6 mm at 41 weeks.

Discussion

There is only one earlier study by Sivan *et al.* giving values for total hand length and middle finger length of newborns at different gestational ages(4). The mean values for these measurements in our study, at 28 weeks and 41 weeks of gestation were 46.2, 20.1 and 64.1, 27.6 mm, respectively. These values are comparable to the corresponding values reported by Sivan *et al.* for Israeli infants. In that study the mean value for total hand length and middle finger length at 28 and 41 weeks were 42.7, 18.0 and 61.0, 26.9 mm, respectively.

On the basis of the segment of the upper limb that is most severely and primarily involved, the short limb neonatal dwarfism is classified as rhizomelic (proximal shortening–arm), mesomelic (middle shortening–forearm), acromelic (distal shortening–hand and fingers), acromesomelic (middle and distal shortening–forearm, hand and fingers) and micromelic (whole upper limb shortening). Hand measurements are useful in the evaluation of certain types of short limbed dwarfisms that are manifested by short hands. In most of these disorders the shortening is caused by brachydactyly(4). Few examples of syn-

TABLE–*Total Hand Length, Palm Length and Middle Finger Length at Different Gestational Ages*

Gestation (wk)	No.	Total hand length			Palm length			Middle-finger length		
		Mean (mm)	SD (mm)	Normal range (mm)	Mean (mm)	SD (mm)	Normal range (mm)	Mean (mm)	SD (mm)	Normal range (mm)
26	5	40.2	1.3	37.7-42.8	23.2	1.0	21.0-25.3	17.0	1.6	13.8-20.1
28	14	46.2	2.7	40.8-51.6	26.0	3.1	19.7-32.3	20.1	2.7	14.7-25.6
30	8	50.9	2.5	45.8-56.0	28.5	2.2	24.1-33.0	22.1	3.2	15.8-28.4
31	5	50.4	2.1	46.3-54.6	28.7	2.4	23.8-33.6	21.4	2.0	17.4-25.4
32	12	51.6	1.8	48.0-55.8	29.5	1.3	26.8-32.1	22.2	1.6	18.9-25.4
33	7	47.3	4.3	38.6-56.0	26.9	4.0	18.9-35.0	20.1	3.7	12.6-27.5
34	12	54.6	3.9	46.8-62.4	31.0	3.5	24.0-38.1	23.5	3.0	17.5-29.5
35	14	56.6	2.3	51.2-61.2	32.3	2.4	27.4-37.2	24.3	2.6	19.6-28.9
36	30	58.7	3.3	52.1-65.3	33.5	2.5	28.6-38.4	25.3	2.6	20.0-30.5
37	36	57.2	2.8	51.5-62.9	32.1	5.7	20.7-43.6	24.7	2.8	19.1-30.4
38	83	60.2	2.4	50.4-65.0	33.9	2.5	28.9-38.9	25.6	3.8	18.0-33.2
39	162	62.7	2.3	58.2-67.3	34.9	2.5	30.0-39.9	26.8	2.3	22.1-31.5
40	311	68.0	3.1	56.9-69.2	35.4	3.1	29.1-41.7	27.4	3.0	21.4-33.4
41	99	64.1	3.8	56.4-71.7	36.4	5.5	25.2-47.6	27.6	2.3	23.0-32.1
42	19	62.6	3.8	55.0-70.3	35.5	3.6	28.4-42.7	26.7	1.5	23.7-29.7

dromes with short hand and fingers include short rib polydactyly syndrome, Ellis-Van Creveld syndrome, Acrodysostosis, acromesomelic dysplasia and various types of brachydactyly(1).

Similarly, long hands are seen in cerebral gigantism, Cockayne syndrome, Coffin-Lowry syndrome and Leprechaunism. Long metacarpals (long palms) are seen in Marden-Walker syndrome and cleidocranial dysplasia. Long fingers are seen in Marfan syndrome, congenital contractural arachnodactyly, homocystinuria, 9^+, $1q^+$ syndrome, Kniest dysplasia, frontometaphyseal dysplasia, Stickler syndrome and Marden-Walker syndrome(1).

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