

## BENEFITS AND SIDE EFFECTS OF MEDICATIONS

*Scientific supervisor: Asatullayev Rustamjon Baxtiyarovich*

*Student: Jienbaeva Aygul Azatovna*

**Abstract:** *Side effects refer to unintended effects of pharmaceutical products that arise when used at normal doses due to their pharmacological actions. Adverse drug reactions (ADRs) can range from mild to severe, with some leading to life-threatening conditions, hospitalization, or permanent disability. This paper examines the classification of ADRs based on type, severity, frequency, and clinical outcomes. Additionally, it discusses pseudoallergic reactions, mechanisms of ADR development, and patient-specific risk factors, including age, gender, and underlying health conditions. Understanding these factors can help in minimizing adverse effects and ensuring safer medication use.*

**Key words:** *Side effects, adverse drug reactions, pharmacokinetics, pharmacodynamics, pseudoallergic reactions, drug toxicity, medication safety, risk factors.*

Side effects are any unintended effect of a pharmaceutical product that develops when used in normal doses and which is due to its pharmacological action. Undesirable drug reactions are harmful and unforeseen effects due to the use of a drug in therapeutic doses for the purpose of prevention, treatment, diagnosis, or modification of a person's physiological function. An undesirable event is any adverse event that occurs during treatment with a drug and which does not necessarily have a causal relationship with its.

Serious adverse side effects are any adverse clinical manifestations that are independent of the dose of the drug.: They lead to death; they require hospitalization or its extension; lead to permanent disability ; or a persistent decrease in working capacity; they are a congenital anomaly/malformation.

### **Classification by type of NPR:**

Type A - predictable, frequent reactions associated with the pharmacological activity of drugs. Toxicity, especially when using high doses, secondary, pharmacodynamic NPR, related to the mechanism of action of the drug, and the toxicity associated with drug interactions. These reactions are well described, their occurrence is due to the pharmacological effect of drugs (for example, increased bleeding when taking anticoagulants). Clinical manifestation NPR depends on the underlying disease. Enhancement of the therapeutic response is possible with changes in liver and kidney function, and the presence of concomitant pathology capable of genetically determining the features of drug metabolism and metabolic processes of the patient.

Classification according to the severity of the clinical course.

**Mild NPR** - there is no need to discontinue the drug and for special treatment, the clinical manifestations disappear on their own over time. **Moderate NPR** - requiring drug withdrawal and special treatment, increased hospitalization time. **Severe** - with a threat to the patient's life and with a high risk of disability, an increase in the duration of hospitalization.

In terms of frequency of occurrence: Very common - occurs in more than 10% of patients taking medications

Frequent - develop in 1 - 10% of patients

Less frequent - develop in 0.1 - 1% of patients

Rare - develop in 0.01 - 0.1% of cases

Very rare - they develop in less than 0.01% of cases.

#### **According to clinical outcomes:**

Serious, Not serious

Serious NPD entails: death of the patient, a life-threatening condition, the need for emergency hospitalization or an increase in the length of hospitalization.

The development of genetic disorders, developmental defects, malignant and benign formations, decreased vital activity for a period of 3 months or more, disability of the patient. All other conditions are considered frivolous NPR.

The frequency of development depends on the individual characteristics of the patient, gender, age, severity of the underlying and concomitant disease.

#### **Medicinal lesions of organs and systems.**

**Pseudoallergic reactions.** Pseudoallergic reactions are clinically similar to allergic reactions, but the mechanism of development is characterized by the absence of an immunological stage. Risk factors for pseudoallergic reactions

1. Eating foods containing histamine and its analogues - bananas, grapes, strawberries, seafood, nuts, tomatoes, fish, eggs

2. Violation of histamine inactivation in liver diseases, initial hypoalbumemia, taking medications in the treatment of concomitant pathology (NVPS, leukotrienes)

3. Histamine calibration. The condition is characterized by the release of histamine from basophils and mast cells, which can be triggered by eating foods containing histamine and its analogues, as well as when using vitamin preparations, polysaccharides, X-ray contrast agents, and iodine-containing peraparates.

4. The direct effect of drugs on the target.

#### **Mechanisms of NPR**

development Currently, it is customary to identify four standard mechanisms for the development of NPR

- Direct toxicity with damage to cells and tissues of the body. NPS with direct toxicity as. They are usually dose

-dependent and predictable.

- Pharmacokinetic mechanism

- Pharmacodynamic mechanism

- Drug interactions develop by both pharmacodynamic and pharmacokinetic mechanisms.

**The risk factors for developing NPR** depend on both the pharmacological properties of the drug and the characteristics of the patient.

Common factors predisposing to the appearance of NPR:

- prescribing drugs in high doses

- dosage of the drug without taking into account the individual characteristics of the patient

- long-term treatment

- previously transferred NPR.

**The risk factors for developing NPD** depend on both the pharmacological properties of the drug and the characteristics of the patient.

Age groups (childhood, and the elderly and senile age). In elderly and senile patients, as well as newborns, it is possible to increase the pharmacokinetic parameters of drugs due to the inferiority of metabolic processes. Consequently, patients in these extreme age groups have an increased risk of developing NPD. Thus, due to the age-related decrease in hepatic blood flow and liver mass, metabolism slows down and the biotransformation of drugs changes, the risk of developing type A NPD increases. It is necessary to dose drugs more carefully, especially hypnotics, diuretics., NSAIDs, antihypertensive, psychotropic drugs, and cardiac glycosides. It should be remembered that in elderly patients, concomitant chronic pathology and a wide range of complaints often make it difficult to recognize the NPD that has developed.

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