Predicting hepatitis C treatment success

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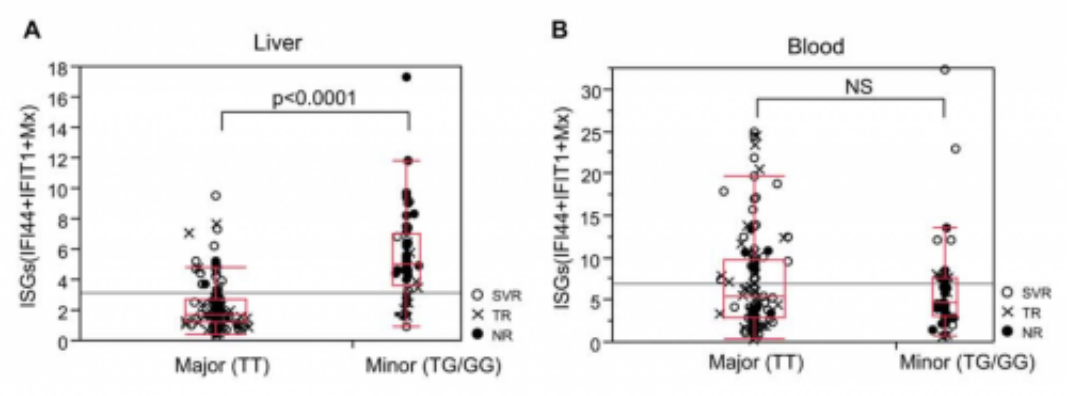

Figure caption:
Comparison of ISG expression in liver and blood of patients with differ- ent IL28B genotypes. (A and B) RTD-PCR results of mean ISG expression (IFI44- IFIT11Mx1) in liver (A) and blood (B) of IL28B major (MAu/Mad) and minor (MI) genotype patients.

Levels of interferon-stimulated genes in the liver and blood could help predict if a patient with hepatitis C will respond to conventional therapy, researchers at Kanazawa University suggest.

A combined therapy using interferons and ribavirin is often used to treat chronic hepatitis C, but around half of patients are unresponsive and suffer relapse. Previous research has shown that variations in a gene called interleukin 28B (IL28B) render a patient either sensitive to treatment or completely resistant to it. However, the mechanisms relating the IL28B gene to the treatment are not well understood.

Now, Shuichi Kaneko and colleagues at Kanazawa University have

discovered that, in therapy-resistant patients, interferon-stimulated gene (ISG) expression is up-regulated in the liver but down-regulated in the blood - a significantly different pattern of ISG expression to therapy-responsive patients.

The team analyzed liver and blood samples from hepatitis C patients taken before treatment, and found that fewer immune cells reached the livers of patients with the therapy-resistant genotype. The team believe this lack of immune cells may induce higher levels of other inflammatory proteins, such as WNT5A. Higher WNT5A levels in the therapy-resistant patients both enhanced the expression of ISGs in the liver and increased hepatitis C viral replication. The researchers hope that further research will clarify these mechanisms with regard to treatment response.

In the meantime, measuring ISG expression patterns in blood and liver samples could provide a useful way of predicting a patient's response to interferon / ribavirin therapy.

More information: Honda, M., Shirasaki, T., Shimakami, T., Sakai, A., Horii, R., Arai, K., Yamashita, T., Sakai, Y., Yamashita, T., Okada, H., Murai, K., Nakamura, M., Mizukoshi, E. and Kaneko, S. (2014), "Hepatic interferon-stimulated genes are differentially regulated in the liver of chronic hepatitis C patients with different interleukin-28B genotypes." *Hepatology*, 59: 828–838. doi: 10.1002/hep.26788

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