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Concurrent Infection – How Unlucky Can One Be?

Ioana Matacuta-Bogdan
"Lucian Blaga" University of Sibiu

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ABSTRACT: For children, infectious diseases are the most frequent. For the immunocompetent child, infections can follow each other quickly, especially in the first 3 years of life, and the result is natural immunization. In the same patient and at the same site, there can be several types of germs that intercondition each other. If they show pathogenicity, we can talk about co-infections or polyinfections. This paper brings to attention the case of a child who had a rapid succession of infections that deteriorated the patient's condition and required hospitalization.
KEYWORDS: child, rotavirus, UTI, EBV infection

I. INTRODUCTION

The main cause of infectious gastroenteritis in children is represented by viruses. Of these, rotavirus leads the way, being responsible for more than 70% of cases. Once the vaccine was available the incidence decreased, but it continues to represent a problem in low- and middle-income countries. The prevalence of rotavirus infection is variable in different regions. In some cases, concurrent infection with adenovirus, norovirus, or, astrovirus can be noted. (1,2) Recent discoveries suggest that "RV infection is a systemic disease with clinical and pathophysiological implications beyond the gut". Currently, we can talk about a large spectrum of clinical manifestations caused by rotavirus, other than acute gastroenterocolitis. The most important consequence appears to be the liaison to autoimmune diseases. (3)

Urinary tract infection is a common bacterial infection reported in childhood. Except for the first year of life when the prevalence is higher for boys, girls are more affected. After the first year of life, the incidence is around 3% for girls compared with 1% for boys. The bacteria responsible are usually gram-negative bacteria, E. coli is the most common etiologic agent. (4,5,6,7)

II. CASE PRESENTATION

A 3 years old boy was admitted to our pediatric department in Sibiu Clinical Hospital (Romania) for abdominal pain and vomiting. Before admission, Amoxicillin-Clavulanate was administered for acute pharyngitis.

Clinical examination at the admission revealed a child with an average general condition and good nutrition status, pale, with suffering and encircled appearance, signs of mild dehydration, nasal obstruction, no objective modification of respiratory system, HR=138 beats/minute, moderate pharyngeal congestion and pain at abdominal palpation.

The laboratory findings revealed: total leukocyte count11.01x103/µl, neutrophils 8.37x103, Lymphocytes 1.48x103, monocytes 0.96 x103/µl, eosinophils 0.18x103, erythrocytes 4.53x106 /µl, hemoglobin 12.5 g/dl, Hct 35.5 %, MCV 78.4 fl, MCH 27.6 pg, MCHC 35.25 g/dl, platelets 573x103, "C" reactive protein 2mg/l, aminotransferase (ALT) 14 U/l, amylase 65U/l, creatinine 0,47 mg/dl, urinalysis - Ketonuria, leucocyturia, E. coli sensitive to Ceftazidime, Cefuroxime, Acidum nalidixic, Amoxicillin-Clavulanic Acid, Cefpodoxime and Gentamicin, Ultrasound of the abdomen and pelvis showed urinary bladder with hyperechoic sediment and floating spots, abdominal lymphadenopathy images.

Based on clinical examination, laboratory, and imagistic evaluation the conclusion was that the patient had a urinary tract infection. The initial treatment consisted of intravenous antibiotics – Cefuroxime, iv fluids, acetaminophen, and probiotics.

The evolution was favorable for 3 days, then the patient was extremely torpid and asthenic and fever and watery stools appeared. Stool samples were collected for viral, bacterial, fungus, and parasitic examination. Coprological examinations were positive for Rotavirus antigen. Cultures for Salmonella, Shigella, Campylobacter, and Helicobacter were all negative. The treatment was supplemented with racecadotril and the evolution was slowly favorable for another 3 days.

Afterward, our patient declared dysphagia, and the clinical evaluation showed nonpruritic maculopapular rash, facial edema, and pharyngeal congestion. Another laboratory evaluation was performed, showing lympho-monocytosis, mild

elevation of alanine aminotransferase 60 U/l, positive serology for Epstein-Barr virus (IgM-VCA), and positive pharyngeal cultures for Candida albicans. Antiviral treatment with Isoprinosine 50 mg/kg/day, and antifungal-Stamicin 50.000UI/kg/day were added and well tolerated. Finally, the evolution was favorable and led to the patient's discharge after 9 days of hospitalization.

III. DISCUSSION

Both urinary tract infections and rotavirus infections are very frequent in childhood. Therefore the association between them is possible in the pediatric patient. Especially younger children that are still wearing diapers are at risk to develop UTIs during rotavirus infection due o watery and frequent stools. Their association is not very auspicious because the urinary tract infection requires antibiotic treatment which aggravates the intestinal dysbiosis making the recovery longer. If the association of pharyngeal candidiasis is not a surprise in the context of antibiotic treatment, the association with Epstein-Barr infection is surprising. The clinical manifestations of these infections followed each other quickly and deteriorated the patient's clinical condition. Fortunately, the child fully recovered..

Recent studies reveal that by the age of 3, 50% of children have detectable serology for EBV. The same studies show that by the age of 8 90% of children are contacted with the virus and have positive serology. (8,9)

IV. CONCLUSION

Both rotavirus infection and UTI are frequent infections in the pediatric population, so the association between them is possible and most probable. The association between rotavirus infection, UTI and EBV infection is nevertheless surprising.

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