Factors Associated with Spontaneous Resolution of Hepatitis C Infection in Untreated Individuals, Philadelphia
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Background

- ~3.2 million people are infected with chronic hepatitis C virus (HCV) infection in the United States.
- 30% of HCV infected individuals resolve infection without treatment.
- Specific factors associated with spontaneous resolution include various genetic factors, non-African-American race, and female gender.
- Little is known about the impact of a patient’s risk factor profile on his/her likelihood of clearing disease.

Methods

- The Philadelphia Department of Public Health (PDPH) collects positive HCV antibody and RNA test results as a part of routine surveillance.
- From 1/1/2013 – 9/30/2014, enhanced surveillance identified a random sample of newly reported HCV(+) cases and contacted patient and provider to collect demographic, clinical, and risk factor data pertaining to the patient’s HCV infection.
- Case definitions:
  - Chronic: Individuals who are currently HCV Ab+ RNA+ and have not received HCV treatment.
  - Resolved: Individuals with a historic HCV Ab+ or RNA+ test result and a more recent RNA result who have not received HCV treatment.
- Risk factor definitions:
  - Behavioral risk factors: injection drug use (IDU), history of incarceration, and high-risk sexual behaviors (elevated number of lifetime sexual partners, being a man who has sex with men (MSM)).
  - Passive risk factors:
    - Health-related: history of organ transplant, blood transfusion before 1992, needle stick exposure, hemodialysis
    - Other: living out of the US for >6 months, having a mother who is HCV+, serving in the military, having known contact with someone HCV+.
- Demographic and risk factor data were compared for untreated Chronic and Resolved HCV cases. Chi Square analysis was used to detect any statistical differences between the groups.

Results

- Approximately 1/3 of newly reported HCV cases are investigated by PDPH.
- Of 1,064 cases investigated in the study period, 808 had a RNA reported to PDPH (Figure 1).
- 29% (n=232) of the 808 RNA+ patients were treated for HCV (Figure 1).
- 15% (n=89) of the untreated cases cleared their infection (Figure 1).
- Both groups were equally likely to be in care and to have insurance (Table 1).
- Both groups had ~4% self-reported HIV(+) (Table 1).
- Chronic cases were more likely to have active risk factors than Resolved and the Chronic cases (Table 2).
- Resolved cases were significantly younger than Chronic cases at their time of diagnosis, and more likely to be female (Table 1).

Discussion

- Study findings are consistent with previous studies showing that African-Americans and males are less likely to spontaneously clear HCV infection.
- The association between high risk behaviors and reduced HCV clearance may be explained by reinfection from recurrent exposure to different viral strains among groups with elevated rates of HCV disease.
- By defining the mechanisms underlying viral control, it may be possible to utilize robust surveillance data to target individuals for treatment and/or care using risk and demographic indicators.
- Ensuring that RNA+ individuals are linked to care for monitoring and treatment evaluation is essential to prevent the long term effects of HCV infection, especially now that effective medications exist.

Table 1: Demographic and clinical characteristics of untreated HCV Resolved and Chronic cases.

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