HCV Case Studies (and Special Populations)
Case 1: Alfred

- 58 y/o man presents to clinic for primary care f/u.
- PMH: Hypertension, diabetes
- Medications: lisinopril, glipizide
- Allergies: NKDA
- Family History: Coronary artery disease, “liver disease”
- Social History: smokes 1 ppd; drinks 2-3 beers on weekends; experimental inhaled drug use in distant past but no IVDU
Question #1

What is this patient’s indication for HCV screening per the USPSTF?

A. Age
B. Comorbidities
C. Family history
D. Illicit drug use history
E. Sex
Case 1: Alfred

- HCV antibody is positive; subsequent RNA testing reveals 850,000 copies/ml. Genotype testing reveals 1b.

- Labs reveal:
  - CBC within normal limits (of note, Plt 178)
  - CMP: within normal limits except AST 85 and ALT 155
  - INR: 1.0
  - HAV IgG positive and HBV cAb and sAb positive
  - HIV negative

- He undergoes liver ultrasound and elastography. No HCC is noted and F2 fibrosis is predicted.
Question #2

- Per AASLD/IDSA Guidelines, should treatment be pursued on this patient’s behalf?

A. Yes  
B. Wait for more advanced disease  
C. Wait for higher efficacy therapies  
D. Wait for safer HCV treatments
Question #3

A. EBR/GZP x 12 weeks
B. LDV/SOF x 8 weeks
C. PrOD x 12 weeks
D. SOF + DCV x 12 weeks
E. SOF + SMV x 12 weeks
Case 1: Alfred

- Alfred is started on LDV/SOF x 8 weeks.
- He has mild fatigue and intermittent headaches easily managed with over-the-counter therapies.
- He completes therapy and achieves SVR12.
Case 2: Carl

- 61 y/o man referred for HCV evaluation and treatment.
- Diagnosed 10 years ago. Treated with PEG-IFN x 48 weeks but relapsed after treatment.
- PMH: MVA with polytrauma in 1985 (multiple pRBC transfusions), arthritis, severe coronary artery disease
- Medications: ASA, carvedilol, lisinopril, atorvastatin
- Allergies: NKDA
- Family History: coronary artery disease, lung cancer
- Social History: does not smoke or drink alcohol; no history of drug use
Case 2: Carl

- HCV testing reveals RNA 5,250,000 copies with genotype 1a.
- Physical exam unremarkable with no evidence of decompensated disease.
- Labs reveal:
  - CBC within normal limits except Plt 103
  - CMP: within normal limits except Cre 1.5, AST 50, and ALT 65
  - INR: 1.0
  - HBV serology negative and HIV serology negative
- He undergoes liver ultrasound and elastography. No HCC is noted and elastography is consistent with F4 fibrosis.
Question #4

Based on available information, what treatment would you select on this patient’s behalf?

A. EBR/GZP + RBV x 16 weeks
B. LDV/SOF x 12 weeks
C. PrOD + RBV x 12 weeks
D. SOF + DCV x 12 weeks
E. SOF/VEL x 12 weeks
Case 2

- Carl is treated with an appropriate HCV regimen and attains SVR12.
- He continues to receive HCC screening with an ultrasound every 6 months.
QUESTIONS?
Case 3: Dwight

- 45 y/o man referred for HCV evaluation and treatment.
- Diagnosed during workup for ESRD and hemodialysis (HD) initiation based on elevated LFTs.
- PMH: HTN, DM, ESRD now on HD
- Medications: ASA, glargine insulin, lispro insulin, sevelamer
- Allergies: Sulfur (hives)
- Family History: coronary artery disease, hypertension, DM
- Social History: smokes 1 ppd; social alcohol use; experimental IVDU in 20s (cocaine); multiple tattoos
Case 3: Dwight

- HCV testing reveals RNA 3,750,000 copies with genotype 1b.
- Physical exam notable for left upper extremity AV graft but no evidence of decompensated disease.
- Labs reveal:
  - CBC reveals Hgb 11, Hct 33, and Plt 234
  - CMP: within normal limits except Cre 6.5, AST 75, and ALT 85
  - INR: 1.0
  - HBV serology consistent with immunization and HIV serology negative
- He undergoes liver ultrasound and elastography. No HCC is noted and elastography is consistent with F3 fibrosis.
- Of note, renal transplant listing is dependent on achieving SVR due to his advanced liver fibrosis status.
Question #5

- Based on available information, what treatment would you select on this patient’s behalf?

A. EBR/GZP x 12 weeks
B. LDV/SOF x 8 weeks
C. PrOD x 12 weeks
D. SOF + DCV x 12 weeks
E. SOF + SMV x 12 weeks
Question #6

- Same patient EXCEPT patient has GT 2.
- Based on available information, what treatment would you select on this patient’s behalf?

A. EBR/GZP x 12 weeks
B. EBR/GZP + RBV x 16 weeks
C. PrOD + RBV x 12 weeks
D. PEG + RBV x 24 weeks
E. Wait for future therapy options
Case 3: Dwight

- Dwight is started on EBR/GZP x 12 weeks.
- He has intermittent nausea which is controlled with a prescribed antiemetic.
- He completes therapy and achieves SVR12.
Renal Impairment and HCV

- Outcomes in patients with HCV and renal impairment are similar as in patients with HCV without renal impairment when treated with similar DAA regimens.
- Patients with mild or moderate renal impairment (CrCl >30 ml/min) do not require dosing modifications with first line DAA therapy.
- Treatment options in clinical practice may differ between patients with severe renal impairment (CrCl 10-30 ml/min) and those with CKD stage 5/ end stage renal disease (although not differentiated in HCV Guidelines).
HCV Treatment in Severe Renal Impairment (including ESRD)

- **GT 1 or 4**
  - EBR/GZP x 12 weeks
  - *Alternative:* PrOD +/- RBV x 12 weeks

- **GT 2, 3, 5, or 6**
  - PEG-IFN + RBV for 24-48 weeks
  - *Note:* Consider waiting to treat if urgency to treat is low for future alternative regimens or future kidney transplantation.
QUESTIONS?
Case 4: Elvis

- 38 y/o man referred for HCV evaluation and treatment.
- Diagnosed at time of HIV diagnosis in 2005.
- PMH: HIV (last CD4 950 with HIV viral load <20), bipolar disorder
- Medications: tenofovir DF/emtricitabine, darunavir/ritonavir, oxcarbamazepine, quetiapine
- Allergies: NKDA
- Family History: coronary artery disease, hypertension, DM
- Social History: denies tobacco or alcohol use; prior IVDU (amphetamines, none in 2 years); bisexual
Case 4: Elvis

- HCV testing reveals RNA 12,500,000 copies with genotype 3.
- Physical exam unremarkable with no evidence of decompensated disease.
- Labs reveal:
  - CBC reveals within normal limits (with Plt 315)
  - CMP: within normal limits except ALT 65
  - INR: 0.9
  - HBV serology consistent with prior exposure
- He undergoes liver ultrasound and elastography. No HCC is noted and elastography is consistent with F1-F2 fibrosis.
Question #7

- Based on available information, what treatment would you select on this patient’s behalf?

A. EBR/GZP x 12 weeks
B. LDV/SOF x 8 weeks
C. LDV/SOF x 12 weeks
D. PrOD + RBV x 12 weeks
E. SOF + DCV x 12 weeks
F. SOF/VEL x 12 weeks
Question #8

Which medication are you most concerned about regarding the potential for drug-drug interactions with DAA therapy?

A. Tenofovir DF
B. Darunavir
C. Ritonavir
D. Oxcarbamazepine
E. Quetiapine
Case 4: Elvis

- ART is updated from tenofovir DF/emtricitabine to tenofovir alafenamide/emtricitabine.
- Oxcarbamazepine is changed to lurasidone and quetiapine is stopped.
- He is treated successfully with SOF/VEL and achieves SVR12.
HIV/HCV Co-infection Management

Pearls

- Similar SVR rates in patients with HIV/HCV co-infection as with HCV mono-infection
- Use same regimens as indicated in HCV mono-infection
- Pay additional attention to drug-drug interactions:
  - LDV + tenofovir DF + other antiretroviral therapy (ART)
  - Adjust DCV dose based on concomitant ART
  - Avoid “double dosing” ritonavir (RTV) when using RTV-boosted DAA therapy (i.e. paritaprevir)
- Consider SOF + DCV +/- RBV when constrained by complex ART drug-drug interactions
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QUESTIONS?
Additional Special Populations

- Prior Direct Acting Antiviral (DAA) Treatment Failure
- Decompensated Cirrhosis
- Acute HCV
Retreatment of DAA Failures

- Strongly consider referral to expert HCV treater
- Treatment approach depends on:
  - Prior DAA regimen
  - Duration of prior DAA regimen
  - Stage of liver disease
  - Prior adherence
  - Drug-drug interactions
  - Baseline and/or acquired resistance-associated variants (RAVs)
  - Anticipated DAA approvals
De-compensated Cirrhosis

- Refer to experienced hepatology and HCV provider, ideally in at a liver transplant center
- Avoid HCV therapies that are contraindicated in decompensated cirrhosis:
  - IFN
  - Telaprevir
  - Boceprevir
  - Simeprevir
  - Paritaprevir/ritonavir/Ombitasvir + Dasabuvir
  - Elbasvir/Grazoprevir
- Treatment may impact transplant eligibility and status
Hepatocellular Carcinoma and Liver Transplant

- Refer to experienced hepatology and HCV provider, ideally in at a liver transplant center
- HCV treatment should be directed in concert for HCC and liver transplant evaluation and/or management
Acute HCV

- Acute refers to HCV infection within first 6 months since exposure.
- Acute infection may result in spontaneous clearance of infection OR progression to chronic infection.
- Laboratory evidence of acute HCV:
  - + HCV RNA in setting of negative HCV antibody
  - + HCV antibody after prior negative HCV antibody test, typically after a discrete exposure
  - + HCV antibody with new rise of ALT and/or fluctuating HCV RNA, with or without symptoms consistent with hepatitis
Laboratory Interpretation and Caveats Regarding Acute HCV

- **HCV antibody**
  - May be negative first 6 weeks after exposure
  - May be delayed/absent due to immunosuppression
  - Low level may result in false negative early in infection
  - False positives are possible

- **HCV RNA**
  - Viral fluctuations >1 log may indicate acute infection
  - May be transiently negative

- **ALT**
  - Fluctuating peaks
  - May be normal
  - May be unrelated to HCV

Acute HCV Recommendations

- Preexposure or postexposure prophylaxis is NOT recommended.
- Monitor HCV RNA every 4-8 weeks for 6-12 months to determine spontaneous clearance.
- Monitor for spontaneous clearance for a minimum of 6 months unless provider or patient factors require earlier treatment.
- If earlier treatment is pursued, monitor for at least 12-16 weeks due to possible spontaneous clearance.
- Treatment as per chronic HCV infection recommendations.
- Treatment is NOT required for those who spontaneously clear HCV.
Special Populations

- This session is not adequate to prepare providers to comprehensively care for these special populations.
- Consider referring patients with HCV and these comorbidities to expert HCV providers.
- Utilize SE AETC and other educational/support resources.
QUESTIONS?