

Predictors of spontaneous hepatitis C clearance after reinfection

Gender and genetics could identify people who are more likely to eliminate hepatitis C after reinfection without needing treatment.

THE ISSUE

Approximately one in four people¹ infected with hepatitis C will clear the infection without any treatment ('spontaneous clearance'). Reinfection with hepatitis C after clearance can occur, especially in people who inject drugs (PWID). However, the factors associated with repeated spontaneous clearance ('reclearance') are not well understood.

WHAT OUR WORK FOUND

The International Collaboration of Incident HIV and HCV in Injecting Cohorts (InC³) study comprised data from nine studies in Australia, Canada, the Netherlands and the United States. Dr Sacks-Davis and colleagues analysed data from InC³ to better understand hepatitis C reinfection following spontaneous clearance and the possibility of reclearance. A key strength of the study was rigorous classification of reinfection using genetic testing.

Analysis of data from 591 participants with early ('acute') hepatitis C infection found that:

- ▶ 146 participants had spontaneously cleared the virus.
- ▶ of those who spontaneously cleared their initial infection, 28 (19%) participants had a reinfection.
- ▶ reinfection risk was approximately 12% per year.
- ▶ outcome information is available for 23 of the 28 people reinfected. Approximately half subsequently spontaneously cleared their infection without treatment – that is, obtained reclearance.
- ▶ a higher likelihood of reclearance was associated with being female AND having a specific genetic sequence for the gene which codes for a protein involved in immunity called interferon lambda 4 (known as rs12979860 CC).

CONCLUSION

Females with the specific genetic sequence known as rs12979860 CC have an increased likelihood of spontaneous clearance of the hepatitis C virus after reinfection. As most people infected with hepatitis C will not spontaneously clear the infection, a key outcome of this paper is it provides a better understanding of factors contributing to natural immunity.

References

1. Micallef J et al., *Journal of Viral Hepatitis* 2006; 13:34–41

InC³ study participant characteristics (N=591)

Age (median)	26 years
Female	36%
Had injected drugs	96%
Infected with HIV	7%

Policy Implications

- ▶ This is the first study to investigate the factors that influence the likelihood of hepatitis C reclearance.
- ▶ The identification of genetic factors that contribute to natural immunity suggests that continued support for the development of a hepatitis C vaccine is worthwhile.

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