

**HCV Infection and Cirrhosis
Are Key Risk Factors
for Thrombocytopenia in the Era
of Potent Antiretroviral Therapy**

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Background: HIV, HCV, and Thrombocytopenia

- Thrombocytopenia (TP) reported in 5% to 15% of patients with HIV infection and 20% to 45% with AIDS
 - Studies are from pre-HAART era
 - Associated inversely with HIV RNA level, and ART improved TP in majority but not all cases
- TP reported in ~40% of patients with HCV mono-infection
 - May complicate HCV treatment
- Little is known about risk factors for TP in the era of potent ART
 - In particular, if HCV is contributory

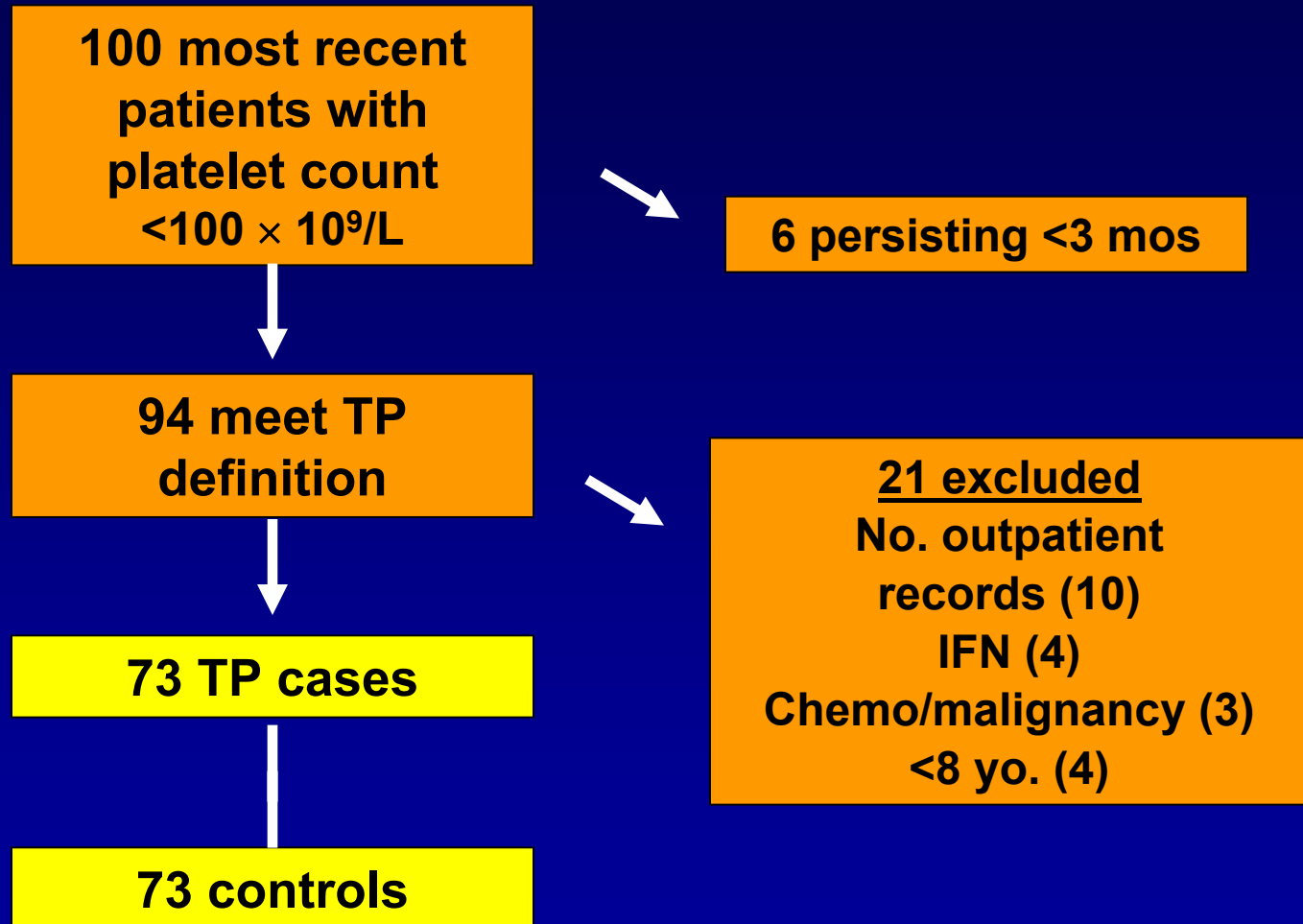
Objectives

- Primary
 - To assess risk factors for TP in era of potent ART
- Secondary
 - To assess prevalence of TP
 - To assess association of TP with bleeding events and death

Methods

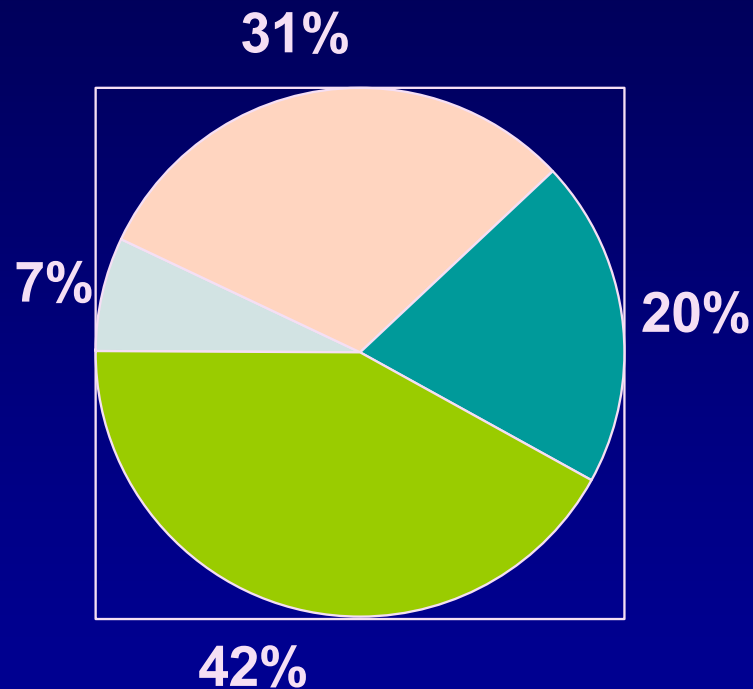
- Population: NYC HIV clinics with ~1800 active outpatients (Centers for Special Studies)
- Design: Retrospective, case-control study of 100 most recent adult patients with platelet count $<100 \times 10^9/L$ before July 2005
 - Inclusion:
 - TP definition: platelet count $<100 \times 10^9/L$ persistent for >3 mos
 - Exclusions:
 - No outpatient records and TP due to IFN, chemotherapy, or malignancy
 - Controls matched 1:1 for age, sex, and date of first clinic appt
 - Review of electronic medical records for risk factors at time of first TP detection
- Sample size estimate: 53 cases allowed 80% power to detect an OR of 3.0 for HCV infection assuming prevalence of 40% in controls ($\alpha=0.05$)

Results



Results (cont)

Nadir Platelet Counts



- TP prevalence 3.2%
- Median duration TP = 2.6 yrs.
 - IQ range 1.2 – 5.5

■ <10 ■ 10-30 ■ 31-50 ■ 51-100

Results: Demographic

	Cases	Matched Controls	Matched Odds Ratio	95% CI	<i>P</i>
Male sex (%)	52 (71.2)	52 (71.2)	—		
Age, years, mean (SD, range)	41.5 (7.75, 18–60)	41.2 (7.10, 23–57)	—		
Race (%)					
African American	22 (30.1)	34 (46.6)	Referent		
Hispanic	29 (39.7)	21 (28.8)	2.47	1.06 – 5.72	0.36
White	20 (27.4)	18 (24.7)	1.72	0.72 – 4.1	0.223

Characteristics Assessed in Univariate Analysis

- **HIV-related**

- HIV RNA
- CD4 count
- Nadir CD4
- ART
- TMP-SMX
- HIV RF

- **Hematologic**

- Hb
- WBC

- **Liver and HCV-related**

- HCV infection
- Cirrhosis
- Splenomegaly
- Protein
- Albumin
- Total bilirubin
- AST
- Alka phos

- **Other**

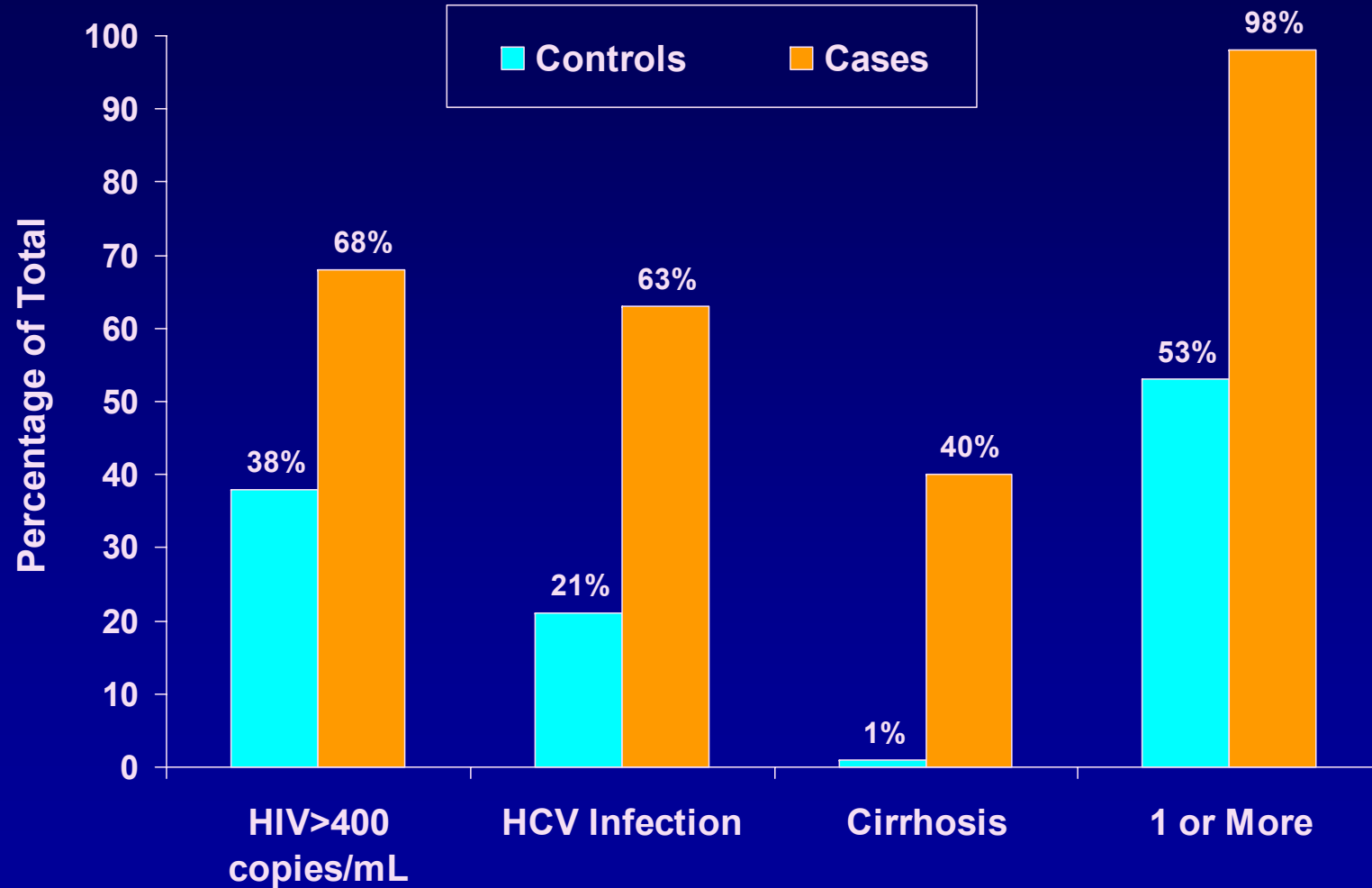
- Total cholesterol
- Weight
- Alcohol

Multivariate Model of Risk Factors Associated With Thrombocytopenia

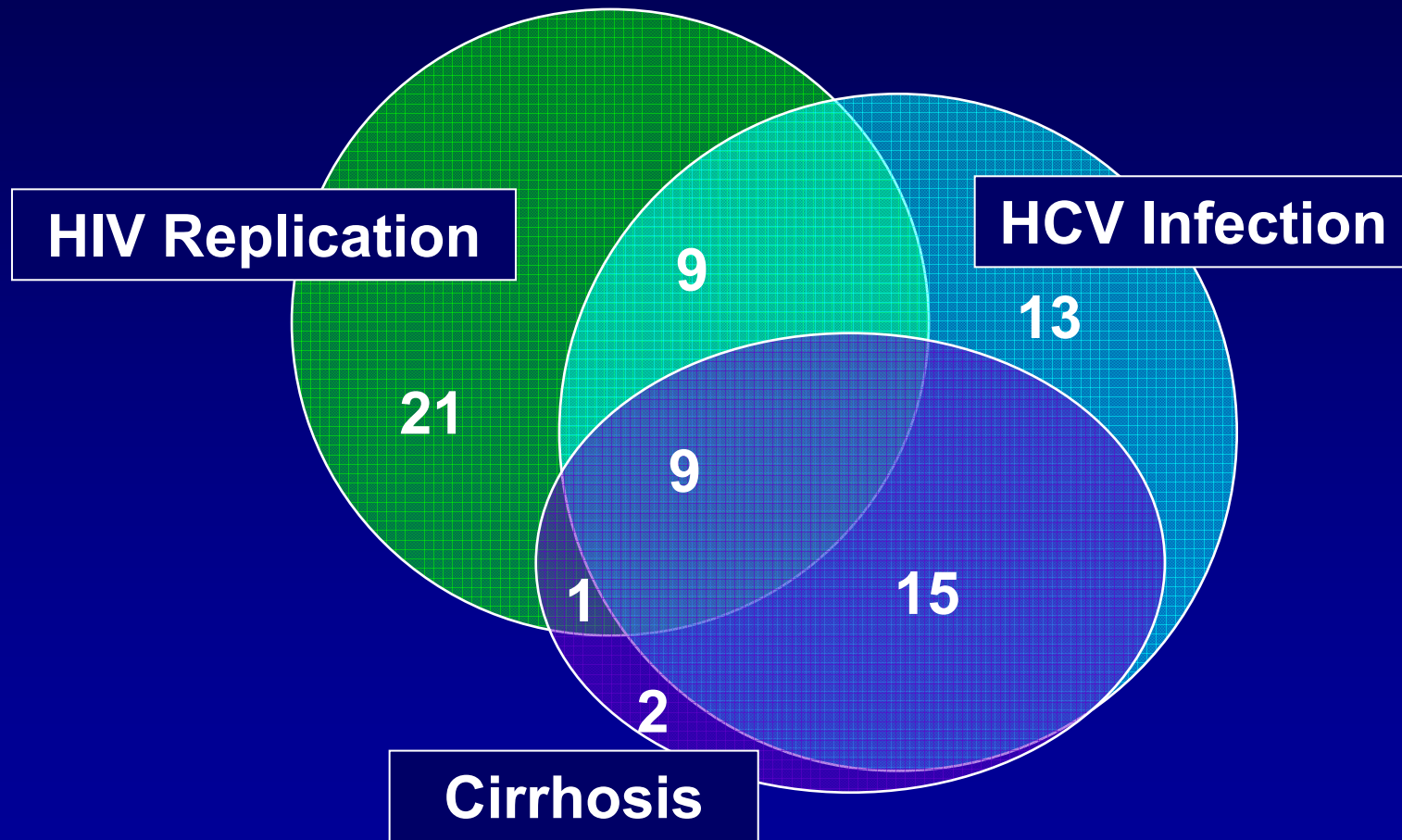
N=98	Adjusted OR	95% CI	P
HIV RNA viral load, >400 copies/mL	5.3	1.6–17.1	0.006
HCV infection	6.1	1.6–22.6	0.007
Cirrhosis*	24.0	1.7–338.4	0.019

*Replacing cirrhosis with splenomegaly did not change model qualitatively.

Risk Factors Associated With Thrombocytopenia



Overlap of 3 Major Risk Factors



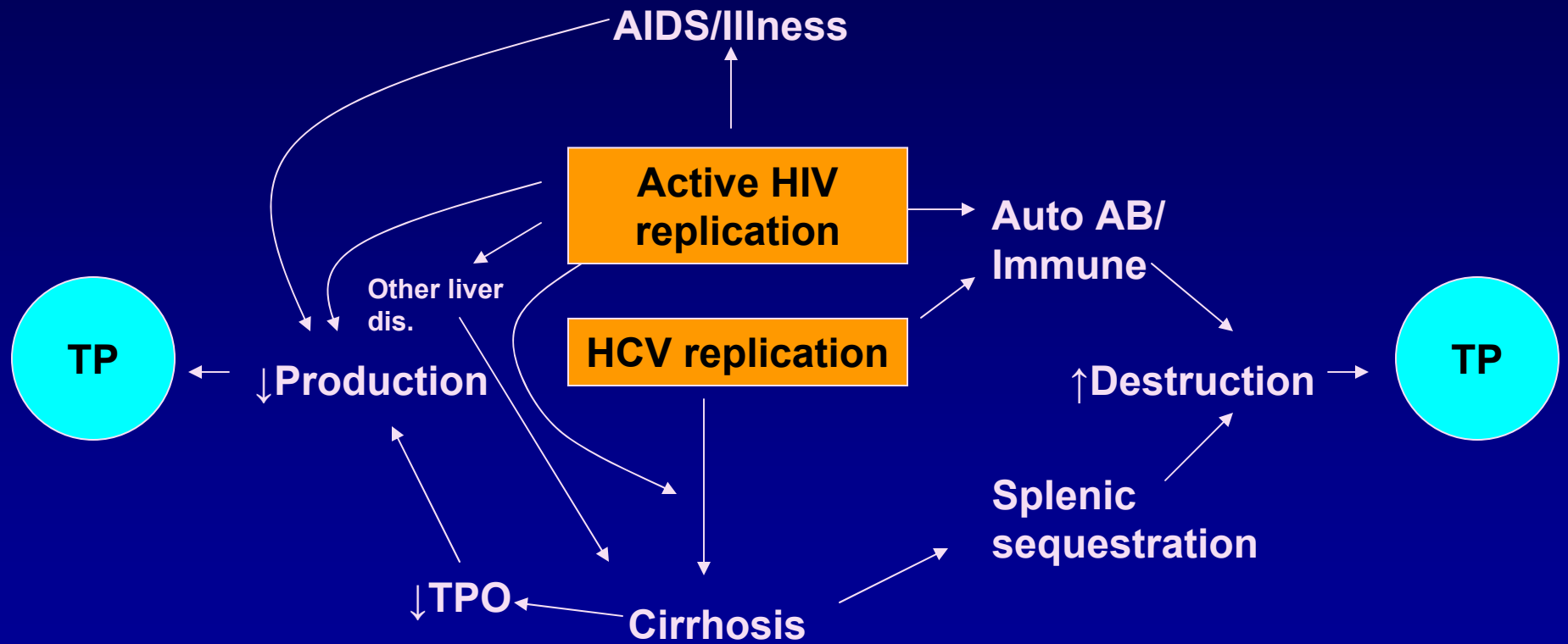
Death and Bleeding Events

- Death
 - 9 cases versus 0 controls ($P = 0.002$, Chi^2) although vital status unknown in significant more controls
 - Not hemorrhagic deaths
- Major bleeding events (ie, GI, intracranial, or requiring hospitalization)
 - 12 cases versus 2 controls (OR = 6.5 (CI 1.5–28.8, $P = 0.014$))
 - Not associated with duration of TP or nadir platelet count
 - Associated with cirrhosis and trend toward an association with HCV infection

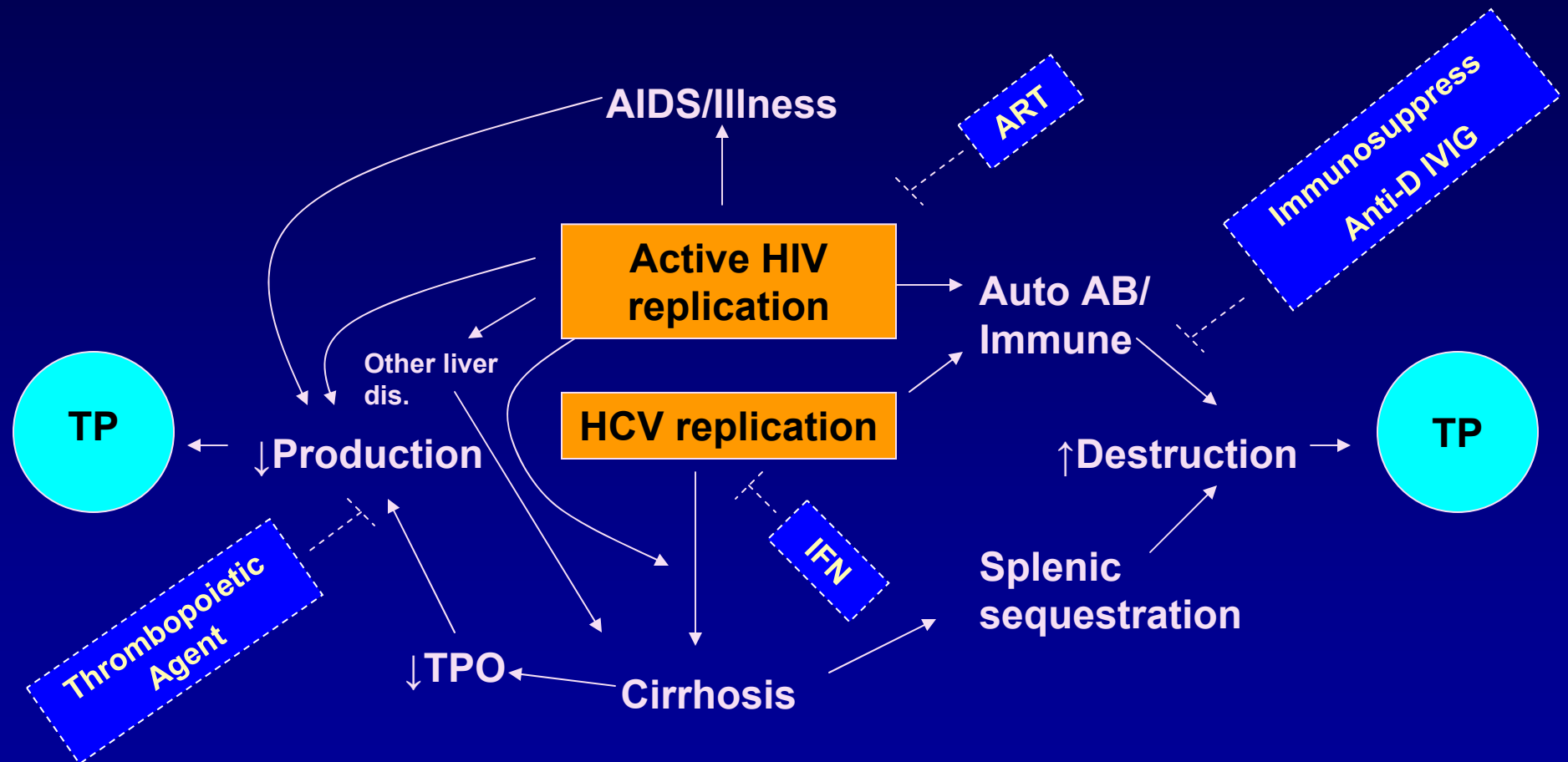
Summary

- TP is still a clinically important problem in the era of potent ART
 - Prevalence ~3%
 - TP associated with major bleeding events and death
- Risk factors associated with TP include: detectable HIV RNA, HCV infection, and cirrhosis/splenomegaly
- TP occurs at levels that may prevent use of myelosuppressive agents particularly PegIFN
 - Relevant given larger burden of TP HCV-related

Interplay of HIV and HCV



Interplay of HIV and HCV and Potential Treatment Targets



Thank You

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