HEPATITIS WEB STUDY

Acute Hepatitis C Virus Infection: Epidemiology, Clinical Features, and Diagnosis

H. Nina Kim, MD
Assistant Professor of Medicine
Division of Infectious Diseases
University of Washington School of Medicine

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Disclosure Information

• No disclosures to report
Acute Hepatitis C: Epidemiology
Incidence of Acute Hepatitis C, by year
United States, 1982-2010

Source: CDC Division of Viral Hepatitis. Statistics and Surveillance.
Reported Number of Acute HCV Cases
United States, 2000-2010

Source: National Notifiable Diseases Surveillance System (NNDSS)
Hepatitis C
Incident Cases in 2010

- 17,000 estimated new HCV infections per year in U.S.
- 2,800 cases with symptomatic acute HCV
- 853 cases of acute HCV actually reported

Source: CDC Division of Viral Hepatitis. Statistics and Surveillance.
Rationale for Identifying Patients with Acute HCV

- Provide risk reduction counseling and linkage to care
- Shift dynamics of natural history of HCV disease
Hepatitis C Transmission

- Bloodborne transmission is the most common route
- Sexual transmission in general population considered rare
  - Among cohort of 895 heterosexual HCV-serodiscordant couples, only 3 transmissions occurred → incidence 0.37/1000 person-years
  - Strain analysis did not support sexual transmission
- Increasing reports of HIV-infected men who have sex with men with sexually-acquired acute HCV infection in Europe, Australia, and U.S.

## List of Potential Hepatitis C Exposures

<table>
<thead>
<tr>
<th>Potential Source of Exposure to Hepatitis C Virus</th>
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<tbody>
<tr>
<td>Recent injection drug use</td>
</tr>
<tr>
<td>Needle stick injury</td>
</tr>
<tr>
<td>Procedures involving potentially reused needles: tattooing, body-piercing, acupuncture</td>
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<tr>
<td>Exposure to re-used sharp objects or re-used vials of injectable materials</td>
</tr>
<tr>
<td>Nosocomial exposure to contaminated equipment, or potential direct exposure to blood</td>
</tr>
<tr>
<td>High risk sexual practices: fisting, bleeding during sex, use of sharp objects during sex</td>
</tr>
<tr>
<td>Sexual contact with a known HCV-infected partner</td>
</tr>
<tr>
<td>Sexual contact with known HIV positive partner</td>
</tr>
<tr>
<td>Sexual contact with known sexually transmitted infections in patient or their partner</td>
</tr>
<tr>
<td>Blood transfusion or unsafe therapeutic procedures during travel in a developing country</td>
</tr>
</tbody>
</table>
Diagnosis
Diagnosis of Acute Hepatitis C

- Acute HCV = first 6 months of infection

- Diagnosis of acute HCV can be challenging:
  - Most cases asymptomatic
  - No reliable or specific IgM-based HCV antibody test
Acute Hepatitis C: 2012 CDC Case Definition

<table>
<thead>
<tr>
<th>Clinical Presentation</th>
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<tbody>
<tr>
<td>An acute illness consistent with acute viral hepatitis AND Jaundice/dark urine or ALT greater than 400 IU/L</td>
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<table>
<thead>
<tr>
<th>Laboratory Criteria for Diagnosis</th>
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<tr>
<td>Meets 1 of the following 3 criteria:</td>
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<tr>
<td>• HCV EIA positive, OR</td>
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<tr>
<td>• HCV RIBA positive, OR</td>
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<tr>
<td>• HCV RNA positive</td>
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<tr>
<td>AND</td>
</tr>
<tr>
<td>• Negative HAV IgM AND negative HBV IgM anti-HBc</td>
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</tbody>
</table>

Source: CDC and Prevention
Diagnosis of Acute Hepatitis C

- **Hepatitis C RNA** – quantitative (or qualitative) assay
  - Can detect HCR RNA as early as 1 week from time of infection
  - Most sensitive early test
  - Levels can fluctuate widely in acute infection
  - Best to use assay with low limit of detection (<10-15 IU/mL)

- **Serum ALT**
  - Elevated in range of 400-800 U/L for symptomatic patients
  - Any new elevation (typically >7X ULN)

- **Hepatitis C antibody** (by standard EIA)
  - Lags behind HCV RNA
  - In most patients, detected x 2-4 months from time of infection
  - Not as sensitive: only 50-70% acutely infected are HCV Ab (+)
  - Helpful if seroconversion has occurred
Spontaneous Clearance of HCV after Acute Infection

Weeks

HCV RNA
ALT
Anti-HCV

HCV Infection

+/- Symptoms

Source: www.hepwebstudy.org
HCV Persistence after Acute Infection

Source: www.hepwebstudy.org
Distribution of HCV RNA Levels for Acute versus Chronic HCV

Clinical Features & Natural History
Acute Hepatitis C

Clinical Features Among 51 Patients with Acute HCV Infection

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Patients (%)</th>
</tr>
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<tbody>
<tr>
<td>Jaundice</td>
<td>68</td>
</tr>
<tr>
<td>Flu-Like Symptoms</td>
<td>55</td>
</tr>
<tr>
<td>Dark Urine &amp; White Stool</td>
<td>39</td>
</tr>
<tr>
<td>Nausea</td>
<td>34</td>
</tr>
<tr>
<td>Abdominal Pain</td>
<td>25</td>
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Acute Hepatitis C

Clinical Features Among 24 Patients with Acute HCV Infection

- **Fatigue**: 63%
- **Jaundice**: 50%
- **Dyspepsia**: 38%
- **Abdominal Pain**: 17%

Natural History of Acute HCV Infection

• Incubation period = 4-14 weeks
  - Most with acute HCV are asymptomatic or minimally symptomatic
  - Only 10-20% have a distinct clinical illness

• If clinical illness occurs, hepatitis is rarely fulminant
  - ALT typically 400-1000 U/L
  - Bilirubin rarely >12 mg/dl

• Two possible outcomes:
  - Spontaneous clearance: estimated at 20-25% (may be lower in HIV-infected)
  - Persistent chronic HCV infection.

Predictors of Spontaneous HCV Clearance

- Lower peak HCV RNA levels
- Rapid early decline in HCV viral level
- High ALT
- Presence of jaundice
- Female gender
- Younger age
- Non-black race
- Coinfection with chronic hep B (+HBsAg)
- *IL28B* CC homozygous genotype
Genetic Variation in IL28-B and Spontaneous HCV Clearance

Genetic Variation in IL28-B and Spontaneous HCV Clearance

Acute Hepatitis C: Summary

- Often a missed diagnosis!
- Contaminated blood exposure is the most common but sexual transmission can occur
- Confirmation of acute hepatitis C can be challenging since minority (10-20%) of patients have clinical symptoms
- HCV RNA, serum ALT and HCV antibody testing remain the cornerstone of acute HCV diagnosis
- Spontaneous clearance can occur in some acutely infected patients but the majority (75%) will go onto chronic infection if untreated.
End

This presentation is brought to you by Hepatitis Web Study & the Hepatitis C Online Course

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