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Drugs in the blood of blood donors in transfusion
Lekovi u krvi donora krvi u transfuziji

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Introduction

- Transfusion is probably the most humane area of drug use, as donors freely give a substance that serves as medicine, and even one person can save many lives, especially of newborns.
- Transfusion facilities face increasing challenges in maintaining blood supplies due to an aging population and growing demand for blood products. As the population ages, so does the population of blood donors. Older donors, in comparison with younger donors, are more often rejected due to low hemoglobin, illness or medication use
- Drugs that contraindicate someone from being a blood donor for transfusion are not defined either by the guidelines or by law in Serbia.

Aim

The aim of this paper is to point out the drugs whose application prevents a voluntary donor from donating blood for a certain period of time in order:

- on the one hand, to preserve the health of the donor and
- on the other hand to make the transfusion safer for the blood recipient.

Topic

- The presence of metabolites or active substances of certain drugs in blood components is a potential cause of adverse reactions in blood recipients.
- Drugs may be present in plasma-containing components.
- Drugs that can potentially be harmful to the health of the patient receiving the transfusion is related to the:
  - pharmacokinetics of the drug
  - its side effects, and
  - drug interactions.

Topic

Whole blood is given less and less. The components are applied and the erythrocytes are resuspended in the optimal additive solution (OAS), the most common of which is SAGMANITOL, and the drug present in the whole blood is present in the **plasma**

- depending on its pharmacokinetic characteristics (t/2)
- concentration
- as well as the retention of the drug or metabolites in the stored blood component.

Topic

- Attention during application should be focused on the components that contain plasma, namely:
  - frozen fresh plasma (FFP)
  - cryoprecipitate and
  - platelet concentrates.
- In general, drug use should be divided into groups that temporarily exclude donors and groups that permanently exclude donors. Thus, the donor can be excluded for only 2 days if the donor used low molecular weight heparins or was permanently infected, which is the case with the use of cytostatic and immunosuppressive drugs.

Topic

- mRNA technology vaccines are a new form of medicine that alarmingly indicates the possibility of monitoring distant side effects due to the presence of spike proteins

- In medically unclear situations, the expert opinion on transfusion is to apply autotransfusion in accordance with "patient blood management" (PBM).

The following slides show a

Table with a list of medications and the recommended time to delay donating blood

Recommended Medication deferral list 1

	Brand name of the drug	Generic name of the drug	Time since last drug intake
Antiplatelet drugs	Aspirin, Anbol,Cardiopirine Plavix Ticlodix Brilique, Ecugra, Gartyz	Acetylsalicylic acid Clopidogrel Ticlodipin Ticagrelor	3 days 14 days 14 days 7 days
Anticoagulant drugs	Fraxiparine Fragmin Clivarine Clexane Arixtra	Nadroparin Dalteparin Reviparin Enoksaparin Fondaparinoux	2 days

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Recommended Medication deferral list 2

	Brand name of the drug	Generic name of the drug	Time since last drug intake
Anticoagulant drugs	Heparin Farin Sintrom 4	Heparin Varfarin Acenokumarol	7 days
	Pradaxa Eliquis Rivaroks,Xarelto,Trombocen Roteas	Dabigatran Apixaban Rivaroxaban Edoxaban	2 days

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Recommended Medication deferral list 3

	Brand name of the drug	Generic name of the drug	Time since last drug intake
Acne therapy	Roaccutan, Aknova	Isotretinoin	1 month
Multiple myeloma	Thalidomid Revlimid	Thalidomide Lenalidomide	
Rheumatoid arthritis	Rinvoc	Upadacitinib	
Hair loss remedy	Finasterid, Proscar	Finasteride	

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Recommended Medication deferral list 4

	Brand name of the drug	Generic name of the drug	Time since last drug intake
Prostate therapy	Dutasterid	Dutasteride	6 months
Immnusuppressants	CellCept, Micolat, Trixin	Mikofenolat mofetil	6 weeks
Hepatitis and HIV therapy			Permanently
Autoimmune disese therapy			

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Topic

- Drugs in transfusion as a professional topic must be included in local guidelines and standard operating procedures (SOP) of authorized transfusion institutions and hospital blood banks
- A regulation defining drugs that are contraindications for donating blood should be established
- If necessary, it is preferable to use modern analytical methods to detect the presence of drugs and their metabolites in donated blood.

Conclusion

- In addition to the caution related to the presence of the drug in the blood/components, great attention should be paid to the use of mRNA technology drugs because there is still not enough data on the side effects of this group of drugs
- The transfusion expert's position is to apply blood according to indications and whenever possible to apply autologous transfusion, and pharmacovigilance and hemovigilance should be the full legal obligation of health personnel.