

INVESTIGATION OF HOSPITAL INFECTIONS WITH AN ENTEROCOLITIS IN A CHILDREN'S HOME

A. Kircheva, V. Yonkova, R. Konstantinov, G. Kaprelyan

Key-words: rota-viruses — epidemiology — children's home — enterocolitis — prevention

Recently, a series of investigations (1, 7—10) demonstrate that viral agents causing acute gastroenteritis in early childhood occupy a considerable relative share in the etiological structure of enteric infections. Rota-viruses are one of the most frequent reasons for diseases with an enterocolitis syndrome in the age group up to three years. According to M. R. Abott et al. (7) rota-viruses are present in 16.6 per cent of the cases with diarrhoea syndrome, and according to J. Leidel (8) — even in 36.5 per cent of the cases with infectious gastroenteritis in sucklings and infants.

The present work is a continuation of our previous studies for clarifying of the peculiarities of the etiological structure and regularities of dissemination of diseases with an enterocolitis syndrome in a closed children's collective of Children's Home (2). The purpose of the paper is to discuss some aspects of the epidemic process with laboratorily proved viral infections with rota-viruses as an etiological agent on the background of the rest enteric infections during a 4-year period with a view to regimen of epidemiologic control improvement in this Home.

Material and methods

During the period from 1981 till 1984 we summarized the results from the epidemiological studies performed as well as the data from the corresponding reports of hospital infection registration in the Children's Home and from the personal out-patient's cards of ill children in compliance with the purpose of the investigation.

Virological studies for rota-virus detection in fecal samples were carried out by using of an opposite electrophoresis, reaction of Staphylococcus co-agglutination and ELISA in the Laboratory of diagnostics of rota-virus infections of the Department of Microbiology and Virology, Higher Institute of Medicine, Varna. The data obtained were statistically processed and analysed in an epidemiological aspect.

Results and discussion

During the period covered in the Children's Home a total of 361 cases of diseases with an enterocolitis syndrome were registered. Of them, 112 (31 per cent) were Shigelloses, 93 (26 per cent) were rota-virus infections, 55 (15 per cent) Salmonellos, 50 (14 per cent) Coli enteritis, and 51 (14 per cent) enterocolitis.

Concerning the variety of the Shigelloses we established that *Sh. sonnei* and *Sh. flexneri* prevailed — with 69.5 and 28.9 per cent of the cases, respectively. These data were in accordance with the literature available concerning the dominating role played by these serological types in the etiological structure of Shigelloses in this district and in our country as a whole (3, 4).

Salmonelloses were presented mainly by two strains — *S. typhi* murium (in 76.9 per cent) and *S. agona* (15.4 per cent) of all the Salmonelloses registered in the Home. This could be explained by the wide dissemination of these Salmonella types in recent years among small infants in our district and it was to a certain extent determined by the adaptability to parasitic existence in the human organism and especially in infants where a long-lasting carriership was possible (4, 5). Thus conditions were created that these Salmonellae strains circulated within the restricted children's collective.

Coli-enterites were characterized by a larger etiological structure. More often, serological types 0142, 0127, 0114 and others predominated which correlated with the data concerning our district as a whole.

Rota-virus infections presented a considerable part (26 per cent) of the etiological structure of the diseases with diarrhoeal syndrome in the Children's Home. Together with non-differentiated enterocolites they counted 40 per cent of all the diseases. These data showed that rota-virus infections had an outlined importance in the formation of the enteral infectious morbidity pattern in the Home. It was ascertained that rota-virus infections were clinically apparent in 81 per cent of the cases while in the rest 19 per cent there was asymptomatic carriership.

The prophylactic examination of contact persons to ill children revealed a rota-virus carriership in 7.69 per cent of the nursing staff of the Home. L. Nicheva et al. (6) reported similar results concerning rota-viruses carriership in early infancy.

We could conclude that in the Children's Home an intensive epidemic process with rota-virus etiology especially in autumn and winter months was realized. The figure demonstrated the similar dissemination of Shigelloses and enterocolites in the single months of the calendar year. According to some authors (1, 10) the distribution of the cases according to seasons was typical for rotavirus infections and it was due to the closer contact in colder months among children as well as to the high resistance of the causative agents to environmental factors and disinfectants commonly used. In our opinion, this coincidence in the season distribution of the diseases from *Shigella*, rota-virus infections and enterocolites could be explained also by the united factors forming the course of the epidemic process concerning these enteral infections in the Home.

The high relative share of rota-virus infections registered during the 4-year period in the Children's Home and the tendency of the infectious process towards worsened clinical course in children with damaged somatic predisposition on the background of frequent asymptomatic carriership posed a series of problems related with improvement of the antiepidemic regimen. The high resistance of these viruses to most commonly used disinfectants presented another factor hampering the antiepidemic control. That was why one requires to look for new approaches and complex manner of solving the problem concerning rota-virus infections in mutual relation with the rest enteral infections having in mind the united conditions forming the epidemic process. One requires a careful inspection of the regimen of bringing up the infants and children in the Home. Purposeful measures directed towards increasing of the total immunobiological resistance of the children are also needed. An effective disinfection regimen by using of appropriately selected disinfectants should be regulated, too.

The wide application in laboratory practice of diagnostic means enabling a rapid etiological distinction and systemic controlling of rota-virus morbidity in the Children's Home is an important precondition for an effective antiepidemic control.

REFERENCES

1. Дроздов, С. Г., В. И. Покровский. В: Ротавирусный гастроэнтерит. М., Медицина, 1982.
2. Кирчева, А., Р. Константинов. В: Нац. конф. энтероколит. синдром. Варна, V. 1985 г.
3. Константинов, Р. В: Нац. конф. энтероколит. синдром. Варна, V. 1985 г.
4. Кръстев, Т. и др. В: Съвременни проблеми на инфекциозната патология. С., Мед. и физк., 1981, 136—150.
5. Минскберг, Ц. Я. В: Сальмонеллез тифи муриум. Кишинев, Штиинца, 1984.
6. Ничева, Л., В. Йонкова, М. Русева. — В: Нац. конф. бакт. инф., Варна, 1984 г.
7. Abbott, M. R., M. J. Cloon, et al. *Med. J. Austral.*, 141, 1984, N 1, 26—28.
8. Leidel, J. *Tägliche Prax.*, 25, 1984, N 3, 479—480.
9. Lindenschmidt, E., H. I. Simons. *Monatsschr. Kinderheilkd.*, 132, 1984, N 9, 654—660.
10. Rockstroh, T. *Z. Ges. Hyg.*, 30, 1984, N 2, 93—99.

**ИССЛЕДОВАНИЕ ВНУТРИБОЛЬНИЧНЫХ ИНФЕКЦИЙ
С ЭНТЕРОКОЛИТНЫМ СИНДРОМОМ В ДЕТСКОМ ЗАВЕДЕНИИ**

А. Кирчева, В. Йонкова, Р. Константинов, Г. Капрелян

РЕЗЮМЕ

Изолированный детский коллектив в детском заведении в возрасте до трех лет представляет интерес при исследовании с эпигемиологической точки зрения в связи с разнообразными факторами и условиями, определяющими механизм передачи внутрибольничных инфекций.

Значительную часть внутрибольничных инфекций в детском заведении занимают заболевания с энтероколитным синдромом. Рассматриваются особенности этиологической структуры зарегистрированных внутрибольничных инфекций с энтероколитным синдромом — бактериальных и ротавирусных, в целях изучения возможностей усовершенствования противэпидемического режима.