A Cluster of Sexually Transmitted Hepatitis C Virus Among the MSM Population in SE Michigan

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Sexual Transmission of HCV

- Studies have found that the risk of sexual transmission of HCV among discordant heterosexual couple to be low (1 in 10,000,000 sexual encounters)\(^1\)\(^-\)\(^4\)
- It is not recommended for sero-discordant couples to necessarily change their sexual practices\(^5\)
- However, the risk of sexual transmission of HCV has been shown to be higher in the HIV-infected men who have sex with men (MSM) population\(^6\)

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\(^5\)https://www.cdc.gov/std/tg2015/emerging.htm
Sexual Transmission of HCV among MSM

- Few jurisdictions have reported on sexual transmission of HCV in the MSM population in the U.S.:
  - Boston¹
  - San Francisco²
  - New York City³

- Most reports of sexual transmission of HCV have come from Europe⁴-⁶

- In almost all instances cases have been HIV-infected³-⁶

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¹Cohen DE et al. Prevalence of hepatitis C virus infection among men who have sex with men at a Boston community health center and its association with markers of high-risk behavior. AIDS Patient Care STD. 2006; 20:557-64.
“High-risk” sexual behaviors can result in the transmission of HCV\textsuperscript{1,2}:

- Unprotected receptive anal intercourse
- Use of sex toys or other fomites
- Insertive or receptive fisting
- Group sex
- Anal douching
- Use of stimulants

Ulcerative STIs (syphilis, LGV) may increase the risk of transmission\textsuperscript{3,4}

\textsuperscript{1}Danta M et al. Recent epidemic of acute hepatitis C virus in HIV-positive men who have sex with men linked to high-risk sexual behaviours. AIDS. 2007;21(8):983-91.
\textsuperscript{3}Breskin et al. Factors Associated With Hepatitis C Infection Among HIV-infected men Who Have sex With Men With No Reported Injection Drug Use in New York City, 2000-2010. Sex Transm Dis. 2015; 42(7):382-6
Identification of Cases

- In 2015, MDHHS epidemiologists discovered 24 cases of *Lymphogranuloma venereum* (LGV) infections, the first in Michigan since 2008.
- All occurred in the HIV+ MSM population in SE MI.
- In early 2016, a HIV Nurse Practitioner noted that six of these patients were recently diagnosed with HCV and had no traditional HCV risk factors.
- Patients were often tested for HCV due to elevated liver enzymes.

Public Health Response

- Sent out Health Alert notifying clinicians of increases in HCV cases among the MSM population in Southeast Michigan
- Utilized Detroit DIS to perform contact tracing, education, and outreach:
  - Viral Hepatitis staff performed HCV training in-services for DIS
- Began offering HCV testing through the Detroit STD clinic for all MSM-identifying patients
- Attempted to obtain blood specimens on all cases for molecular characterization
Epidemiologic Information
Case Epi Info (n=29)

- 5 acute cases, 24 chronic cases per CDC/CSTE HCV case definitions
- 11 known seroconversions

**Case Epi Info**

- **Median Age:** 31
- **Age Range:** 21 – 48 years
- **Sex:** Male (29)
- **Race:** African American (28), Hispanic (1)
- **HCV Genotype:** 1a (16/16)
- **Residence:** Detroit (19), Wayne (5), Oakland (3), Macomb (2)

**Case Risk Factors**

- **IVDU:** No (28)
- **“Uppers”:** No (28)
- **HIV:** Positive (29)
- **Sex Pref:** MSM or Bi (29)

**Previous STDs:**

- Syphilis (21)
- LGV (6)
- GC (19)
- CT (16)
- Other (Hepatitis A, Giardia, Shigella, Cryptosporidium)
HCV and HIV “Epi Curve”

Date of Diagnosis

Count

Year


HIV  HCV
HIV Testing and Treatment (n=28)

- 22/28 HIV diagnosis year preceded HCV diagnosis year
  - 6/28 HIV and HCV diagnosed in the same year

- 25/28 cases in care
  - Viral load or CD4 within the last year

- 19/28 virally suppressed
  - Latest viral load <20 iu/mL
HCV Transmission Network
HCV MSM Cases

Other HCV RNA+ Specimens at MDHHS
HCV MSM GHOST Results

GHOST Transmission Network
Transmission Network with DIS + GHOST

- Positive for HCV (GHOST)
- Positive for HCV (No GHOST)
- Negative for HCV
- Not tested for HCV
Observations and Conclusions
**Observations and Anecdotes**

- Impact of HIV ART and sero-sorting on HCV infections in the population reported here is unknown\(^1,2\)
- Though not quantified, anonymous sex using geosocial networking apps was common\(^3\)
- Impact of HIV PrEP on risk of sexually transmitted infections, including HCV, should be examined\(^4,5\)
- Education of clinicians who treat HIV patients regarding annual HCV screening and risk of sexually acquired HCV is necessary\(^6\)
- Recommend HCV RNA testing among the HIV-infected population?
- HCV treatment and re-infection in this population?\(^7\)

4. Hoornenborg E et al. Men who have sex with men starting pre-exposure prophylaxis (PrEP) are at risk of HCV infection: evidence from the Amsterdam PrEP study. AIDS. 2017
Timely molecular data can help piece together disjointed transmission networks (in near real time)

Surveillance and laboratory capacity are necessary to detect and respond to clusters

Strong relationships between surveillance and prevention programs critical to perform outreach, education, and contact tracing

Programs and clinicians should be encouraged to think about the interconnectedness of patients and risks for communicable disease
Summary

- Sexual transmission of HCV in the MSM population is a new and emerging public health issue

- We report on one of the first clusters of sexual transmission of HCV in the U.S.

- HIV/HCV co-infections are serious threats to patient health and should be identified and promptly linked to care
Thanks!

- APHL
- CSTE
- CDC DVH Laboratory
- MDHHS BOL – Janice Matthews-Greer, Matthew Bashore, Kristine Smith, Bruce Robeson, Keven Rodeman
- Detroit STD Clinic – Chris Finch, Marquetta Norwood, Jen Mahn, Christine Heumann, Joseph Enos
- Detroit HIV Clinic – Debbie Richmond
- Detroit DIS – Dawn Jackson, Sandra Johnson, Tay Starr-Belcher
- MDHHS Epi – Jenny Gubler, Marjorie Coffey
THANKS!
HCV Clinical Care of the Tolan Park Cluster
Deborah Richmond, NP
## Tolan Park HCV Cohort: Demography

<table>
<thead>
<tr>
<th>Cohort Total</th>
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<tbody>
<tr>
<td><strong>African American</strong></td>
<td>268 (88%)</td>
</tr>
<tr>
<td><strong>White</strong></td>
<td>26 (8%)</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>206 (67%)</td>
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<tr>
<td><strong>HIV coinfectected</strong></td>
<td>115 (38%)</td>
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As of 15APR17
Tolan Park HCV Cohort: Decade of Birth
Tolan Park HCV Cohort: Genotype

- Genotype 1a: 186
- Genotype 1b: 8
- Genotype 2: 13
- Genotype 3: 3
- Genotype 1a/1b: 87
Tolan Park HCV Cohort: Transmission Risk

- 182 IVDA
- 37 Sexual
- 25 Unknown
- 16 Transfusion
- 6 Street tattoo
- 1 Maternal

Total: 182
Tolan Park HCV Cohort: Health Insurance Status

- Medicaid: 88
- Medicare: 184
- Private: 22

*Legend: Medicaid, Medicare, Private, Others*
17 male patients aged 21 to 38
All MSM
All with HIV infection seen in either the WSU STI or Tolan Park Clinic
Documented from 2013 to present
Risk Factors

- Some with documented report of substance abuse
  - 4 with cocaine
  - 1 with crystal meth
  - None with documented IV needle sharing

- Several STI co-infections
  - 4 also had *Lymphogranuloma venereum* infection
  - Some seen in STI clinic in addition to ID clinic
Acute Infection

- At least 5 patients converted from HCV antibody negative to positive in less than one year
- Elevated liver enzymes
  - 2 patients with normal LFTs at time of diagnosis
  - 6 patients with only mildly elevated LFTs
Acute Infection Case

- 33 year old AA male, MSM with HIV for routine visit; reported recent flu symptoms
- Lab results - routine orders:
  - SGOT (AST) = 368; AGPT (ALT) = 366
    - Transaminase levels elevated ~18 months
  - All HCV ab screens negative
  - Syphilis RPR 1:32; up from 1:4
Follow up visit

- He came in a few days later for Bicillin treatment and agreed to further labs
  - HCV PCR viral load = 529,862
  - Verified one month later = 88,761
  - Genotype 1a
Partners

- 38 and 26 year old AA MSM with HIV, GT2 HCV
- Our plan was to treat them both at the same time
- 26 year old is on treatment now
- 38 year old with insurance issues:
  - First we had to wait for him to change his insurance to one with lower premiums and for him to abstain from drugs.
  - The insurance company requested a letter from the doctor verifying that the patient is committed to taking the medication.
  - Now they are suggesting an alternative to prescribed DAA...
Treatment in this Cluster

- 17 patients
- One patient self cleared the virus
- 2 are on DAA Rx now
- A few are ready for treatment and the orders are in process.
- 2 have completed treatment and have 12 week SVR
Barriers to Treatment in this Cluster

- Managing HIV medications and drug interactions in this co-infected group.
- At least one current insurance issue in process
- Patients keeping appointments but not 100% adherent with their HIV medications; not HIV virally suppressed
- Patients who are not keeping appointments with HIV providers-some lost to follow up. One of whom is incarcerated.
Five-Year Risk of Late Relapse or Reinfection With HCV After SVR: Meta-analysis of 49 Studies in 8534 Patients

- Examination of late relapse or reinfection post SVR (6 months) following PegIFN/RBV.

- Three groups analyzed: Low risk mono-HCV; High risk mono-HCV (IDUs or prisoners); HIV/HCV coinfected patients.

Hill AM. CROI 2015, Seattle. Abst 654
Time from Diagnosis to Treatment

- In this cluster of patients at high risk of transmission time to treatment is of great concern.
- They have many concurrent and re-infections with other STIs such as syphilis, GC and Ct.
- Only one of 17 self cleared the virus.
- Guidelines indicate a 6 month delay from diagnosis to offer of treatment.
Goals

- Educate other providers regarding HCV testing with other STI testing at least once yearly.

- More frequent testing in high risk patients and with symptoms and/or elevated LFTs—be aware of occurrence of HCV seronegative state in HIV infected persons.

- We need to maintain contact with lost to follow up patients.

- Educate the patients regarding risk of acquisition of HCV as an STI.

- Educate patients regarding the risk of transmission when HCV infected until treatment and SVR accomplished.