THROMBOPOIETIN AND THROMBOPOIETIN RECEPTOR AGONISTS: NEW APPROACHES AND POSSIBILITIES

Nesterenko M. A.
Scientific supervisor: ass. Tsyvunin V. V.
National University of Pharmacy, Kharkiv, Ukraine
mnesterenko777@gmail.com

Introduction. Human thrombopoietin is a major hematopoietic growth factor that regulates megakaryocytopoiesis and platelet production. The discovery and production of thrombopoetin in recombinant form has made it possible to significantly advance the treatment of chemotherapy-induced thrombocytopenia. The first and the only drug based on recombinant human thrombopoietin in Ukraine is Emaplag (YURIA-PHARM Ltd). However, the potential of thrombopoietin and thrombopoietin receptor agonists (TPO-RAs) is not fully disclosed.

Aim. To analyze the experimental and clinical data dedicated to the additional effects and indications of drugs based on thrombopoietin and TPO-RAs for different conditions associated with low level of platelets.

Materials and methods. Google Scholar, EMBASE, MEDLINE and Cochrane Library resources have been applied for search and analysis up to February 2019 using terms thrombopoietin and thrombopoietin receptor agonists.

Results and discussion. It has been detected that thrombopoietin and TPO-RAs (eltrombopag, romiplostim and lusutrombopag) can be administered not only in case of chemotherapy-induced thrombocytopenia, but also in different conditions which are accompanied with low level of platelets – severe aplastic anemia, persistent or chronic immune thrombocytopenia, chronic immune thrombocytopenic purpura, chronic idiopathic thrombocytopenic purpura, chronic liver disease (recurrent hepatocellular carcinoma) associated thrombocytopenia, perioperative thrombocytopenia, immune thrombocytopenia in pregnancy, prolonged isolated thrombocytopenia after allogeneic stem cell transplantation, drug-induced thrombocytopenia caused by heparin and low-molecular-weight heparins, quinidine, sulfonamides, antibiotics, fluoroquinolones, amphotericin B, methyldopa, acetaminophen, acetylsalicylic acid, diclofenac etc.

Conclusions. The literature data analysis shows the new directions of thrombopoietin and thrombopoietin receptor agonists (eltrombopag, romiplostim and lusutrombopag) use including different types of thrombocytopenia (idiopathic, immune, perioperative, after allogeneic stem cell transplantation, caused by liver diseases, drugs etc.).

THE POSSIBILITIES OF MEDICAL CANNABIS TO REDUCE SIDE EFFECTS OF DRUGS (LITERATURE REVIEW)

Reus A.V.
Scientific supervisor: ass. Tsyvunin V. V.
National University of Pharmacy, Kharkiv, Ukraine
reus1kill@mail.ru

Introduction. Cannabis and cannabinoid drugs are widely used to treat disease or alleviate symptoms in many countries, except Ukraine. Randomized clinical trials show the effectiveness of cannabinoids for the following indications: appetite stimulation in HIV/AIDS, chronic pain, spasticity due to multiple sclerosis or paraplegia, depression, anxiety disorder, sleep disorder, psychosis, glaucoma, or Tourette syndrome. In addition, cannabis medicines can be used to correct side effects of drugs, which is not widespread known.

Aim. Verification the possibilities of medical cannabis use for reduction or prevention of side effects of pharmacotherapy.

Materials and methods. Cochrane Library, Pubmed (MEDLINE), ScienceDirect (Scopus) and Google Scholar resources were searched up to March 2019. The search terms were «cannabis», «side effects», «correction».

Results and discussion. It has been found that cannabis can correct side effects of cancer chemotherapy. Cannabis reduces the symptoms of chemotherapy-induced peripheral neuropathy. Another studies show that cannabinoids are very effective for treatment of nausea and vomiting – common side effects of cancer therapy. Medical cannabis can improve cancer-related stress. Cannabis is also effective for treating levodopa-induced dyskinesias in patients with Parkinson disease. Results of few investigations suggest cannabis can be used for correction of neurocognitive functioning impairment induced by long-term efavirenz use in HIV-infected patients. Cannabis prevents negative bladder symptoms which connect antimuscarinic (anticholinergic) treatment. Also cannabis relieves depressive symptoms induced by reserpine. Another data suggest cannabis to be a potential treatment for nicotine addiction. The primary constituent of marijuana, Δ^9-tetrahydrocannabinol, significantly blocked hemorrhage development and decreased stomach ulceration induced by non-steroidal anti-inflammatory drugs.

Conclusions. The experimental and clinical data argue the perspectives of using medical cannabis for correction of side effects of chemotherapy of cancer, pharmacotherapy of Parkinson disease, antiretroviral therapy and other adverse reactions of medicines.

PHARMACOTHERAPY OF ATHEROSCLEROSIS BY MEDICINAL PLANTS

Romanik K.O., Stoletov Yu.V., Kutsenko T.O., Belik G.V.
Scientific supervisor: assoc. prof. Stoletov Yu.V.
National University of Pharmacy, Kharkiv, Ukraine
stoletov62@ukr.net

Introduction. Diseases of cardio-vascular system and atherosclerosis (that is often a background of named diseases) are one of the main problems of modern medicine. An intensive search of optimal methods of atherosclerosis treatment resulted in appearance of new ways of therapy, assisted to creation of new medicines. Despite the progress in therapy of atherosclerosis, different questions are still present. For example, it is high price of synthetic medicines, side effects occurring in long-term treatment. That is why development of alternative methods of therapy of this disease is needed today.

Aim. To prove an effectiveness and perspectives of phytotherapy use for atherosclerosis treatment basing on the analysis of information from scientific articles and internet resources.

Results and discussion. Medicinal plants for atherosclerosis treatment are used both by official and folk medicine. For example, such plants as Crataegus, Valeriana, Leonurus, Mentha, Allium sativum and others are used. They cause different pharmacological effects, that are necessary for atherosclerosis treatment such as normalization of lipid metabolism and blood coagulation, antihypoxic and sedative effect.

Affecting lipid metabolism medicinal plants assist elimination of cholesterol, triglycerides, low and very low density lipoproteins (atherogenic factors) from the body and increase the level of high density lipoproteins (anti-atherogenic factors) in the body. These effects Arnica, Ruta, Cucurbita, Viburnum, Helianthus, Malus, Medicago and others have.

Causing antihypoxic effect biologically active substances of plant origin increase the resistance of the body to hypoxia and decrease its negative effects on the organs and tissues. Antihypoxic effect Arnica, Calendula, Tanacetum, Betula and other plants have. Use of these plants in herb collections improves the results of therapy of atherosclerosis and its complications.

Anticoagulant effect of medicinal plants is used, first of all, for prophylaxis of thromboembolic complications, which develop as a result of disorders of blood coagulation. Medicinal plants that contain cumarins, for example, Melilotus, Crataegus, Thalictrum, Rubus saxativus, Carum carvi, cause anticoagulant and fibrinolytic effects.

Sedative effect of medicinal plants is used to stop the influence of unfavorite exogenic and endogenic conditions on CNS, that may lead to worsening of patient`s state. As sedative agents Origanum, Mentha, Melissa, Leonurus, Epilobium, Valeriana and others are used.

Thus, the analysis of information from scientific articles and internet resources show that a lot of medicinal plants have specific anti-atherosclerotic effect (ability to normalize lipid metabolism) and also antihypoxic, anticoagulant, sedative effects which are necessary for atherosclerosis treatment.