Sechenov First Moscow State Medical University

Cardiovascular diseases in patients with liver cirrhosis after viral hepatitis C

Berns Angelina, Nabatchikova Ekaterina, Dzhamal Abdurakhmanov

Department of internal and professional disease and rheumatology of Sechenov First Moscow State Medical University – clinical attendant

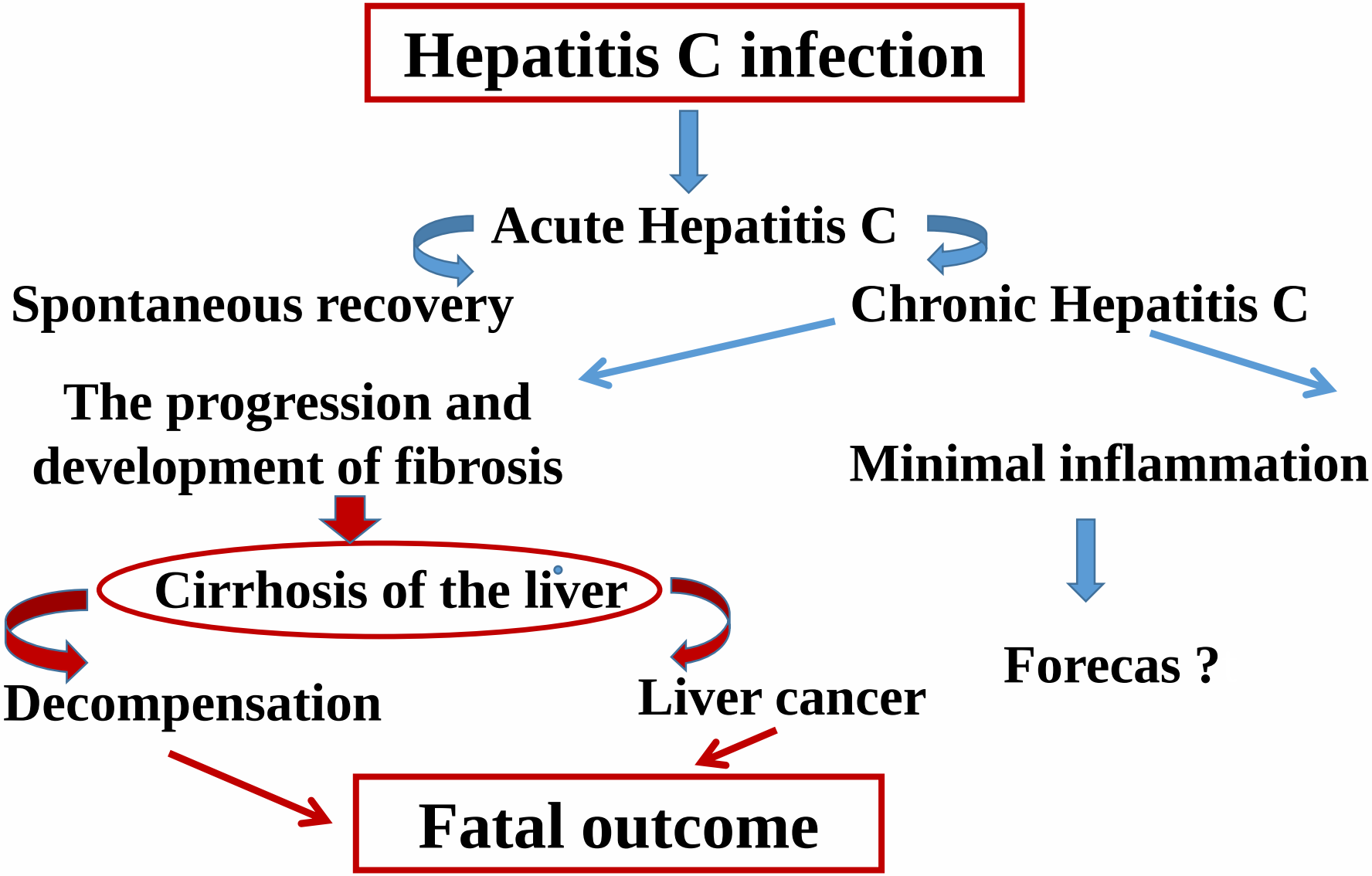
Study rational and background

According to the World Health Organization data one third of the world's population is infected with various types of hepatotropic viruses. Despite a decrease in the incidence of acute hepatitis, the number of patients with chronic hepatitis is increasing.

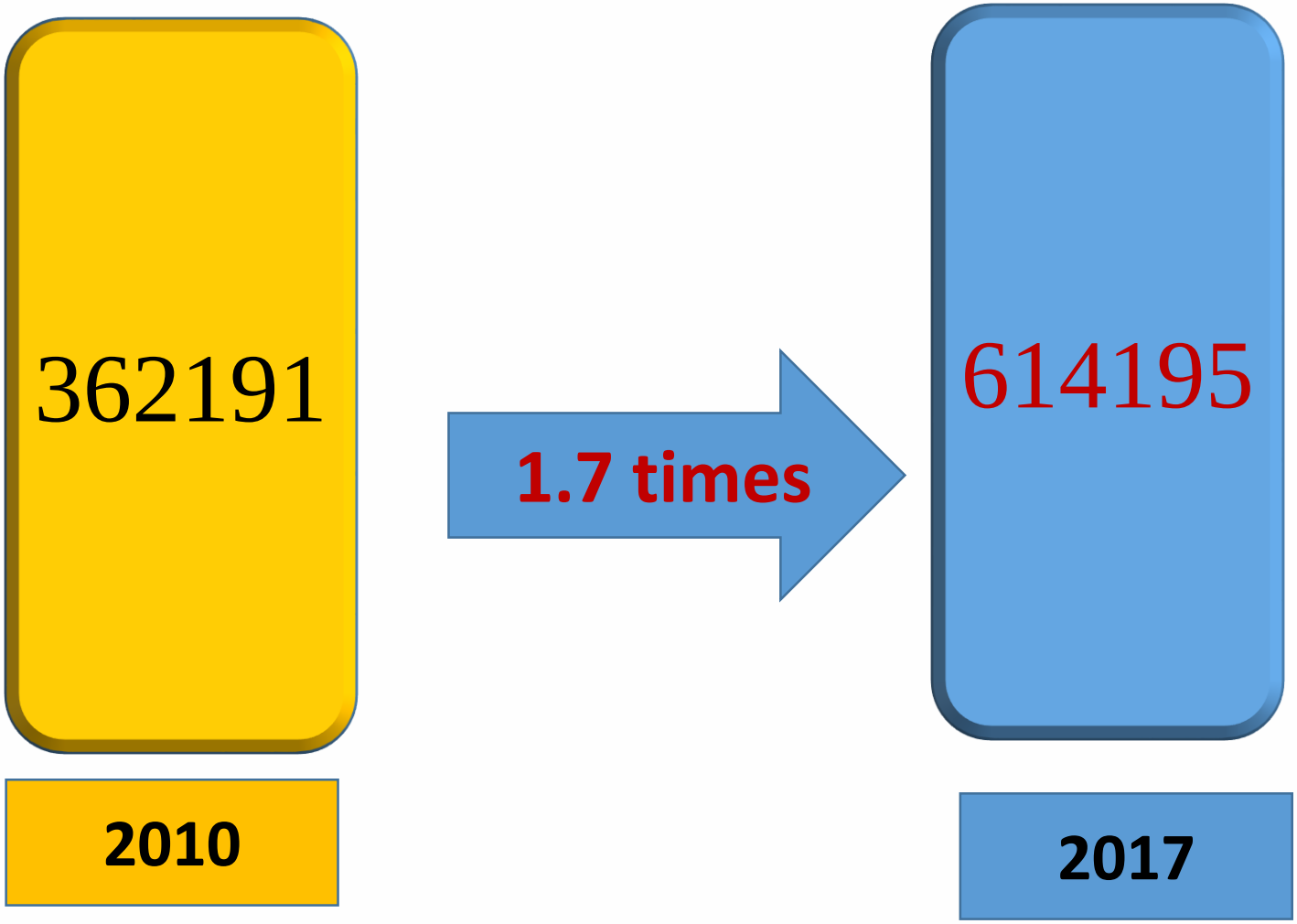
!!! There is decrease of the number of patients with viral hepatitis B and increase of patients with hepatitis C

Chronic viral hepatitis C accounts for more than 70% of all chronic liver diseases. HCV is an etiological factor of 40% cases of liver cirrhosis and 60-70% of hepatocellular carcinomas.

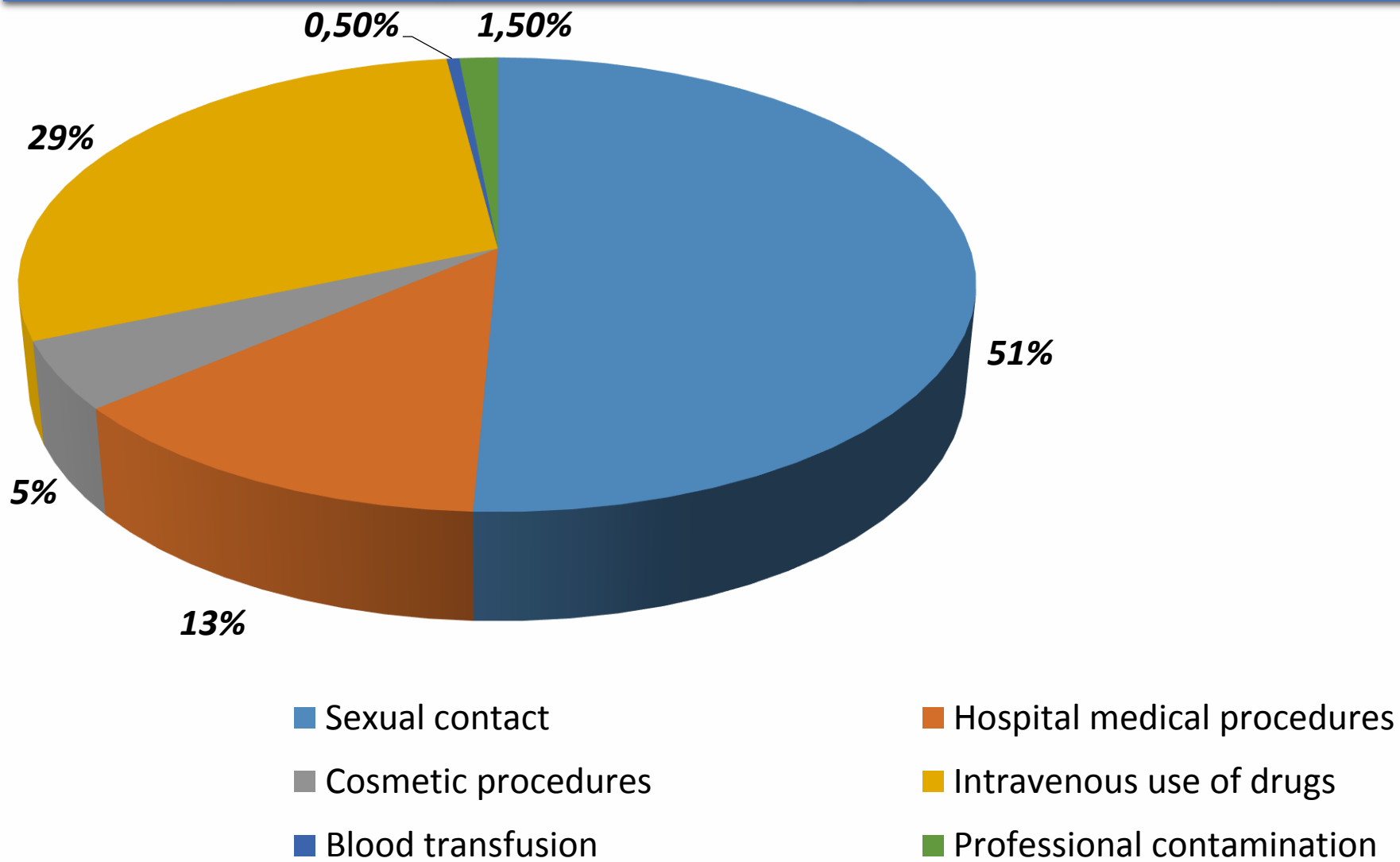
Pathogenesis of liver cirrhosis in viral hepatitis C



The number of patients with chronic hepatitis C registered in the Russian Federation in 2010-2017 years

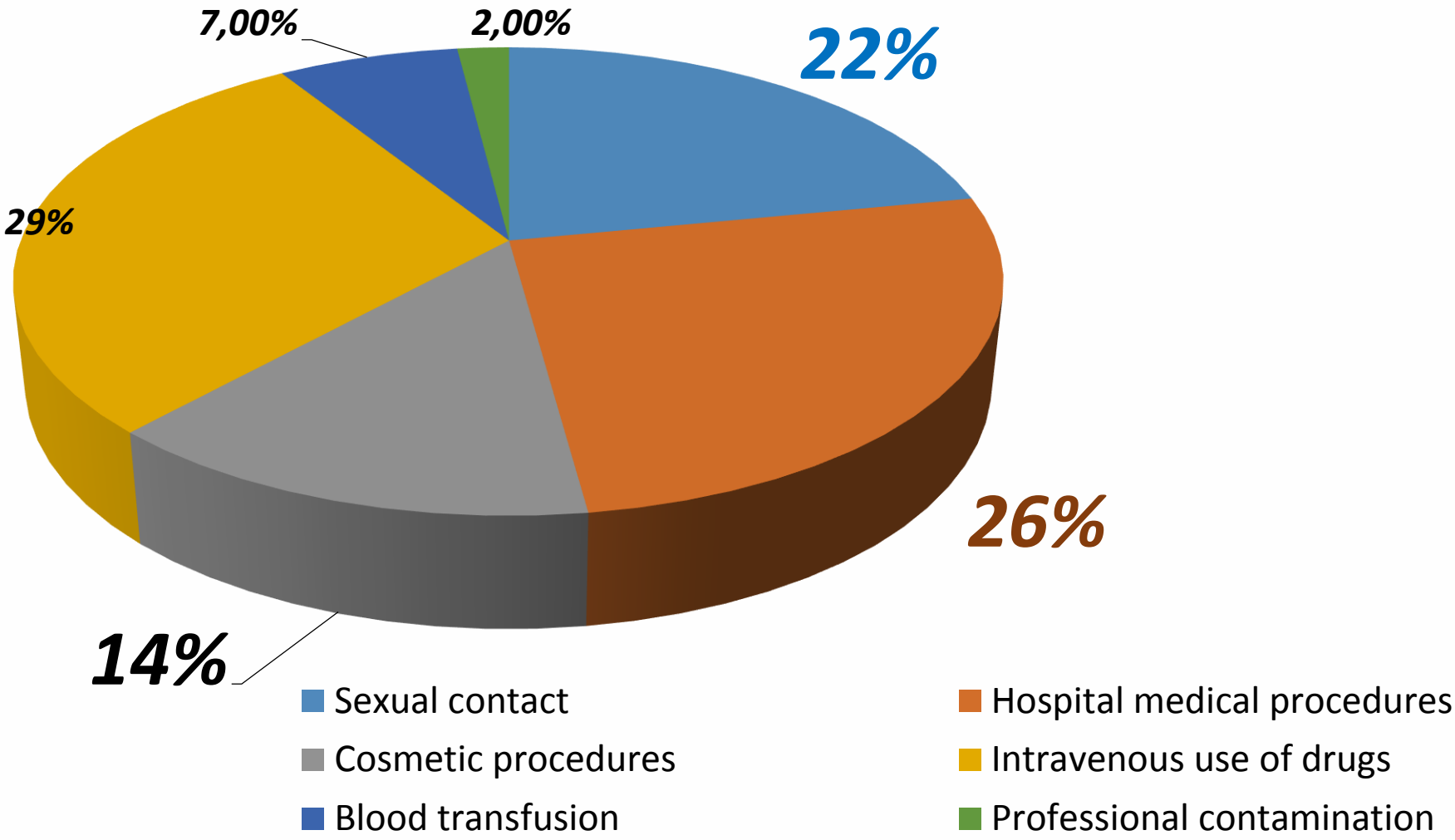


Structure of ways of hepatitis C transmission in the Russian Federation
(According to the data of Rospotrebnadzor, 2016)

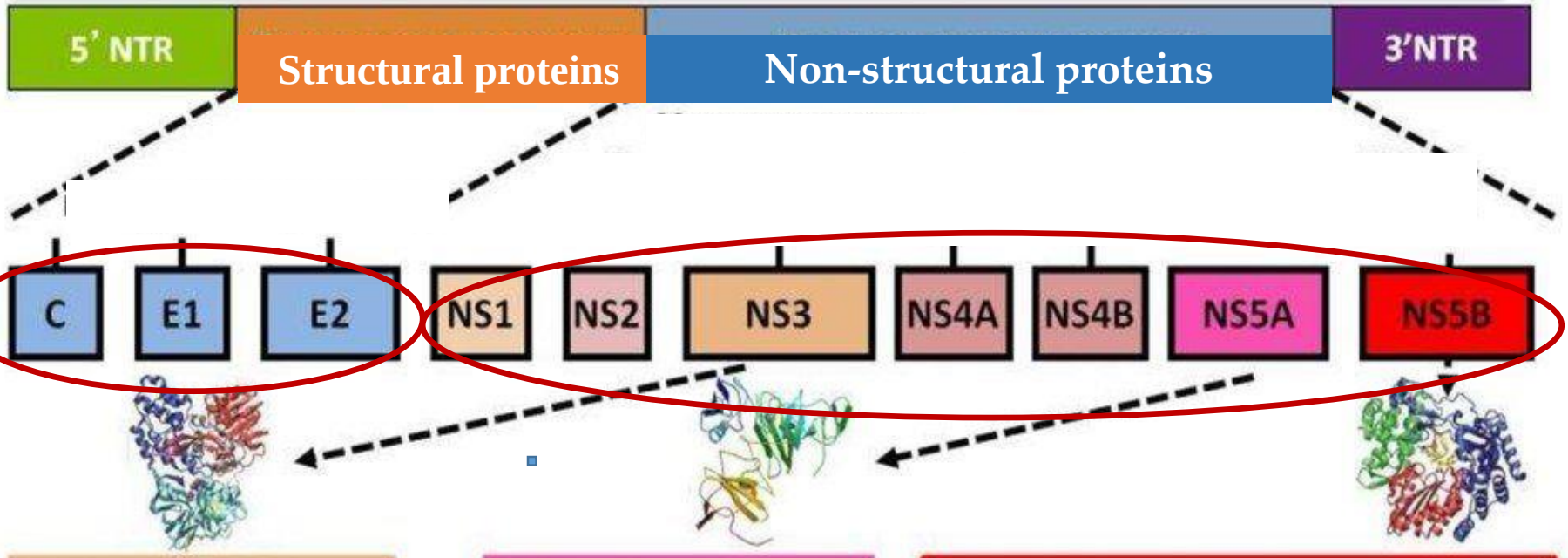


Structure of ways of hepatitis C transmission in the Russian Federation

(According to the data of Register of Viral Hepatitis Patients: 2013-2017)



Direct-acting antiviral drugs (DAAs)



Protease inhibitors

- ABT-450
- Telaprevir
- Boceprevir
- Simeprevir
- Faldaprevir
- Asunaprevir
- MK-5172
- Sovaprevir
- ACH-2684

Inhibitors NS5A

- Ombitasvir
- Daclatasvir
- Ledipasvir
- GS-5816
- ACH-3102
- PPI-668
- GSK-2336805
- Samatasvir
- MK-8742

Polymerase inhibitors

- Sofosbuvir
- VX-135
- IDX-20963
- ACH-3422
- Dasabuvir
- Deleobuvir
- BMS-791325
- PPI-383
- GS-9669
- TMC-647055

Adapted from Schinazi R, *et al. Liver Int* 2014; **34** (Suppl 1):69–78.

Interactions between HCV DAAs and drugs used for CVDs (Recommendations of European Association for liver diseases study)

Prediction of drug interactions

The resource of the University of Liverpool is used to predict drug interactions of direct antiviral drugs with concomitant drugs.

www.hepdruginteractions.org

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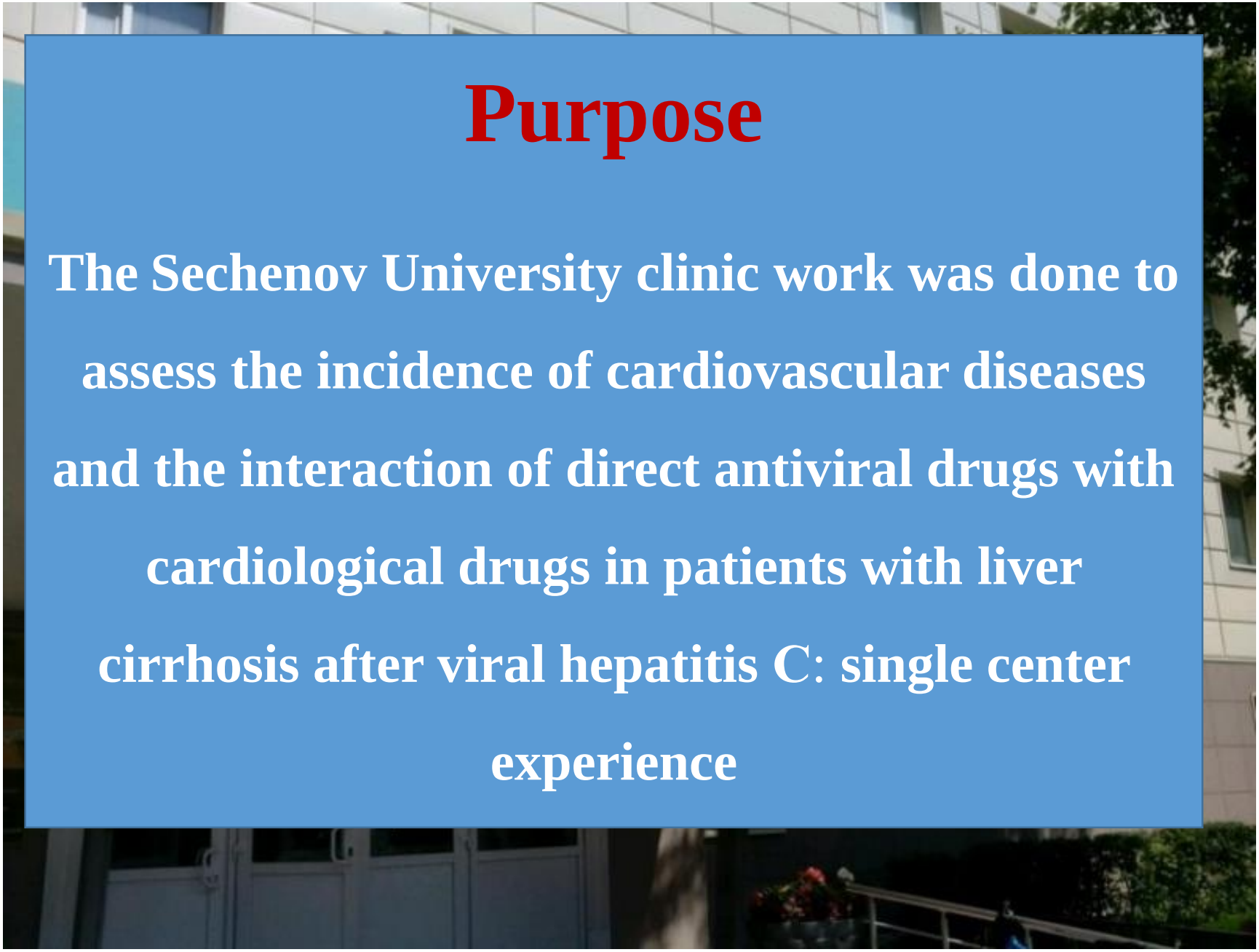
Group	Drug name	Simeprevir	Daclatosvir	Sofosbuvir	Sofosbuvir+ Ledipasvir	Viekira Pak (Dasabuvir+ Ombitasvir+ Paritaprevir
Anti-arrhythmics	Amiodaron					
	Digoxin					
	Flecainide					
	Vernakalant					
Antiplatelet and anticoagulants	Clopidogrel					
	Dabigatran					
	Warfarin					
Beta- blockers	Atenolol					
	Bisoprolol					
	Propranolol					
Calcium channel blockers	Amlodipin					
	Diltiazem					
	Nifedipin					
Other	Aliskiren					
	Candesartan					
	Doxazosin					
	Enalapril					

Green: no clinically significant interaction detected
Yellow: may require dose and time adjustment of the drug, additional control is required
Red: No co-administration



Purpose

The Sechenov University clinic work was done to assess the incidence of cardiovascular diseases and the interaction of direct antiviral drugs with cardiological drugs in patients with liver cirrhosis after viral hepatitis C: single center experience

Methods

◊ **Our observational noninterventionist study included 192 patients with HCV related cirrhosis**

◊ **Median patients age was 54 years**

◊ **47% were male**

◊ **70.3% had a genotype 1 (poorly treated)**

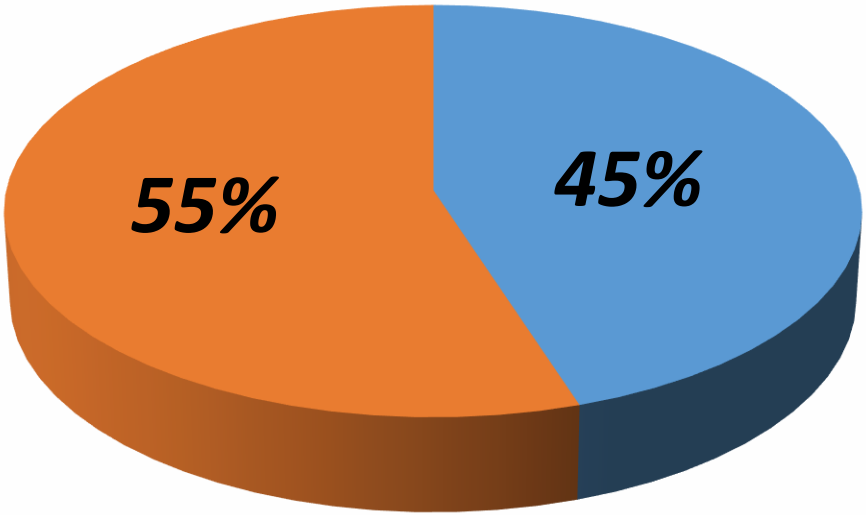
◊ **29.7% Child-Pugh class B/C**

Methods (continuation)

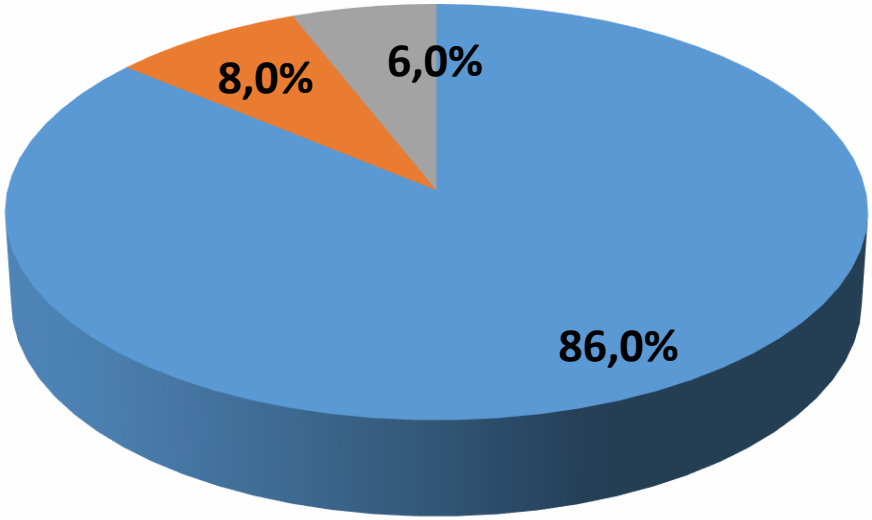
We described predicted drug interactions with the concomitant drug and diseases based on data available at www.hepdruginteractions.org and prescribing information

Frequency and structure of CVDs of patients with liver cirrhosis

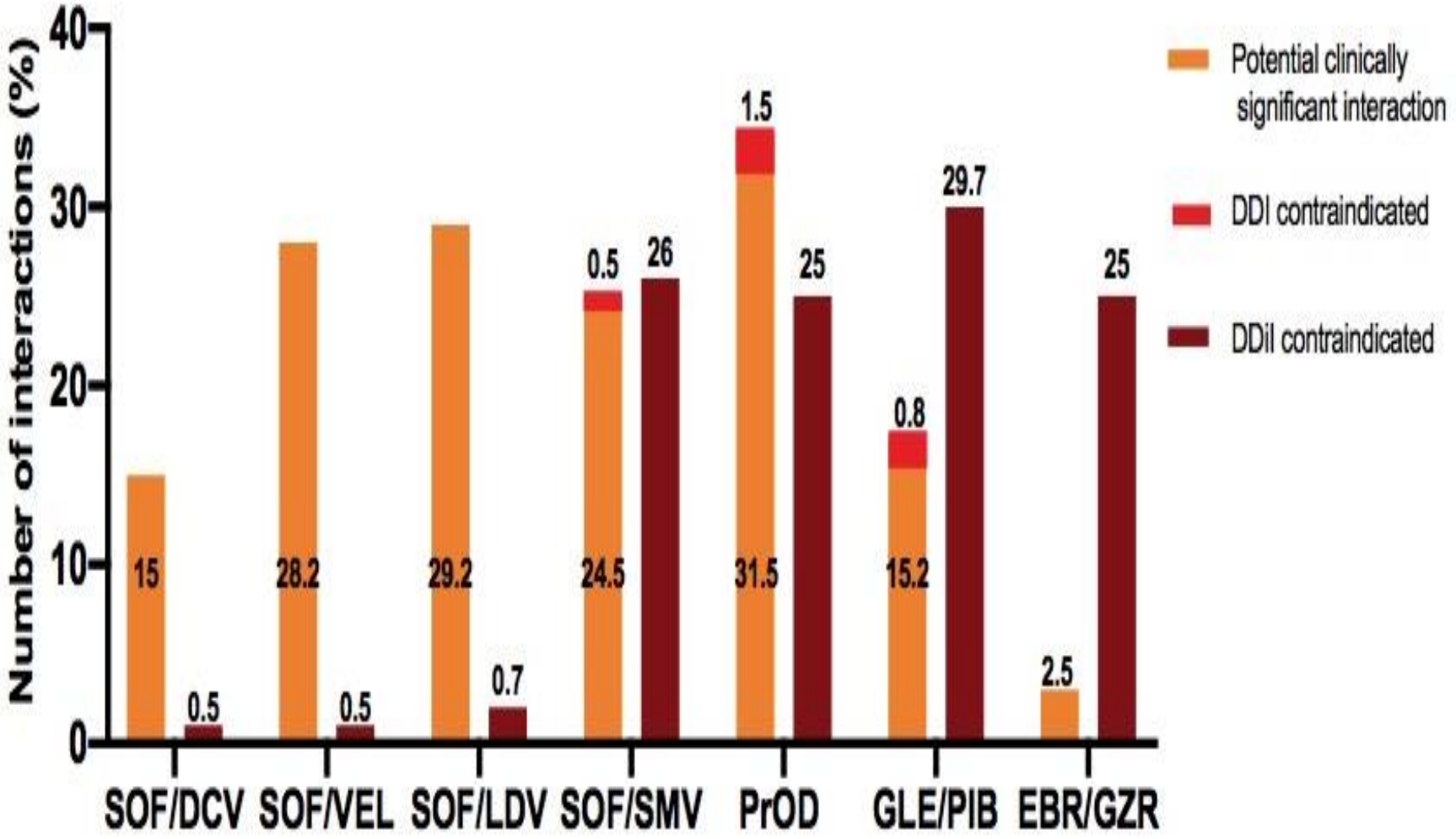
Frequency CVD



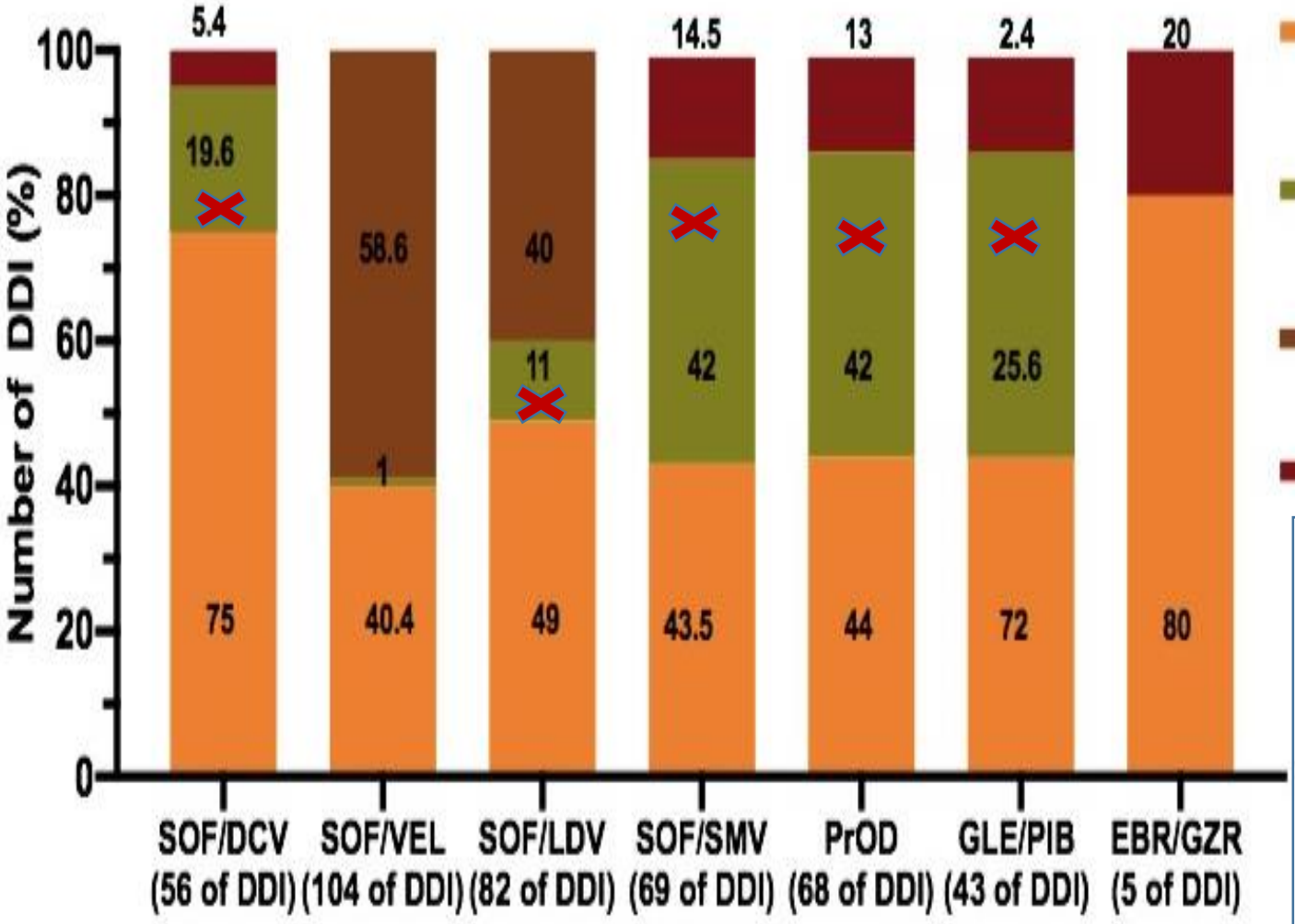
Structure CVD



1a Number of potential drug-disease and serious drug-drug interaction for each possible DAA regimen



1b Number of potential serious drug-drug interactions for each possible DAA regimen and concomitant therapy



19.1% - beta-blockers

15% - diuretics

28% - angiotensin converting enzyme inhibitors

6% - statins

9% - anticoagulants

Conclusion

1. Of 83% of patients with concomitant diseases, 45% patients had CVD, 24% - diabetes mellitus.

2. Cardiovascular diseases were mainly presented arterial hypertension (86%), coronary heart disease (8%), atrial fibrillation (6%).

3. The majority of patients with liver cirrhosis are at risk for clinically relevant drug interactions due to high incidence of comorbidities and concomitant therapy

4. The potential for DDIs and DDiIs is still an important consideration in determining an optimal DAA regimen and the adjustment of concomitant medications

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Thank you for attention