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FEATURES OF INFLUENZA TREATMENT IN CHILDREN WITH CHRONIC CONDITIONS

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Annotation

The article presents data from a study on the efficacy and safety of the drug Oselvir, a neuraminidase inhibitor, for the treatment of influenza in children with chronic cardiovascular and nervous system conditions. It was shown that Oselvir significantly reduces the duration of fever, sore throat, and cough. The treatment was associated with adverse events, but their type and frequency did not differ between the groups of children receiving different antiviral therapies. Complications were rare, with no significant differences between the groups.

Keywords

influenza, infections, virus, fever, headache, dizziness, body aches, tachycardia, cycloferon, viferon, genferon, Oselvir, tamiflu

Acute respiratory infections remain the most common reason for pediatric consultations. Often, the illness is mild and does not require active therapeutic intervention. However, in some cases, the infection can become prolonged and lead to complications. The highest frequency of severe cases with fatal outcomes worldwide is observed among patients with influenza . Adverse events may be associated with the pathogen itself, the side effects of prescribed medications, or the exacerbation of chronic conditions.

Children with comorbidities of the bronchopulmonary, cardiovascular, nervous, or endocrine systems, as well as those with immunodeficiencies, belong to the highest-risk group for adverse outcomes. Special attention is required for patients with oncological or autoimmune diseases receiving glucocorticosteroids and/or cytostatics. Most clinical studies analyzing the efficacy and safety of antiviral drugs exclude such patients according to inclusion criteria for comparison groups. This is justified because the risk of adverse events and complications is high, and each case requires individual assessment. Most patients in this category require personalized selection of medications and dosages, taking into account not only age and weight but also potential impairments of specific organs affected by the disease or reacting to supportive therapy. Many children with chronic diseases also have significant underweight, increasing the risk of drug toxicity.

In many cases, medications for the acute intercurrent infection are combined with ongoing therapy prescribed by other specialists. The cumulative effect of overlapping side effects may lead to a significant deterioration of the patient’s condition and life-threatening situations, which must be considered when selecting a treatment regimen.

On one hand, early active therapy is necessary to prevent complications; on the other hand, all possible risks related to side effects, overdose, and polypharmacy must be considered.

Influenza is a viral infection characterized by a faster onset of symptoms compared to other acute respiratory infections: high fever, severe malaise, headache, dizziness, myalgia, arthralgia, and tachycardia . Upper respiratory symptoms usually appear later. In children with chronic nervous or cardiovascular pathology, there is a high risk of febrile seizures, heart failure, and arrhythmias. Only timely administration of an adequate and effective etiotropic drug can quickly halt influenza virus replication and prevent adverse outcomes. A drug for patients at high risk of severe forms and complications must be both highly effective and safe. Therefore, preference is given to medications with strong evidence-based support. Maximum effectiveness is achieved when therapy begins within the first 48 hours of illness, though viral replication can continue longer in prolonged or complicated cases.

Currently, Uzbekistan offers a wide range of medications for influenza treatment. Well-known options include oseltamivir, zanamivir (Relenza), umifenovir (Arbidol), Ingavirin, the acridone acetate derivative cycloferon, interferon preparations (Viferon, Genferon Light), among others . Recently, enisamium iodide (Amizon) and Triazavirin were introduced . However, not all of these meet international quality standards or have efficacy and safety data from multicenter randomized placebo-controlled trials. Worldwide, the only universally recognized and WHO-recommended drugs for influenza treatment remain neuraminidase inhibitors: oseltamivir (Oselvir, Tamiflu) and zanamivir (Relenza). Oseltamivir is available as capsules and powder for pediatric suspension, providing systemic activity, which is critical in complicated cases. Zanamivir is an inhaled powder, acting primarily within the upper respiratory tract.

The variability of the influenza virus, which explains differences in clinical presentation and treatment response, necessitates continuous monitoring. Clinicians frequently observe nausea, vomiting, abdominal pain, headache, and behavioral changes in children with influenza, often attributed to the medications. Nonetheless, these symptoms can also occur during influenza itself, regardless of treatment.

To evaluate the efficacy and safety of oseltamivir in children with various chronic conditions, we analyzed its use in pediatric patients.

Materials and Methods

The study included 67 children aged 3–18 years who had confirmed influenza via PCR or rapid tests during the 2016–2017 autumn-winter season. All patients had chronic conditions: arrhythmias – 24 (36%), congenital heart defects – 8 (12%), chronic myocarditis – 14 (21%), cerebral palsy – 9 (13%), viral encephalitis – 12 (18%). Signs of grade 1–2 undernutrition were noted in 16 (24%) children, and obesity in 2 (3%). Patients continued previously prescribed therapies as indicated.

The main group included 35 children who received oseltamivir (domestic drug Oselvir, Pharmasintez) as primary etiotropic therapy according to recommended weight-based doses. Oselvir was administered twice daily for five days: up to 15 kg – 30 mg, 15–23 kg – 45 mg, 23–40 kg – 60 mg, >40 kg – 75 mg. Capsules could be dissolved in an age-appropriate beverage if swallowing was difficult. The comparison group received other antiviral therapies.

Children with symptom onset >48 hours or complications before therapy initiation were excluded. All patients received supportive care, including hydration, saline or antiseptic nasal

and throat rinses, antipyretics for fever >38 °C, and decongestants for nasal congestion. Antibiotics were prescribed for bacterial complications.

The groups were comparable in age, sex, severity, time to therapy initiation, comorbidities, and concurrent medications. Most cases were moderate (58, 89%), with 9 (11%) mild. Statistical analysis was performed using Statistica 6.1, with significance defined as $p < 0.05$ using the Z-test.

Results and Discussion

The duration of key influenza symptoms (fever, headache, sore throat, cough) was evaluated. Nasal congestion and discharge occurred in over half of patients, often mild. Persistent rhinitis in 14 patients was linked to allergies (6) or chronic adenoiditis (8) and was not included as a therapy efficacy criterion.

Children receiving Oselvir experienced faster resolution of fever and respiratory symptoms. Headache resolution showed no significant differences between groups receiving different etiotropic agents.

Adverse events included restlessness, fatigue, frequent loose stools (3–5 times/day), vomiting (1–5 times/day), and skin rashes. Older children reported headache, dizziness, nausea, and abdominal pain. No significant differences in adverse event frequency were observed between groups.

High rates of adverse reactions were expected due to underlying chronic conditions. Some symptoms could reflect influenza itself, while others may result from impaired gastrointestinal perfusion related to congenital heart disease, arrhythmias, or chronic myocarditis.

Children receiving antiepileptics (valproate, carbamazepine), inotropes (digoxin), diuretics (acetazolamide, spironolactone, furosemide), metabolic supplements (potassium-magnesium complexes, carnitine), and other medications may have experienced additive irritant effects when combined with etiotropic and symptomatic influenza treatments. Complication rates were low, with no significant differences between groups. All complications were managed effectively, with favorable outcomes.

Conclusions

Oselvir, containing the neuraminidase inhibitor oseltamivir, is highly effective for treating influenza in children over 3 years and adolescents with chronic cardiovascular and nervous system conditions. The drug significantly reduces fever, sore throat, and cough duration. Adverse events occurred but were similar in type and frequency across Oselvir and comparator therapies. Complications were rare, with no significant differences between groups.

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