



Fund “Nauka” Project № 25017 Resume – Competition-based Session 2025:

“Investigation of the Antidotal Potential of Intralipid 20% in Amphetamine Intoxications”

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Over the past decade, amphetamine-type stimulants have emerged as some of the most commonly used psychostimulants worldwide. Data from the European Monitoring Centre for Drugs and Drug Addiction indicate that over 1.6 million young individuals (aged 15–34) in the EU have used amphetamines within the past year, with global seizure rates reaching record levels. In Bulgaria, this class of substances ranks second only to cannabis, with the average age of first use being 15–16 years. Abuse frequently leads to acute intoxications, which often result in fatal outcomes due to severe cardiovascular and neurological complications, as well as the absence of a specific antidote. Current therapeutic approaches are largely limited to supportive and symptomatic care, which is not always sufficient to prevent fatalities.

Intralipid 20% is a well-established antidote for local anesthetic toxicity and has demonstrated efficacy against a variety of lipophilic xenobiotics. Based on the lipophilic nature of amphetamine-type stimulants, it is hypothesized that lipid emulsions may mitigate their toxic effects.

The aim of this project is to investigate the antidotal potential of Intralipid 20% in acute intoxications with amphetamine-type stimulants in experimental animals. Specific objectives include the assessment of survival and vital functions, as well as the implementation of a series of behavioral tests.

It is anticipated that the administration of Intralipid 20% will result in rapid attenuation of toxic symptoms and a reduction in mortality, thereby enriching theoretical knowledge and providing a foundation for future clinical studies with direct social and clinical relevance.

Expected outcomes and potential applications in science and practice:

- It is anticipated that the administration of Intralipid 20% to rats with amphetamine-type stimulant-induced toxicity will result in rapid mitigation of toxic symptoms and prevention of fatal outcomes. This would demonstrate a favorable course of intoxication, with effects that are sustained over time and prevent recurrence or worsening of symptoms;

- The applicability of this approach in scientific research, clinical practice, and cost-effectiveness is indisputable, owing to the low cost of Intralipid 20%, its minimal toxicity, and the rarity of adverse drug reactions;
- The social significance is unquestionable, particularly in the context of the epidemic of fatalities associated with overdoses of amphetamine analogs.