

Adenovirus Gastroenteritis

Adenoviruses are important because of their ability to cause acute infections in the respiratory and gastrointestinal tract. However the importance of adenoviruses is not known well, especially in the developing countries, Adenovirus causes 5% of all infectious diseases in infants and 3% in the age of 2-4 years(1). It is known that adenovirus is the second common agent in infantile gastroenteritis, after rotavirus(2). The aim of this study was to establish the frequency of adenovirus associated gastroenteritis, and investigate its clinical and laboratory characteristics.

Two hundred children with acute diarrhea hospitalized during a period of 18 months were investigated. Their age ranged between 0-13 yrs. Adenovirus

was determined in serum and stools using the complement fixation and latex agglutination tests respectively. The etiologic agent was determined in 83 (41.5%) patients. Bacteria were detected in 37 (18.5%) and adenovirus in 46 (23%). No etiologic agent was observed in 117 (58.5%) cases. Adenovirus was found in 18 patients in the stool and in 32 patients in the serum. The youngest patient with adenovirus infection was 2 wks old and the oldest was 9 yrs old (mean 17.3 ± 6.8 months). Adenovirus associated gastroenteritis was mostly seen between the age of 13-24 months (45.5%). The incidence of adenovirus in girls and boys was similar.

Thirty three of 46 patients (71%) had one or more respiratory signs and symptoms such as coryza, tonsillitis, pharyngitis, otitis, and pneumonia (Table I). Of these 4 (8.6%) had symptoms of upper respiratory tract infection and 29

TABLE I—Clinical and Laboratory Features in Gastroenteritis

	Adenovirus (n=46)	Bacteria (n=37)	No Pathogen (n=117)
Mean duration of diarrhea (days)	5.8	4.2	3.7
Mean age (months)	17.3	13.8	21.6
Vomiting	18 (39.1)	3(8.6)	21(17.1)
Fever (>37.5°C)	32(69.6)	21(56.7)	66(65.4)
Dehydrator (> 5%)	14(30.4)	18(48.6)	63(53.8)
Respiratory symptoms*	33(71)	15(40.5)	94(80.3)
Mucus (stool)	18(39.1)	28(75.6)	44(37.6)
Leukocytes (stool)	22(47.8)	33(89.1)	59(50.4)
Erythrocytes (stool)	1(2.1)	22(59.4)	2(1.7)
Leukocytosis (>15 000 cu/mm)	6(13)	21(56.7)	36(30.7)
Infiltration on chest roentgenogram	28(60.8)	6(16.2)	41(35)

*Respiratory symptoms: Coryza, tonsillitis, pharyngitis, otitis and/or pneumonia. Figures in parenthesis indicate percentage.

(63%) had features of both upper and lower respiratory tract infection. In patients with bacterial gastroenteritis symptoms of upper respiratory tract infection were present in 40.5% and pneumonia in 27%. Features of respiratory tract infection were significantly higher in patients with adenovirus than bacterial gastroenteritis ($p < 0.05$).

Patients with adenovirus associated gastroenteritis showed pneumonic infiltration on chest radiographs in 28 (60.8%). Thirteen of 17 cases that had normal chest roentgenogram, had only diarrhea, but no respiratory symptoms. Three patients had tonsillitis.

The frequency of respiratory symptoms or signs in patients with adenovirus associated diarrhea varies between 0 to 93%(3). It is suggested that patients with diarrhea and pneumoni are likely to have an underlying adenovirus infecting(4,5). Similar results were found in our patients. Adenovirus infection is primarily of concern in children under two years of age with diarrhea and pneumo-

nia. However there is need for more detailed studies.

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REFERENCES

1. Pacini DL, Collier AM, Henderson FM. Adenovirus infections and respiratory illnesses in children in group day care. *J Infect Dis* 1987,156: 920-926.
2. Blacklow NR, Greenberg HB. Viral gastroenteritis. *N Engl J Med* 1991, 325: 252-264.
3. Raj P, Bhandari N, Bhan MK. Enteric adenoviruses in childhood diarrhea, *Indian J Pediatr* 1988, 55: 825-828.
4. Ellis ME, Watson B, Mandal BK, *et al.* Microorganisms in gastroenteritis. *Arch Dis Child* 1984,59: 848-858.
5. Wildin SR, Chonmaitree T, Swischuk LE. Roentgenographic features of common pediatric viral respiratory tract infections. *Am J Dis Child* 1988, 142: 43-46.

Breath Holding Spells in a Neonate

Singh has brought out the fact that breath holding spells can occur in young infants less than 4 mo of age(1). Most books of Neonatology describe breath holding spells between 4 mo to 4 yrs of age. However, we witnessed breath holding spells with classic sequence of

events in a 24 day old neonate admitted in our unit.

All the episodes of breath holding were precipitated while crying, following anger/frustration due to hunger. Detailed physical examination, including cardiovascular system, laboratory investigations, X-ray, ECG, echocardiography and EEG were normal.

We agree with Singh that 4-6 months