Case-Based Scenarios in Hepatitis C

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Achieving an SVR is Associated With Improved Outcomes

- Sustained viral response to treatment
  - Durable
  - Leads to improved histology, preventing progression to cirrhosis in those with early liver disease
  - Leads to clinical benefits
  - Decreased liver decompensation
  - Prevents development of esophageal varices
  - Decreased hepatocellular carcinoma
  - Decreased mortality

SVR is significantly associated with reduction in all-cause mortality

Retrospective analysis of veterans who received pegIFN + RBV at any VA medical facility (2001-2008).

Impact of SVR on HCC and liver-related complications

Single-center cohort. Non-SVR in 69% of patients treated with pegIFN + RBV. Median follow-up: 3.5 years.
Total patients: 1958. Number of events: HCC (n=48), liver-related complications (n=61).

Assess Adherence Prior to and During Treatment

Adherence is crucial to achieving virologic response.

**Patient factors:** Age; drug use; alcohol use; presence of comorbidities; literacy; physical impairment (e.g., vision problems, impaired dexterity); cognitive impairment; availability of social support.

**Medication regimen:** Dosing complexity; side effects; number of medications in a treatment regimen

**Patient-health care provider relationship:** Closeness of relationship; provider-patient communication skills.

**System of care:** Access to healthcare; *continuity of care*; medication costs.

Useful pre-treatment evaluation tools online at [https://prepc.org](https://prepc.org)
Sarla:

75 y.o. Indian female with HIV/AIDS, HCV, cirrhosis
- Residing in the US x 7 years
- Dx with HIV 4 years ago on screening test.
- Dx with HCV 10 years ago in India. Previously treated with Peg IFN/RBV; non-responder
- Cirrhotic as per biopsy 2011
- Risk factor: Had blood transfusions in India in 80's after having two gyn surgeries including hysterectomy
- Substance abuse history negative
- Not sexually active in last 15 years

Current Medications

- fosamprenavir
- ritonavir
- emtricitabine-tenofovir
- alendronate
Labs

- **GLUC**: 118
- **CR**: 0.65
- **ALB**: 3.2
- **ALT**: 87
- **AST**: 96
- **GGT**: 77
- **Total Bili**: 1.0
- **Direct Bili**: 0.3
- **WBC**: 2.9
- **HGB**: 11.9
- **HCT**: 35.6
- **PLAT**: 79
- **CD4**: 240
- **HIV VL**: <20
- **HCV RNA**: 650,980 iu/ml
- **HCV GT**: 3a

Guideline Review Genotype 3 for naive and previously treated

Daily sofosbuvir (400 mg) + weight-based ribavirin
x 24 weeks (Treatment selected)

Alternative regimens for treatment-naive patients with HCV genotype 3 infection:

Daily sofosbuvir (400 mg) and weight-based RBV plus weekly PEG-IFN for 12 weeks is an acceptable regimen for IFN-eligible patients

http://www.hcvguidelines.org
LABS

• Week 4
  • HGB: 11.0
  • PLAT: 83K
  • HCV RNA: 2,802 iu/ml

• Week 8
  • HGB: 11.2
  • AST: 32
  • ALT: 27
  • HCV RNA: Non detectable

Week 12

• Patient presents saying she has taken last doses!
• Needed to clarify treatment duration
• BE CLEAR! Aware of language barriers, cognitive issues that may impede proper treatment completion
• Again, for GT 3 treatment is 24 weeks
Week 16

- HCV ND; HGB 10.9
- What if HGB had dropped 2 grams?
- What if HGB dropped to 8.2?

Betina

- 59 y.o. AA female with HIV/AIDS, HCV
- HCV Treatment Naïve
- HIV dx 1990s, CD4 nadir in 100s, well controlled
- Cirrhotic as per CT scan; labs
- HX IDU heroin, last use 1998; No ETOH use
- Other med hx includes:
  - HTN, CAD, and Pulmonary HTN
- Pulmonology states had previously stated interferon contraindicated for patient.
- Has had 3 vessel stent placement 2006
Baseline Labs

- GLUC: 80
- CR: 1.33
- ALB: 3.8
- ALT: 82
- AST: 110
- GGT: 171
- Total Bili: 0.6
- Direct Bili: 0.3
- WBC: 5.7
- HGB: 11.7
- PLAT: 104
- CD4: 980
- HIV VL: < 20
- HCV RNA: 15,480,652
- HCV GT: 1b
- AFP: 12.1

GT 1B

- Three options with similar efficacy in general are recommended for treatment-naive patients with HCV genotype 1b infection

- ledipasvir/sofosbuvir x 12 weeks*
- Daily fixed-dose combination of paritaprevir /ritonavir/ombitasvir plus twice-daily dosed dasabuvir x 12 weeks (+RBV in patients with cirrhosis.)
- sofosbuvir plus simeprevir x 12 weeks/ (24 weeks-cirrhosis)
Pill Burden

ARVs:

- abacavir/ lamivudine
- tenofovir
- raltegravir

- Patient wants lowest pill burden for HCV treatment.
- Can she be treated with ledipasvir/sofosbuvir?
LABs Week 4 on LDV/SOF

- HCV RNA ND
- CR 1.6
- ALT 56
- ALT 78
Called PCP; Repeats labs one week
CR 2.1

tenofovir and ledipasvir

- LDV can increase TDF exposure 1.8-2.6 fold

- ACTION: D/C tenofovir
- Patient switched to ripilvirine
- Creatinine returned to baseline
- BETINA has had SVR 12
John

• 57 year AA old male with HIV/AIDS, HCV
• Prior non responder to PEG IFN/RBV

Other med hx includes: HTN, DM type 2, Anemia, Asthma, Kidney Disease

HIV and HCV suspected to be acquired through blood transfusion.

Fibroscan 16 kpa – consistent with Stage 4 fibrosis
Baseline Labs

- GLUC: 90
- CR: 2.18
- EFGR: 37.8
- ALB: 3.9
- ALT: 65
- AST: 88
- GGT: 171
- Total Bili: 0.4
- Direct Bili: 0.2
- WBC: 3.2
- HGB: 9.6
- HCT: 29.5
- PLAT: 126
- CD4: 585
- HIV VL: Undetectable
- HCV RNA: 2,380,563
- HCV GT: 1A

Current Medications

- Nifedipine
- Flonase
- Metformin
- Claritin
- Lopressor
- efavirenz; abacavir/lamivudine
Can we treat with an all oral regimen?

- Patient does not want ARV switch
- Creatinine Clearance > 30?

• Recommended dosage adjustments for patients with renal impairment, including severe renal impairment (creatinine clearance [CrCl] >30 mL/min) or end-stage renal disease (ESRD).

• For patients with mild to moderate renal impairment (CrCl >30 mL/min), no dosage adjustment is required when using sofosbuvir, simeprevir, fixed-dose combination of ledipasvir (90 mg)/sofosbuvir (400 mg), or fixed-dose combination of paritaprevir (150 mg)/ritonavir (100 mg)/ombitasvir (25 mg) plus twice-daily dosed dasabuvir (250 mg) to treat or retreat HCV infection in patients with appropriate genotypes.

http://www.hcvguidelines.org
On Treatment with LDV/SOF

- Week 4
- CR 1.99; EGFR 42
- HGB 10.2
- HCV RNA <15

With renal patients, monitor renal function closely; involve renal specialty

How long should we treat?

- Treatment experienced
- Cirrhotic

→ 24 weeks of LDV/SOF
More advanced renal disease

- No dose recommendation can be given for patients with estimated Glomerular Filtration Rate [eGFR] <30 mL/min/1.73m² or with end stage renal disease (ESRD) due to higher exposures (up to 20-fold) of the predominant sofosbuvir metabolite.

Javier

- 32 yo HIV + Colombian male stable on tenofovir/emtricitabine + atazanavir/ritonavir
- CD4 680; HIV VL ND
- MSM
- Methamphetamine abuser
- Nov 2014: AST 19; ALT 22
- Jan 2015: AST 745; ALT 1214
Sexual History

- Has 2 regular male partners
- Engages in anal receptive intercourse
- "nonchalant" about condom use, usually used only with the HIV negative partner
- Believes HIV + partner fools around
- Recalls one episode of unprotected anal intercourse with a one night stand 4 months ago while high

Acute HCV Diagnosed

- HCV AB +
- HCV RNA 520,332 IU/ml
- GT 1A
- Abdominal US normal
- ALT 160; AST 57 by time of referral
Treatment initiated

- First ARV switch:
  tenofovir/emtricitabine → abacavir/lamivudine
- LDV/SOF x 12 weeks
- C/o headache and nausea in first 2 weeks
- Patient reports perfect adherence, clears HCV RNA at week 4

Acute HCV Clinical Guidelines

- Recommended regimens for patients with acute HCV infection.
- If decision made to treat in acute phase:
- Owing to high efficacy and safety, the same regimens recommended for chronic HCV infection are also recommended for acute infection.

http://www.hcvguidelines.org
Juan’s Side Effect management

- Nausea: metoclopramide
- Headache: hydration; ibuprofen 400mg prn TID with food

Response and lessons learned

- End of Treatment response achieved
- WK 12 post treatment: Still not detected
- AST/ALT WNL
- No methamphetamine use since began treatment
- Using condoms with partners “most of the time”
- Our work does not end with cure!
- Prevent re-infection: education and harm reduction.
After SVR: Important Teaching Points

• Counsel all patients on the importance of not engaging in high risk behaviors after cure achieved
• Reinfection occurs – A cure does not mean protected or immune
• Recent study looking at inmates in Spain achieving SVR- Reinfection was high, increased in IDUs after follow up of 1.4 years. Significantly higher among active drug users, HIV co-infected and those engaging in one or more risk factors after treatment
• Identify and aggressively counsel patients who may be at risk for IDU relapse about not sharing needles
• IDU users bridged to methadone maintenance fare better


Risk factors for reinfection

• Sharing needles, syringes, or other paraphernalia used for injection drug use; Sharing cocaine straws
• Unprotected sex with an infected person
• Increased MSM risk- importance of condom use
• Getting body piercings or tattoos done with improperly sanitized equipment
• Sharing toothbrushes, razors
• Getting stuck with a sharp object that has contaminated blood on it (as might happen in a healthcare setting)
Thank you!

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