Quantitative Liver Function Tests Improve the Prediction of Clinical Outcomes in Chronic Hepatitis C: Results From the Hepatitis C Antiviral Long-term Treatment Against Cirrhosis Trial

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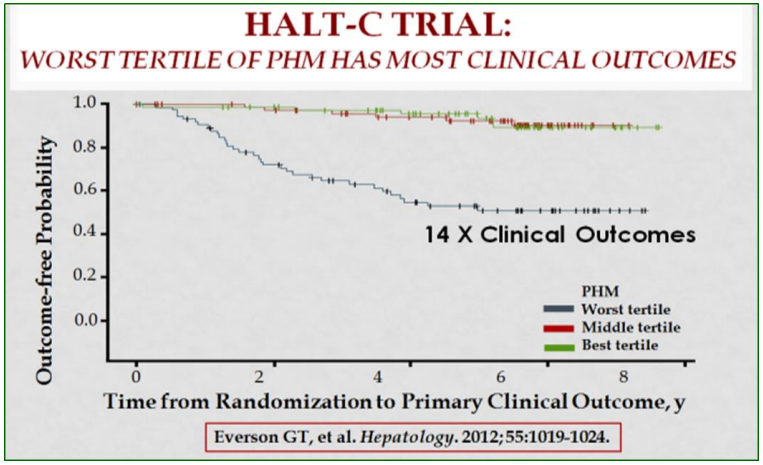
Risk for future clinical outcomes is proportional to the severity of liver disease in patients with chronic hepatitis C virus (HCV). We measured disease severity by quantitative liver function tests (QLFTs) to determine cutoffs for QLFTs that identified patients who were at low and high risk for a clinical outcome.

Two hundred and twenty-seven participants in the Hepatitis C Antiviral Long-term Treatment Against Cirrhosis (HALT-C) Trial underwent baseline QLFTs and were followed for a median of 5.5 years for clinical outcomes. QLFTs were repeated in 196 patients at month 24 and in 165 patients at month 48.

Caffeine elimination rate (k_{elim}), antipyrine (AP) clearance (Cl), MEGX concentration, methionine breath test (MBT), galactose elimination capacity (GEC), dual cholate (CA) clearances and shunt, **perfused hepatic mass (PHM), and liver and spleen volumes** (by single-photon emission computed tomography) were measured. Baseline QLFTs were significantly worse (P=0.0017 to P<0.0001) and spleen volumes were larger (P<0.0001) in the 54 patients who subsequently experienced clinical outcomes.



Quantitative liver function predicts outcomes; Outperforms blood tests & fibrosis measurements.

QLFT cutoffs that characterized patients as “low’’ and ‘‘high risk’’ for clinical outcome yielded hazard ratios ranging from 2.21 (95% confidence interval [CI]: 1.29-3.78) for GEC to 6.52 (95% CI: 3.63-11.71) for CA clearance after oral administration (Cl_{oral}).

QLFTs independently predicted outcome in models with Ishak fibrosis score, platelet count, and standard laboratory tests. In serial studies, patients with high-risk results for CA Cl_{oral} or **PHM had a nearly 15-fold increase in risk for clinical outcome**. Less than 5% of patients with ‘‘low risk’’ QLFTs experienced a clinical outcome.

Conclusion: QLFTs independently predict risk for future clinical outcomes. By improving risk assessment, QLFTs could enhance the noninvasive monitoring, counseling, and management of patients with chronic HCV.