The relevance of the study is determined by the permanent changes in the structure of acute chemical poisoning that requires quick medical decisions on administration of antidotes or agents of pharmacological correction, especially at the prehospital stage. The syndromologic approach is widely used in toxicological centres of many countries in order to accelerate the process of decision-making on the poisoning causes and type of toxicant.

Selected aim of this study is studying and synthesis of modern approaches to the practical application of major toxic syndromes (toxidromes) in the toxicologists practice.

Materials and methods of the study. The studied classifications of toxic syndromes that have been used in the practice of toxicologists of the United States, the European Union, and the Russian Federation over the past 30 years.

Results and their discussion. For many years, the Soviet school of Clinical Toxicology (O.Ye. Luzhnikov, S.A. Kutsenko, etc.) has improved the clinical classification of acute chemical poisonings from the perspective of individual systems pathology, forming the syndromes of toxic damage of internal organs and physiological systems in case of poisoning. The similar conclusions are reflected in the works of other schools of toxicology (R. Hoffman, 2010; L.R. Holdfrank, 1995; P.H. Dreisbach, 1980; J.B. Leikin, 1996). Referring to the fact that acute poisoning induces the same pathological syndromes, the severity of which is shown in greater or lesser degree depending on the chemical agent and its amount, as well as the way of its delivery to the body (S.N. Golikov, 1986, E.A. Luzhnikov, L.G. Kostomarov, 1989), nine clinical syndromes were determined: syndromes of central nervous system; respiratory syndromes; cardiovascular syndromes; allergy syndrome; acute gastroenteritis; syndrome of skin and eye irritation; pain syndrome; liver failure syndrome; renal failure syndrome. It should be noted that this classification could be used only in hospitals, as far as to determine most of these syndromes not only clinical data, but laboratory and functional methods are needed. At the same time, the following classification is found, which focuses on four main pathological syndromes in acute poisoning (Ye.O. Luzhnikov, L.G. Kostomarov, 2000): toxic damage of nervous system; toxic damage of cardiovascular system; toxic damage of respiratory system; toxic damage of liver and kidneys. This classification provides the corresponding direction of correction of various organs or systems functional disorders. However, it should be noted that at the prehospital stage of acute poisoning diagnosis, it also has a practical value. For example, the detection of renal and hepatic insufficiency is possible only in a hospital using the results of additional tests. In the early 2000s, Russian authors (Yu.S. Goldfarb, V.I. Kazachkov, Ye.O. Luzhnikov, S.G. Musselius, Yu.N. Ostapenko, H.N. Suhodolova, 2001) proposed an approach to the differential diagnosis of acute poisoning according to the major clinical syndromes and symptoms. According to this approach, a toxicologist may refer to the following clinical signs that are usually laid down in alphabetical order in textbooks and practical recommendations: alopecia, anuria, arrhythmia, asphyxia, bleeding, blepharospasm, bronhorrhea, cardiac arrest, coma, cyanosis, deafness, diarrhoea, hypertension, hypotension, jaundice, myofibrillation, seizures. Certainly, the listed symptoms and syndromes occur in acute poisoning, but their selective evaluation allows to determine the direction of treatment of organs and systems functional disorders in comparison with the previous classification. Nevertheless, a toxicologist considers the classification is important, if it gives not only the opportunity to determine the type and degree of functional impairment in the
body, but offers the direction of its pharmacological correction, particularly pointing to an effective remedy or antidote syndromic therapy. That is why, the fundamentally different approach to the definition of toxic syndromes is the systematic approach based on the assessment of the level of neurotransmitter disorders because of toxicant activity.

Since the mid-1970s, the concept “toxidromes” has been widely used in the diagnosis of acute poisoning that reflects the nature and extent of neurotransmitter changes in the body under the influence of toxic substances or combinations thereof. Determination of major toxidromes (adrenergic, anticholinergic, cholinergic, opioid, sedative and hypnotic, and serotonin) allows doctors to initiate promptly the syndromic treatment that in many cases of poisoning coincides with pathogenetic treatment. Syndromologic approach accelerates the doctors’ decision-making process in choosing antidote or agent of pharmacological correction of functional disorders, especially important at the prehospital stage.

In recent years, issues of toxic syndromes have been also studied in Ukraine, so in 2004, the authoring team (I.S. Zozulia, V.I. Bobrov, V.K. Hudoshyn et al., 2004) published a study guide devoted to the issues of diagnosis and emergency care in acute poisoning for students of pre- and postgraduate education. For the first time in Ukraine, the authors proposed a modern approach to the definition of toxic syndromes based on the dysfunction of neurotransmitter systems (alpha and beta adrenergic, sympathetic, cholinergic, nicotinic, and serotonin), which is reflected in the guidelines and manuals.

Any clinical classification reflects the overall array of diseases formed in the population under the influence of etiological factors. So the development of the easy-to-use classification should be based on features of a toxic situation in a particular country or region of the world, where the big array of studies may determine the optimal structure of syndromic classification for the target nosological group.

Today, the classification of toxic syndromes in poisoning with highly toxic substances; military toxicants; medicinal products; drugs; household poisons; mushroom, plant and biological toxins and many others, is widely used. However, the widespread use of toxic syndromes in clinical practice of Ukraine is limited due to the lack of taxonomy, but scientific research of recent years are advisory in nature, so the definition of the unified classification for toxic syndromes is very important taking into account the existing guidelines and features of current toxicological situation in Ukraine.

Conclusions. Nowadays, it is important to introduce contemporary scientific approaches, related to the diagnosis of acute poisoning at the prehospital stage using major toxidromes, to the curricula of pre- and postgraduate training of emergency doctors and toxicologists in Ukraine.