HEPATITIS C TREATMENT UPTAKE AMONG PATIENTS RECEIVING OPIOID SUBSTITUTION TREATMENT: A POPULATION BASED STUDY

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Background

• Hepatitis C (HCV) treatment uptake among people who inject drugs (PWID) is low
  • 1-2% per year in community based cohorts\(^1\)

• Opioid substitution treatment (OST) settings could provide a platform for linkage to HCV assessment and treatment within existing infrastructure of addiction care\(^2\)

• OST could also play a key role in HCV prevention
  • In combination with other interventions\(^3\)
  • By reducing injecting risk behaviours\(^4\)

• HCV treatment uptake in the OST setting has not yet been documented at the population level

1. Alavi M et al. Liver Int 2014
2. Bruggmann P Clin Infect Dis 2013
Background epidemiology in Norway

- Total population: 5.1 mill. inhabitants
- PWID population: 13-16 000 individuals\(^1\)
- OST coverage among PWID: 40-50\(^{\%}\)\(^2\)
- Prevalence of HCV RNA among PWID: 50-60\(^{\%}\)\(^3\)

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1. Amundsen EJ et al. Nordic Studies on Alcohol and Drugs 2010
2. Waal H et al. SERAF, University of Oslo 2014
3. Dalgard O. et al. Tidsskr Nor Laegeforen 2009
Aim of the study

To document HCV treatment uptake and associated factors among OST patients at the population level
Materials and methods

Observational study based on linked registry data

The Norwegian Prescription Database
  • Covers the entire population
  • All dispensations registered since 2004

The Norwegian Surveillance System for Communicable Diseases
  • All HCV infection subject to mandatory notification since 2008
  • Method of detection (anti-HCV or HCV RNA) not well discriminated

Study period: 1\textsuperscript{st} January 2004 to 31\textsuperscript{st} December 2013
Study population

At least one dispensation of **methadone, buprenophine or buprenorphine-naloxone** (n=10908)

Pain therapy (n=894)
Palliative therapy (n=65)
Age < 18 and > 70 years (n=30)

OST ever (n=9919)

Not notified with HCV infection (n=6164)

**Study population:**
OST patients notified with HCV infection (n=3755)
Study definitions

**HCV treatment**: Dispensed ribavirin + pegylated interferon alpha at least once during the study period

**Time of HCV treatment**: First dispersion of ribavirin

**Duration of active OST**: Time with actual dispensions of OST drugs

**OST continuity (”adherence”)**: Time with actual dispensions/time between first and last dispensation
# Patient characteristics (n=3755)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male gender, n (%)</td>
<td>2622 (70)</td>
</tr>
<tr>
<td>Age at initiation of OST (years), mean (SD)</td>
<td>36 (9)</td>
</tr>
<tr>
<td>Norwegian origin, n (%)</td>
<td>3520 (95)</td>
</tr>
<tr>
<td>Duration of active OST (years), mean (SD)</td>
<td>3.8 (2.7)</td>
</tr>
<tr>
<td>OST continuity, mean % (SD)</td>
<td>76 (25)</td>
</tr>
<tr>
<td>OST continuity</td>
<td></td>
</tr>
<tr>
<td>&lt; 50% continuity</td>
<td>631 (17)</td>
</tr>
<tr>
<td>50-80% continuity</td>
<td>1002 (27)</td>
</tr>
<tr>
<td>&gt; 80% continuity</td>
<td>2122 (57)</td>
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</table>
Drug dispensions (n=3755)

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<th>Drug Class</th>
<th>Count (%)</th>
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<tr>
<td>Buprenorphine based OST, n (%)</td>
<td>2904 (77)</td>
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<tr>
<td>Antipsychotics, n (%)</td>
<td>2062 (55)</td>
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<tr>
<td>Antidepressants (SSRIs), n (%)</td>
<td>1390 (37)</td>
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<td>Benzodiazepines, n (%)</td>
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<tr>
<td>No dispensions</td>
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</tr>
<tr>
<td>Moderate use (&lt; mean DDD/year)</td>
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</tr>
<tr>
<td>Heavy use (&gt; mean DDD/year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>574 (15)</td>
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<td>Heavy use (&gt; mean DDD/year)</td>
<td>1113 (30)</td>
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<tr>
<td>HCV treatment, n (%)</td>
<td>539 (14)</td>
</tr>
</tbody>
</table>
Incidence of HCV treatment uptake
Cumulative HCV treatment uptake by age at end of observation

- < 40 years: 14%
- 40-50 years: 15%
- > 50 years: 15%
Cumulative HCV treatment uptake by OST continuity

- < 50%: 8%
- 50-80%: 13%
- > 80%: 17%
Cumulative HCV treatment uptake by benzodiazepine use

- No dispensions: 17%
- Moderate use: 15%
- Heavy use: 11%
Factors associated with HCV treatment

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<th>Variable</th>
<th>Adjusted OR (95% CI)</th>
<th>p value</th>
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<td>Male gender (vs. female)</td>
<td>1.10 (0.90-1.35)</td>
<td>.370</td>
</tr>
<tr>
<td>Age at initiation of OST (years)</td>
<td>0.99 (0.98-1.01)</td>
<td>.312</td>
</tr>
<tr>
<td><strong>Duration of active OST (years)</strong></td>
<td><strong>1.11 (1.07-1.15)</strong></td>
<td>&lt;.001</td>
</tr>
<tr>
<td>OST continuity (vs. &lt; 50%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-80% continuity</td>
<td>1.38 (0.98-1.95)</td>
<td>.069</td>
</tr>
<tr>
<td>&gt; 80% continuity</td>
<td>1.64 (1.18-2.28)</td>
<td>.003</td>
</tr>
<tr>
<td>Benzodiazepine use (vs. no dispensions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate use (&lt; mean DDD/year)</td>
<td>0.96 (0.74-1.23)</td>
<td>.724</td>
</tr>
<tr>
<td><strong>Heavy use (&gt; mean DDD/year)</strong></td>
<td><strong>0.65 (0.49-0.87)</strong></td>
<td><strong>.004</strong></td>
</tr>
</tbody>
</table>
Conclusions

• 14% of OST patients notified with HCV infection had received HCV treatment during the last decade

• The incidence of HCV treatment uptake remained low (~2% per year) during the study period

• HCV treatment uptake was associated with
  • Duration of active OST
  • High OST continuity
  • Absence of heavy benzodiazepine use

• HCV treatment uptake was not associated with age
Implications and future research needs

• HCV treatment was associated with markers of patient stability and may not have been prioritized for older patients with higher prevalence of advanced liver disease

• Need for increased awareness for HCV among OST patients in the emerging interferon-free era

• Will HCV treatment uptake in this population improve with increasing use of DAA based therapy?

• Can long-term stability in OST facilitate HCV treatment?
Acknowledgements

Supervisors
Olav Dalgard
John W Haukeland

Norwegian Centre for Addiction Research
Jørgen G Bramness

Norwegian Institute of Public Health
Svetlana Skurtveit
Ingvild Odsbu
Astrid S O Kolden
Astrid L Løvlie

Funding
Norwegian ExtraFoundation for Health and Rehabilitation
Backup slides
OST patients
(n=9919)
OST patients
(n=9919)

Notified HCV infection
3755/9919 (38%)
OST patients 
(n=9919)

Notified HCV infection
3755/9919 (38%)

Treated
943/9919 (9.5%)
Untreated (n=3216)  Treated (n=539)
HCV treatment uptake among patients who received OST 2008-2013

Year

2008 2009 2010 2011 2012 2013

No of HCV treatments

Incidence rate
Incidence of HCV treatment (2008-2013)