

Urticaria is a disease of various etiologies characterized by a rapid spread of itchy blisters on the skin. These blisters are swelling of a limited area of the papillary layer of the skin. One type of urticaria is angioneurotic edema in which the swelling spreads to the dermis and subcutaneous layer.

Aim. Study of modern methods and standards of treatment of urticaria, search for current principles of their pharmacotherapy.

Materials and methods. In the course of the work we were analyzed and compared the information from the articles, an adapted clinical guideline based on evidence, a unified clinical protocol on the treatment of urticaria.

Results and discussion. The main link in the treatment of urticaria is the influence on its pathogenesis. Therefore, the main drugs for the treatment of urticaria are antihistamines drugs. The general treatment algorithm differs slightly from country to country, but the general treatment steps can be divided into the following steps. First, a modern second- or third-generation antihistamine is prescribed. Second-generation drugs include loratadine, cetirizine, rupatadine, bilastine, etc. The third generation is represented by drugs such as desloratadine, levocetirizine, fexofenadine. If this therapy does not help to allow an increase in the dose of these drugs to 4 times the maximum. The next step in case of ineffectiveness is the appointment of an additional drug from such groups as antihistamines of I, II and III generations (I generation is diphenhydramine, clemastine, chloropyramine, etc.), leukotriene receptor antagonists (such as montelukast, zafirlukast). Then it is possible to increase the dose of antihistamine of the first generation, subject to tolerability. If all these stages do not show the desired effect then alternative drugs are prescribed. These include cyclosporine (immunosuppressant, calcineurin inhibitor) and omalizumab (monoclonal antibody). Also, at all stages it is possible to use glucocorticosteroids (prednisolone, dexamethasone) to stabilize the patient's condition.

Conclusion. Thus, the treatment of urticaria has a step-by-step scheme of action, when there is a dependence on the severity of the disease and the effectiveness of drugs. This is effective because the drugs and treatment regimen are selected individually, which is most suitable for a particular patient.

CHRONOTHERAPEUTICS AND ITS ROLE IN THE TREATMENT OF HYPERTENSION

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Introduction. The essence of chronotherapy is the improvement of efficiency and safety of pharmacotherapy by matching drug administration time with the circadian pattern of certain biological processes. Chronopharmacology and chronotherapy were formed on the basis of new data indicating the time dependence of organism sensitivity, its systems and tissues to external factors including pharmacological influences. Circadian rhythms are present for a large number of physiologic functions. The study of circadian rhythms in the cardiovascular system is emerging as an important area of investigation because of its potential implications for patient treatment. Circadian rhythms alignment for the range of cardiovascular and hematologic functions has resulted in a peaking of cardiovascular and cerebrovascular event rates in the morning hours shortly after awakening. Recent studies assessed whether optimal timing of intake of antihypertensive medication can give a reduction of complications of cardiovascular diseases.

Aim. The purpose of this paper is to summarize the literature regarding chronopharmaceutical approach to drug delivery in arterial hypertension treatment.

Materials and methods. PUBMED, EMBASE, MEDLINE and Medscape resources have been applied for search and analysis.

Results and discussion. The chronopharmacology is the most advanced area in arterial hypertension therapy. It is based on round-the-clock blood pressure determination (data of daily monitoring blood pressure), establishing its circadian profile and identifying optimal time of drug delivery. Antihypertensive drugs are prescribed according to peaks in blood pressure and pharmacokinetics of the drugs in a way that the expected the maximum antihypertensive effect fell on periods of the day with the highest value of blood pressure. Prescription of the drugs of different pharmacological classes (β - and α -adrenoreceptor antagonists, clonidine, methyldopa etc.) 1-2 hours before acrophase (time of the highest value) of systolic blood pressure make it possible to achieve lowering blood pressure applying substantially smaller single, daily and course doses of appropriate drugs in a shorter time compared to traditional treatment.

Conclusions. Optimal timing for antihypertensive drugs dosing makes it possible to reduce frequency of cardiovascular complications, as well as mortality associated with arterial hypertension.

SARS-COV-2 VIRUS RAPID DETECTION METHOD BASED ON CRISPR/CAS SYSTEM

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Introduction. The outbreak of the coronavirus disease (COVID-19) has spread rapidly all over the world. Thus, it has a significant impact on population health. Coronaviruses are positive single-stranded RNA viruses of Coronaviridae family known as agent causing respiratory tract infection and are common called cold viruses. Currently available assays for COVID-19 diagnosis can be classified into three groups: virusological tests (detect genetic material or virus by polymerase chain reaction), antigenic tests (detect a specific protein of the virus, usually a nucleocapsid protein), serological tests (detect antibodies such as IgM or IgG). Therefore, to advance the diagnostics scientists introduce a CRISPR/Cas rapid detection assay.

Aim. The purpose of this review is to summarize the data of the scientific literature about the role of CRISPR/Cas assays in COVID-19 diagnostics.

Materials and methods. The literature search and data analysis about CRISPR/Cas technology as a diagnostic tool for COVID-19 by using research databases (MIT Technology Review, Medline, PubMed).

Results and discussion. Rapid detection method based on CRISPR gene-editing technology is divided into three steps.

Step 1 – genetic material of SARS-CoV-2 virus is purified from patient and is amplified with polymerase amplification kit.

Step 2 – pre-amplified viral sample is incubated and detected using Cas13a-crRNA complexes which activate and cleave fluorescent RNA reporters. Cas12-mediated detection also can be used for COVID-19 diagnostics. Its advantage is weak collateral activity, enabling nucleic acid detection with low sensitivity.