

## APPENDIX 1

### ASSESSMENT OF LIVER FIBROSIS FOR HEPATITIS C TREATMENT

As persons with advanced fibrosis and cirrhosis (METAVIR F3 and F4 stages) are at highest risk of dying from complications of HCV, they need to be prioritised for treatment. APRI, FIB4, liver biopsy and transient elastography are the most useful tests for assessing the stage of liver disease. The advantage of APRI as compared with FIB4 is that it is validated for the diagnosis of F4 fibrosis, and is thus useful for identifying persons at greatest risk of morbidity. A combination of the non-invasive tests should be used to assess liver disease stage in all patients.

Cirrhosis should be diagnosed using the standard criteria which includes either biopsy or a combination of fibroscan score over 12.4, Hyaluronic acid over 100 mcg/l, known varices or an US showing splenomegaly.

F3 is diagnosed in patients with 2 of the following 3 criteria:  
Fibroscan score over 9.4, elevated HA (i.e. over 75mcg/l) and /or Fib4 score of over 3.25.

F2 is diagnosed in patients with Fibroscan score >7.0

(F2-3 in patients with HIV or post transplant is diagnosed by Fibroscan score over 7.0 and Fib4 score of over 1.45)

### INDICES

(i) Fib 4 Score using Age, ALT, AST and PLT

**FIB-4 index <1.45 had a negative predictive value of 94.7% to exclude severe fibrosis with a sensitivity of 74.3%. An FIB-4 index higher than 3.25 had a positive predictive value to confirm the existence of a significant fibrosis (F3-F4) of 82.1% with a specificity of 98.2%**

$$\text{FIB4} = \text{age (yr)} \times \text{AST (IU/L)} / \text{platelet count (109/L)} \times \sqrt{\text{ALT (IU/L)}}$$

Calculator:

<http://www.hepatitisc.uw.edu/page/clinical-calculators/fib-4>

FIB4 test could also be affected by thrombocytopenia but this scoring system was first evaluated in patients with HIV and was found to perform well.

(ii) Fibroscanning

Transient elastography assesses the degree of fibrosis and cirrhosis by measuring liver stiffness; however, there are no uniformly established and validated cut-offs for specific fibrosis stages. Therefore, reported sensitivities and specificities of fibroscan are probably overestimated.

A fibroscan score of 9.5-14 kPa can be taken as indicating severe fibrosis (F3-F4) if FIB4 score is also consistent.

Acoustic Radiation Force Impulse (ARFI) is elastography during ultrasound, may be used as an alternative to fibroscan and is capable of giving readings in all patients irrespective of body habitus. A value greater than 1.25m/s will equate with F3/4.

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(iii) Hyaluronic Acid

Serum hyaluronic acid is a useful marker of liver fibrosis in patients with chronic HCV infection and can be used to monitor patients at risk of progressive fibrosis.

Hyaluronic Acid levels consistently greater than 75mcg/l are suggestive of moderate to severe liver fibrosis.

(vi) Ultrasound Scanning

Ultrasonography is the most frequently used modality in surveillance for HCC among patients with chronic Hepatitis C. It is not used to determine degree of liver fibrosis but can show splenomegaly (>12cm) associated with cirrhosis.