

In patients with co-infection with B19V and *P. falciparum*, the rates of complications and mortality were significantly higher: observed in $72.7 \pm 2.7\%$ of cases compared to $37.9 \pm 3.0\%$ in the group of malaria patients without PVI. Moreover the disease led to death in 6 ($10.9 \pm 4.4\%$) cases within the first group and in 2 ($0.8 \pm 0.5\%$) cases in the second group. Most of cases of complicated malaria with PVI-coinfection falls on patients under 5 years. Important that 6 out of 8 deaths occur in the same group, that is significantly higher than in the absence of PVI.

In patients with allo-HSCT, a high incidence of detecting PVI markers in plasma was demonstrated. IgG antibodies to B19V were detected in 68.5–80.4% of cases, which is 2 times higher than among healthy population of the same age. Non-zero viral load values were observed in 28–30.4% of cases. The B19V DNA detection in the blood by the 30th day was associated with febrile neutropenia in these terms in 100% of cases versus 68% in patients with no DNA.

Parvovirus infection B19V is widespread in people at risk and can cause a complicated course of the underlying disease.

3.25

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CYTOKINE PROFILE IN ADULTS WITH RESPIRATORY SYNCYTIAL VIRAL INFECTION

I.A. Klimova, A.K. Tokmalayev, N.A. Polovinkina, D.S. Konnov

Peoples' Friendship University of Russia (RUDN University), Moscow, Russia

Respiratory syncytial viral (RSV) infection often has a complicated course. Studies show the possibility of viral persistence which leads to chronic bronchitis and asthma. It is extremely important to predict development of complications in patients with this infection, especially in risk groups: HIV-infected, hematological patients and elderly people.

48 patients with RSV infection aged 15 to 59 years were enrolled in the study. The diagnosis was confirmed by immunofluorescence or immunochromatography. All patients underwent interferon and cytokine status studies with determination of serum IFN α , IFN γ , IL-1, IL-2, IL-4, IL-5, IL-6, IL-12, TNF α .

Cytokine status of patients with RSV infection reflects high pathogenic role of pro-inflammatory cytokines and predominance of cytokine profile of the humoral immune response. Anti-inflammatory cytokine IL-4 and pro-inflammatory IL-1 have been shown to be the most important in the course of a complicated RSV infection. From the second week of the illness, a significant increase in the levels of IL-4 and IL-1 in the serum indicates a favorable trend in the development of the infection.

The progression of bronchitis is indicated by the growth of the cytokine coefficient (IL-1/IL-4) in the second week of the disease (above 0.5). The increase in IL-5 levels above 50 pg/ml after first 3 days of the illness indicates development of acute tonsillitis as a complication. During the first days of the disease high levels of IL-12 (more than 2000 pg/ml) indicate a higher possibility of tonsillitis and bronchitis. While after the 9th day it accompanies resolution of pneumonia. The level of induced production of IL-6 by leukocytes above 20 000 pg/ml in the first 3 days of the illness indicates risk of complications, and its growth in the second-third week coincides with the onset of recovery in pneumonia.

Cytokine levels in blood serum of patients with RSV infection have significant deviations. In the first days of the disease, a high level of induced IL-12 and IL-6, an increase in the level of IL-5 indicate a high risk of complications. From the 10th day of the illness, high values of induced IL-12 and IL-6, serum IL-4 and IL-1, as well as a decrease in IL-5 values, indicate the onset of the recovery. Imbalance of the cytokine profile in RSV infection has an important pathogenetic and prognostic value in the development of complicated forms of the disease.

3.26

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SURVEILLANCE OF POLIOMYELITIS AND ACUTE FLACCID PARALYSIS IN THE SOUTH OF THE RUSSIAN FEDERATION IN 2013–2017

I.V. Kovalchuk^{1,3}, N.I. Solomashenko^{2,3}, E.N. Romanenko², N.I. Romanenkova⁴, A.V. Zvolibovskaya², G.I. Demina²

¹Department of the Federal Service of Surveillance for Protection of Consumers' Rights and Human Welfare for Stavropol Region, Stavropol, Russia; ²Centre of Hygiene and Epidemiology in Stavropol Region, Stavropol, Russia; ³Stavropol State Medical University, Stavropol, Russia; ⁴St. Petersburg Pasteur Institute, St. Petersburg, Russia

The main indicators of sensitive surveillance of poliomyelitis and acute flaccid paralysis (AFP) on the administrative territories of the South of Russia which are under responsibility of Stavropol Regional Center for epidemiological surveillance of poliomyelitis and acute flaccid paralysis in 2013–2017 corresponded to the recommended level. The morbidity index for AFP among children under 15 were 1.6–2.2 for 100 000 of these children. The predominant diagnosis among AFP cases (71.4%) was polyneuropathy. The percentage of AFP cases with two stool samples was 100%, the percentage of samples examined not later than 14 days after onset of paralysis was 97.9%. The samples of good quality constituted 96.1%, they arrived at the laboratory during 72 hours in 97.9% of cases. The virological investigation showed that from 313 patients we isolated 12 polioviruses (3.8%) and 13 nonpoliomyelitis enteroviruses (4.2%). Half of polioviruses belonged to type 3, the 3 mixed samples contained polioviruses of type 2 and type 3, polioviruses of type 1 were isolated from two samples and poliovirus type 2 from one sample (in 2013–2014). Enteroviruses were represented in 30.7% by enterovirus 71, 15.4% of viruses belonged to Coxsackieviruses B1–6, 7.7% to Coxsackievirus A4, Echoviruses 3 and 29, 30% of enteroviruses were not identified. In order to search wild polioviruses on the territories which did not reach the appropriate number of revealed AFP we investigated 310 samples from healthy children under 5 and confirmed the absence of wild polioviruses. In the frame of supplementary surveillance 1625 samples from groups at risk were examined, vaccine derived or wild polioviruses were not found. The percentage of poliovirus and enterovirus detection varied during the years from 3.6% till 6.8%. Vaccine polioviruses of three types were isolated in 1.7% of cases and the majority of them (53.6%) belonged to type 3. Nearly half of isolated enteroviruses were represented by Coxsackieviruses B1–6 (49%), Coxsackieviruses A constituted 7.5%, Echoviruses were detected in certain cases and nearly 40% of enteroviruses were not identified.

The system of sensitive epidemiological surveillance combined with good quality virological surveillance allowed to confirm polio free status of the territories in the South of Russia.