Clinical Glycomics for noninvasive assessment of liver fibrosis in chronic hepatitis C: Independent validation and comparison with FibroScan, FibroTest and liver biopsy

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BACKGROUND & AIMS

METHODS

RESULTS

Liver biopsy, FibroScan, and FibroTest in 111 consecutive patients with chronic hepatitis C.

Liver histology

- Fibrosis was scored according to METAVIR by 2 independent pathologists blinded to FS and FT results.
- FibroScan was performed the day of liver biopsy, as previously described (Castera et al. Gastroenterology 2005)
- FibroTest components were determined on a blood sampled the same day as liver biopsy in a single laboratory applying the pre-analytical and analytical recommendations required. The score was computed on Biopredictive website (www.biopredictive.com).

Glycomics

- Glycomics were determined on a blood sampled the same day as liver biopsy.
- N-linked oligosaccharides are isolated from total serum glycoproteins present in 5ul of serum using PNGaseF as described (Callewaert et al., Glycobiology 2001). These are fluorescently labeled with APTS at the reducing end by reductive amination and subsequently desialylated.
- DNA-sequencer Aided Fluorophore Assisted Carbohydrate Electrophoresis (DSA-FACE) allows the profiling, analysis and quantification of the reaction products with high sensitivity and resolution. Shortly, electrophoretic loading of the capillaries is done at 15kV for 15sec. A 20 minute run at the same voltage allows complete separation. Quantification of the respective peaks was done using the GeneMapper software (ABI).

The aims of this study were:

- 1) to validate independently the diagnostic performances of clinical glycomics in measuring liver fibrosis as compared to liver biopsy in patients with chronic hepatitis C;
- 2) to compare and combine its diagnostic performances to those of other non invasive markers (FS and FT), performed the same day as liver biopsy.

The fibrosis stage was prospectively assessed the same day by Liver Biopsy, Fibroscan, and Fibrotest in 111 consecutive patients with chronic hepatitis C.

Liver histology

- Fibrosis was scored according to METAVIR by 2 independent pathologists blinded to FS and FT results.
- FibroScan was performed the day of liver biopsy, as previously described (Castera et al. Gastroenterology 2005)
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Characteristics of the 111 patients studied

| Gender (M/F) | 51/54 |
| Age (yr) | 53 ± 12 |
| Liver Histology* (METAVIR) | |
| F0-F1 | 28 |
| F2 | 30 |
| F3 | 25 |
| F4 | 28 |

Comparative performances (ROC curves)

- Diagnostic performance of clinical glycomics appeared better for cirrhosis than for significant fibrosis (F2), being of the same order as that of FibroScan and FibroTest.
- The combination of FibroScan with FibroTest, or FibroScan with Glycomics allowed to yield the best performances.
- The use of the combination of FibroScan with FibroTest or with Clinical Glycomics could be useful in clinical practice for noninvasive assessment of liver fibrosis in patients with chronic hepatitis C.

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