

AN EIGHT-YEAR STUDY OF THE VIRAL AGENTS OF ACUTE GASTROENTERITIS IN HUMANS: ULTRASTRUCTURAL OBSERVATIONS AND SEASONAL DISTRIBUTION WITH A MAJOR EMPHASIS ON CORONAVIRUS-LIKE PARTICLES

Claire M. Payne\*, C. George Ray\* \*\*, Virginia Borduin\*,  
Linda L. Minnich\*\*\*, and Michael D. Lebowitz\*\*\*\*

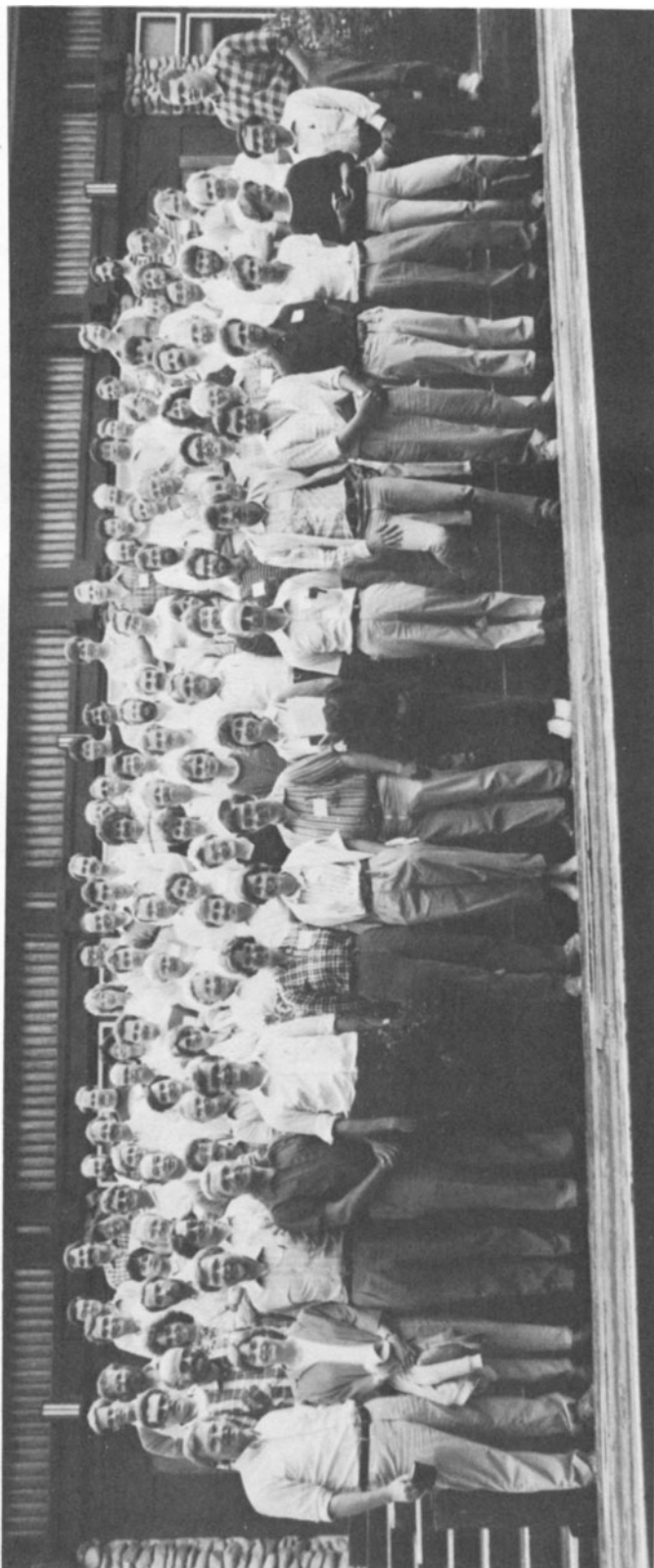
Departments of Pathology\*, Pediatrics\*\*, Internal Medicine\*\*\*\*,  
College of Medicine; Department of Clinical Pathology\*\*\*, Uni-  
versity Medical Center; University of Arizona, Tucson, AZ 85724

During an 8-yr period, 862 stool specimens from patients with gastroenteritis were examined by electron microscopy after negative staining with 2% phosphotungstic acid (pH 6.5) (1). Forty-one percent of the specimens submitted over an 8-yr period were determined to be positive for virus or viruslike particles belonging to one or more of seven morphologically distinct viral groups. Coronaviruslike particles (CVLPs) were present in 69.8% of the positive stool specimens. Membranous profiles containing "complement-type" holes (10 nm in diameter) were identified in some preparations containing CVLPs. The second most prevalent viral agent found in stool specimens was the rotavirus (17% of all positive stools). The incidence of other viruses identified in the survey were as follows: adenovirus 4.5%, picorna/parvovirus agents 2.9%, Norwalk-like agent 2.9%, astrovirus 1.9%, and calicivirus 0.5%. Unclassified small round viruses (~25-30 nm in diameter) represented 0.5%. It was also determined that there was a seasonal distribution in excretion of all viruses except for CVLPs. A greater number of viruses were identified in the cooler, drier months of the year.

Coronavirus-like particles were detected by electron microscopy in the stools of symptomatic infants during an outbreak of gastrointestinal illness in a neonatal intensive-care unit (2). To determine the incidence of CVLPs in the stool and their relation to gastrointestinal symptoms, eight surveys of stools for the presence of CVLPs were conducted over a 40 week period. The incidence of CVLPs in the stool decreased from 69% to <10% over the study period. Most infants surveyed were premature; overall, 32 (36%) of 88 neonates were positive for CVLPs. Statistically significant associations were found between the presence of CVLPs in the stool and gastrointestinal symptoms within one week of each survey. These symptoms included water-loss stools, blood in the stool, gastric retention, bilious gastric aspirates, and abdominal distention. Several infants with CVLPs whose mothers had gastrointestinal or "flu-like" symptoms before delivery were identified in the community (not part of the survey study).

## REFERENCES

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