STUDY OF THE ABILITY OF ENTERIC BACTERIA TO INFECT THE AIR OF HOSPITAL WARDS

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The aim of the investigation was to study the ability to infect the air of hospital wards by fecal saprophytic and pathogenic flora, especially enteropathogenic E. coli and also dysenteric bacteria and Salmonella. The investigation was carried out in a period when intrahospital outbreaks of any diseases were not registered, but there were mildly focal infections with colienteritis in the children's sections.

Several establishments were investigated for the presence of enteropathogenic and common E. coli: In the children's sections of two infectious and three somatic hospitals, in wards for the newborn in the confinement section, and in an infant's home. In the stated establishments the seedings were carried out in series, several times each. All told 146 tests of the air were taken with a Krotov apparatus and 635 by the sedimentation method. The average volume of air passing through the Krotov apparatus in one series of investigations equaled 1.57 m^3 ($\pm$ 0.19). The seedings of the air by the sedimentation method were carried out with a 4-hour exposure and the area of the seeding in one series reached on an average 1213 cm^2 ($\pm$ 149). Enteropathogenic E. coli were detected in the air of six establishments out of the seven investigated. The concentration of these bacteria fluctuated with 0.5 - 2.2 microbial cells (based on the number of grown colonies) in 1 m^3 of air. In the seedings by the sedimentation method, in 1,000 cm^2 of nutrient medium from 0.5 to 19.3 colonies of enteropathogenic E. coli grew, and from 0.5 to 89.6 of ordinary E. coli. At the same time, it was possible to detect enteropathogenic E. coli in washings from items which were places for the settling of dust (baseboards, radiators, cabinet covers, rungs of furniture, etc.). The strains of enteropathogenic E. coli isolated from the air and washings belonged to the types 0111: B4, 055: B6, 026: B7, 145 and 9.

The selection of air samples and washings from various items for investigation for dysenteric bacteria and Salmonella was carried out in the appropriate wards of infectious hospitals. All the seedings for the dysenteric group (324 air tests and 281 washings) were negative. Out of five series of tests investigated for Salmonella (316 air tests and 259 washings) a positive result was obtained in one series under the following circumstances: In the ward there were three adult patients with a diagnosis of gastroenteritis, caused by S. typhimurium; the investigation of the air in this ward was performed after two days following the discharge of the patients, nevertheless S. typhimurium were detected.

The almost regular detection of enteropathogenic E. coli in the air of wards in children's hospitals makes it possible to consider that in the prophylaxis of intrahospital infections with colienteritis, the possibility must be kept in mind of the dissemination of the causative agents by the aerial route.