The Hepatitis C Cascade of Care in a Women-Centered HIV Clinic in Canada

Disclosures

• None
HCV in British Columbia and Canada

- **220,697 – 245,987** (0.6-0.7%) Canadians have chronic HCV infection
- Incidence **29.6 cases**/100,000 in Canada
- Incidence **42.9 cases**/100,000 in British Columbia
- Treatment in Canada is provided through the Provinces
- BC Pharmacare will currently cover treatment in individuals with evidence of ≥F2 fibrosis

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15.3 Hepatitis C Rates by Age Group and Sex, 2014

Rate per 100,000 population

<table>
<thead>
<tr>
<th></th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-24</th>
<th>25-29</th>
<th>30-39</th>
<th>40-59</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis C Rate - Female</td>
<td>14.2</td>
<td>1.2</td>
<td>0.0</td>
<td>0.0</td>
<td>8.2</td>
<td>41.9</td>
<td>46.7</td>
<td>41.5</td>
<td>41.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Hepatitis C Rate - Male</td>
<td>0.0</td>
<td>2.2</td>
<td>0.0</td>
<td>0.0</td>
<td>6.2</td>
<td>35.0</td>
<td>54.8</td>
<td>73.8</td>
<td>94.7</td>
<td>54.9</td>
</tr>
<tr>
<td>Hepatitis C Rate</td>
<td>6.9</td>
<td>1.7</td>
<td>0.0</td>
<td>0.0</td>
<td>7.1</td>
<td>38.6</td>
<td>50.7</td>
<td>57.5</td>
<td>67.7</td>
<td>38.3</td>
</tr>
</tbody>
</table>
HCV in Mono-infected Women

- 1/3 of chronic HCV infections\(^6\)
- In BC 35% of new cases reported being in women\(^4\)
- Mono-infected women \(\Rightarrow\) higher rate of spontaneous HCV clearance and slower rates of progression to liver fibrosis and death compared to men\(^7,8,9\)
- 5.8% risk of HCV transmission from a mono-infected mother to child\(^10\)
- Women may be less likely to receive treatment for chronic HCV infection\(^11\)

HIV/HCV Coinfection

- **15 - 30%** of HIV positive individuals are co-infected with HCV\textsuperscript{12,13}
- Studies of the new direct acting antivirals (DAAs) for HCV have found similar sustained virologic response (SVR) rates in mono-infected and co-infected individuals\textsuperscript{14}

\textsuperscript{12}Puoti M. Semin Liver Dis 2012, \textsuperscript{13}Koziel J. NEJM 2007, \textsuperscript{14}Wyles D. Clin Liver Dis 2015
Data in Co-infected Women

- HIV/HCV co-infected women have a **greater risk of progression to liver fibrosis and death compared to men**\(^{15}\)
- Risk of vertical transmission of HCV is **10.8%** in co-infected women\(^{10}\)
- Data on HCV treatment in co-infected women is lacking

\(^{10}\)Benova CID 2014, \(^{15}\)Rollet-Kurhajec K.C. PLoS ONE 2015
Oak Tree Clinic

Women and Family-centered Care
• HIV+ women
• HIV+ and HIV-exposed children
• HIV+ partners
• Pregnancy and pre-conception counseling
• Research, advocacy and education

Interdisciplinary Team:
• Adult and Pediatric ID Specialists
• Obstetrics and Gynecology Specialists
• Psychiatrists
• Nurses and Nurse Practitioner
• Addictions and Trauma Counselor
• Dietician-infant formula program
• Pharmacists
• Social and Outreach Workers/nurse
• Peer support

Since 1994:
• > 5500 patients
• 570 pregnancies-NO transmission for women engaged in our care+ on HAART >4 weeks since 1997
• 81 HIV+ children
• 480 HIV exposed children
• >600 patients engaged in care
• 2300 annual patient visits
Objective

Given the renewed interest around **HCV treatment** with the advent of direct acting antivirals, we proposed to undertake a **descriptive analysis** of our patient population in order to assess the **areas to focus** in order to **support our patients** though all steps of the HCV treatment **cascade of care**
Methods

- As part of a Quality Improvement Assessment we undertook a **cross-sectional analysis** of our clinic population.
- All **HIV+ active Oak Tree Clinic patients’** records were queried.
- Data was extracted from EMR and paper charts on **demographic variables** including age, sex, ethnicity, and drug and alcohol use.
- **HIV related information** including CD4 counts, viral loads and cART regimens was obtained.
- **HCV related data** including HCV antibody and RNA status, HCV genotype, liver fibrosis staging and HCV treatment history were obtained.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>OTC Population (n=694)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age – yr (IQR)</td>
<td>42 (36-50)</td>
</tr>
<tr>
<td>Female Sex – no. (%)</td>
<td>565 (81%)</td>
</tr>
<tr>
<td>Median CD4 count – cells/µL (IQR)</td>
<td>557 (350-720)</td>
</tr>
<tr>
<td>Undetectable HIV viral load – no. (%)</td>
<td>526 (76%)</td>
</tr>
</tbody>
</table>
### Table 1b: Oak Tree Clinic Population Demographics

<table>
<thead>
<tr>
<th>Characteristics – n (%)</th>
<th>OTC Population (n=229)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>Indigenous</td>
<td>64 (28%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>93 (41%)</td>
</tr>
<tr>
<td>African/Caribbean/Black</td>
<td>38 (17%)</td>
</tr>
<tr>
<td>Asian</td>
<td>17 (7%)</td>
</tr>
<tr>
<td>Other/missing</td>
<td>17 (7%)</td>
</tr>
<tr>
<td>Active IDU</td>
<td>85 (38%)</td>
</tr>
<tr>
<td>Lifetime IDU</td>
<td>129 (56%)</td>
</tr>
<tr>
<td>Current Alcohol Use</td>
<td>117 (51%)</td>
</tr>
</tbody>
</table>

- **253/261 (97%)** of HCV Ab+ patients have had HCV RNA testing
- **178/182 (98%)** HCV RNA+ individuals have had liver fibrosis staging
- **72/182 (40%)** of HCV RNA+ patients have been referred for therapy
HCV RNA Status n=261

- RNA Positive: 57%
- Treated with SVR: 11%
- Spontaneous Clearance: 22%
- Unknown Method of Clearance: 5%
- Unknown RNA Status: 3%
- Undetectable on Treatment: 1%
HCV Genotypes n=132

- Genotype 1a: 49%
- Genotype 1b: 10.6%
- Genotype 2: 7.6%
- Genotype 3: 32%
- Genotype 4: 0.7%
Liver Fibrosis Staging

- 97% of HCV RNA positive patients had liver fibrosis staging by aspartate aminotransferase to platelet ratio index (APRI) or Fibrosis-4 (Fib4)
- Of currently HCV RNA+ patients, 77/149 (52%) had APRI or Fib4 score corresponding to ≥F2 fibrosis
- Based on local guidelines requiring ≥F2 fibrosis and HIV VL <40 copies/mL, 39% of our cohort are candidates for government funded HCV therapy
Treatment Received n=50

- Pegylated IFN + Riba: 26%
- DAA Regimen (+/- Peg IFN): 30%
- Unknown: 44%
Summary

• Our clinic population is predominantly female (81%) and relatively young (mean 42 years)
• Most patients (96%) have been screened for HCV antibody with subsequent RNA testing and fibrosis staging
• Despite the young age of our cohort, 52% had evidence of significant fibrosis (≥F2)
• Currently, 39% of our patients are candidates for government funded HCV treatment
Future Directions

• Explore **barriers to treatment** in our population
  - **Funding** for treatment
  - Patient **readiness** and loss to follow-up
  - Competing **health priorities**

• **Expand HCV therapy** to co-infected patients within the HIV clinic care model

• Expand treatment to **HCV mono-infected** women
  - Treating women between pregnancies to **eliminate transmission rates**
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