Elimination of Hepatitis C in Individuals With HIV Infection

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Learning Objectives

After attending this presentation, learners will be able to:

▪ List two 2030 elimination goals for HCV infection
▪ Compare treatment of HCV infection in a person with HIV infection and someone without

ARS Question 1: Which is most true about the expected future (2040) mortality from chronic HCV and HBV?

1. Should decrease in parallel with HIV
2. Will exceed HIV
3. Will exceed TB
4. Will exceed malaria
5. Will exceed HIV+TB+malaria
ARS Question 1: Which is most true about the expected future (2040) mortality from chronic HCV and HBV?

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Global health importance of hepatitis

WHO Hepatitis Elimination Goals

90% reduction in incidence

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2020 (30%)</th>
<th>2030</th>
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<tbody>
<tr>
<td>HCV</td>
<td>~1.75 million</td>
<td>~1.23 million</td>
<td>175,000</td>
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Foreman Lancet 2018; HMAE, 2015; http://ghdx.healthdata.org

WHO Global Hepatitis Report 2017
WHO Hepatitis Elimination Goals

65% reduction in mortality

<table>
<thead>
<tr>
<th>2015</th>
<th>2020 (10%)</th>
<th>2030</th>
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<tbody>
<tr>
<td>HCV</td>
<td>~400,000</td>
<td>~360,000</td>
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Targets to eliminate hepatitis C

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<thead>
<tr>
<th>Intervention</th>
<th>2015</th>
<th>2020</th>
<th>2030</th>
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<tbody>
<tr>
<td>HCV diagnosed</td>
<td>20%</td>
<td>30%</td>
<td>90%</td>
</tr>
<tr>
<td>HCV treatment</td>
<td>1%</td>
<td>3 million</td>
<td>80%</td>
</tr>
<tr>
<td>Donations screened</td>
<td>97%</td>
<td>97.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Harm reduction (uv/p/yr)</td>
<td>27</td>
<td>200</td>
<td>300</td>
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<tr>
<td>Safe injection</td>
<td>95%</td>
<td>100%</td>
<td>100%</td>
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Global cascade of HCV care and 2030 WHO elimination goals: 90/80 target

- 2015 Reality
- 2030 Target
ARS Question 2: A 53 year old man with 1a HCV and HIV on r/DRV, FTC, and TDF with F1-2 disease presents for HCV treatment. Which is true?

1. Needs 24 weeks of treatment due to HIV
2. Doesn’t need treatment due to low F score
3. Change ART first
4. Add ribavirin to regimen
5. Must screen for HCC before starting
Efficacy of SOF/LDV in HIV Co-infected patients

335 patients SOF/LDV x 12 wk
- 82% male, 34% AA, 98% geno 1
- 55% experienced
- 20% cirrhosis
- All 10 relapses were in AA
- 8/10 on EFV

Efficacy of SOF/VEL in HIV/HCV Coinfection

106 patients SOF/VEL x 12 wks
- 86% male
- 45% AA
- 18% cirrhosis
- 62% GT1a, 11% GT3

- SVR
  - cirrhosis: 10/10 (100%)
  - SVR treatment-experienced: 29/31 (94%)

Efficacy of GLE/PIB in HIV/HCV Coinfection

150 patients G/P x 8 or 12 wks
- 18% Black
- 19% TE
- 16% GT3
- 88% F0-F1

- SVR:
  - 93% SVR in cirrhosis (14/15)
  - 1 breakthrough GT3 cirrhosis
GLE/PIB for 8 weeks works well in cirrhosis

280 patients G/P x 8 wks
- 10% Black
- Treatment naive
- Compensated cirrhosis
- NO HIV
- 60 Genotype 3 + cirrhosis not yet known

Efficacy of elbasvir/grazoprevir in HIV Co-infection

218 patients ELB/GRA x 12 wks
- 175 male
- 38 African American
- 35 cirrhosis
- 164 on TDF containing
Cure of HCV in HIV-infected reduces ESLD and HCC

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<tbody>
<tr>
<td>Raltegravir (RAL)</td>
<td>▲ LDV ▲ RAL</td>
<td>▲ ELB ▲ GRZ ▲ RAL</td>
<td>▲ GLE ▲ PIB ▲ RAL</td>
<td>ND</td>
</tr>
<tr>
<td>Cobalticat-boosted elvitravir (COB)</td>
<td>▲ LDV ▲ COB*</td>
<td>▲ ELB ▲ GRZ ▲ COB*</td>
<td>▲ GLE ▲ PIB ▲ COB*</td>
<td>▲ VOX ▲ COB*</td>
</tr>
<tr>
<td>Daklizegravir (DTG)</td>
<td>▲ LDV ▲ DTG</td>
<td>▲ ELB ▲ GRZ ▲ DTG</td>
<td>▲ GLE ▲ PIB ▲ DTG</td>
<td>ND</td>
</tr>
<tr>
<td>Rilpivirine (RPV)</td>
<td>▲ LDV ▲ RPV</td>
<td>▲ ELB ▲ GRZ ▲ RPV</td>
<td>▲ GLE ▲ PIB ▲ RPV</td>
<td>▲ RPV</td>
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Kiser, HCVguidelines.org

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<tr>
<td>Ritonavir-boosted atazanavir (ATZ)</td>
<td>▲ LDV ▲ ATZ*</td>
<td>▲ ELB ▲ GRZ ▲ ATZ*</td>
<td>ND</td>
<td>▲ ATZ</td>
</tr>
<tr>
<td>Ritonavir-boosted darunavir (DRV)</td>
<td>▲ LDV ▲ DRV*</td>
<td>▲ ELB ▲ GRZ ▲ DRV*</td>
<td>ND</td>
<td>▲ VOX ▲ DRV*</td>
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<tr>
<td>Ritonavir-boosted maravi (LPV)</td>
<td>ND*</td>
<td>▲ ELB ▲ GRZ ▲ LPV*</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Ritonavir-boosted tipranavir (TPV)</td>
<td>ND</td>
<td>▲ ELB ▲ GRZ ▲ TPV</td>
<td>ND</td>
<td>ND</td>
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<tr>
<td>Eftancef (EPV)</td>
<td>▲ LDV ▲ EPV</td>
<td>▲ ELB ▲ GRZ ▲ EPV</td>
<td>ND</td>
<td>ND</td>
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Limketkai JAMA 2012; Berenguer Hepatol 2009; Merchante J Antimicrobiol Ther 2018
HCV Care Continuum among 594 HIV/HCV infected patients in an urban HIV clinic

Elimination of HCV in HIV infected in Netherlands

- Athena cohort >98% of HIV pos in recognized in Netherlands
- 69% MSM, 15% PWID
- DAAs made available in 2015
- 15 months of data through Feb 2017
ARS Question 3: How many HCV infected people need to be cured to eradicate HCV from HIV-infected population?

1. 20,000
2. 200,000
3. 2,000,000
4. 20,000,000
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2.27 million persons are HIV/HCV coinfected

Eradication

Elimination

Micro-elimination

Nano-elimination

Pico-elimination

• HIV positive

• National

• Your patients

Elimination prognosis?
Public health response to eliminate HCV

• Requires shifting to public health response
• HIV example
  – ART given to >20 million persons (>240 million person months)/year
  • Cost of HIV ~20 billion USD/year
• Can build on HIV infrastructure for HIV/HCV elimination
  – 2 million/2-3 months each <6 million person months TOTAL
• Must avoid 2040 forecast for status quo

Thanks!

JHU HIV
– Mark Sulkowski
– Seun Falade-Nwulia
– Kathleen Ward
– Richard Moore
– Shruti Mehta

HCV/HIV
– David Wyles
– Susanna Naggie

WHO
– Yvan Hutin
– Godfrey
– John Ward
WHO goals for elimination of hepatitis C

• “A world where viral hepatitis transmission is stopped and everyone has access to safe, affordable and effective treatment and care” WHO
• **Elimination:** Reduction to zero of the incidence of infection caused by a specific agent in a *defined geographical area* as a result of deliberate efforts; continued measures to prevent re-establishment of transmission are required. Example: measles, poliomyelitis.
Why elimination and not eradication?

HCV could be eradicated

- Every HCV-infected person can be detected
- Eradicate infection by treatment
- Humans are only source
- Transmission can be prevented
- Public health importance

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- Every HCV-infected person can be detected
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- Public health importance
- International commitment
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SUGGESTED READINGS


Ward JW, Hinman AR. What is Needed to Eliminate Hepatitis B Virus and Hepatitis C Virus as Global Health Threats. Gastroenterology. 2018;
