

Evaluation of Hepatic Fibrosis by Fibroscan® in Infections Chronic HbeAg Negative

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Abstract

Introduction: The Fibroscan® is a non-invasive test that assesses liver fibrosis by measuring the degree of liver elasticity. It occupies an important place in the evaluation of hepatic fibrosis in patients with chronic liver disease. The aim is to evaluate the interest of Fibroscan® in the evaluation of hepatic fibrosis in chronic HbeAg negative infections.

Materials and methods: All patients with a chronic HbeAg negative infection from April 2019 to June 2022 were included. Chronic HbeAg negative infection is defined by: a normal clinical examination, a normal abdominal ultrasound, normality of transaminases at several times, AgHbs positive, AgHbe negative, and viral DNA less than 2000 IU/ml on quarterly monitoring over 1 year. The interpretation of the Fibroscan® results took into account 10 measurements validated by the device with the interquartile range (IQR) < 30% of the median and a success rate > 60%.

Results: Out of a total of 753 Fibroscans® performed, 163 patients had a chronic HbeAg negative infection, i.e. 21.6%. The mean age of the patients was 49.6 ± 11.2 . We note a female predominance of 52.1% with a sex ratio of 0.9. The median elasticity value was 5.6 Kpa (2.5 – 20 Kpa). Fibrosis was non-significant in 83.3% and fibrosis was significant in 16.6% (moderate fibrosis: 12%; severe: 1.3% and cirrhosis: 3.3%). There was a failure of the fibroscan in 13 patients (7.9%) with a BMI > 35 kg/m² despite the XL probe. **Conclusion:** Fibroscan® showed the absence of significant fibrosis in the majority of patients with chronic HbeAg negative infection. It allowed the diagnosis of significant fibrosis and cirrhosis in 16.6% of cases. The fibroscan is an excellent non-invasive examination for the evaluation of fibrosis in chronic HbeAg negative infections.

Keywords: The Fibroscan®, AgHbs, liver elasticity, hepatic fibrosis, hepatocellular carcinoma.

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INTRODUCTION

Hepatitis B virus (HBV) infection remains a major public health problem responsible for significant morbidity and mortality from cirrhosis or hepatocellular carcinoma. The causative virus is most often transmitted from mother to child during birth and delivery [1]. The clinical expression and natural history of this infection can be divided into five phases based on the one hand on the presence of an infection or hepatitis and on the other hand on the presence or absence of AgHbe. HbeAg negative patients (Anti Hbe Ab positive) represent the largest number of patients infected with HBV in the world [2]. The Fibroscan® is a non-invasive method for evaluating hepatic fibrosis, by measuring the elasticity of the liver, which has proven its value in the management of patients with chronic liver diseases [3]. The aim is to evaluate the

interest of in the Fibroscan® evaluation of hepatic fibrosis in chronic HbeAg negative infections.

MATERIALS AND METHODS

Were included all patients with a chronic HbeAg negative infection from April 2019 to June 2022. Chronic HbeAg negative infection is defined by: a normal clinical examination, a normal abdominal ultrasound, positive HbsAg, presence of anti-Hbe Ac, and normal transaminases, undetectable HBV DNA or <2000IU/ml, which must be confirmed quarterly during the 1st year of follow-up. These patients generally have a low titer of AgHbs (<1000UI/ml). The interpretation of the Fibroscan® results took into account 10 measurements validated by the device (compact 530°) with the interquartile range (IQR) < 30% of the median.

RESULTS

Out of a total of 753 Fibroskans® performed, 163 patients had a chronic HbeAg negative infection, i.e. 21.6%. The mean age of the patients was 49.6 ± 11.2 years. We note a female predominance of (52.1%) with a sex ratio of 0.9. The median elasticity value was

5.6 Kpa (2.5 – 20 Kpa). Fibrosis was not-significant in 83.3% (F⁰-F1) and fibrosis was significant in 16.6% moderate fibrosis (F2): 12%; severe (F3): 1.3% and cirrhosis (F4): 3.3%. There was a failure of the Fibroskan® in 13 patients (7.9%) with a BMI > 35 kg/m² despite the XL probe.

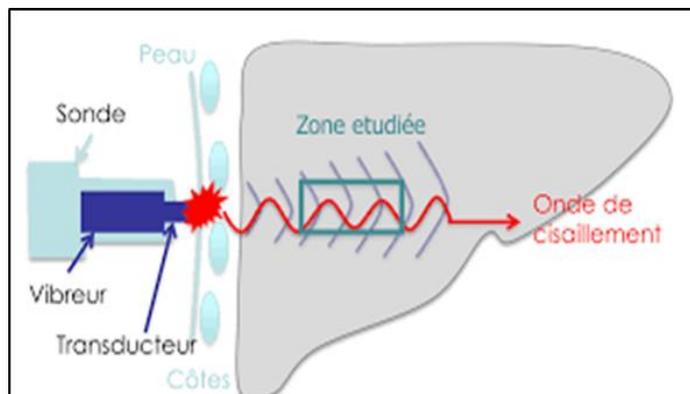


Figure 1: Positioning of the probe and volume of parenchyma explored (Echoscens image)

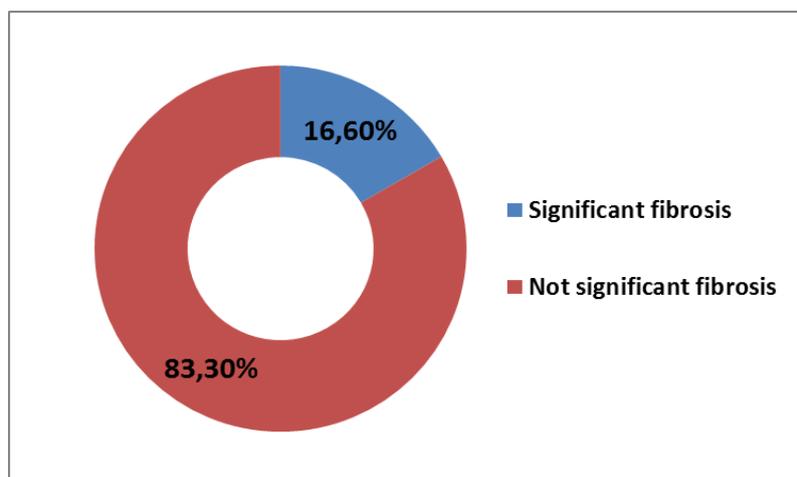


Figure 2: Distribution according to the significance of the fibrosis

Table 1: Distribution according to fibrosis intensity

Fibrosis	Percentage %
F0-F1	83,3%
F2	12%
F3	1,3%
F4	3,3%

DISCUSSION

To measure the elasticity of the liver, the uses impu Fibroskan®lse elastography, which makes it possible to measure the speed of propagation in the liver of a mechanical wave (flick) from the chest wall opposite the liver (Fig 1). The speed of propagation is measured by ultrasound which estimates the elasticity of this parenchyma using a simple equation ($E = 3\rho V^2$ or E the elasticity; ρ the density and V the speed of propagation of the wave) [4]. The volume explored is 4cm long and 1cm in diameter (1/500 or 100 times larger than a liver biopsy) [5]. The results are expressed

in KPa and correspond to the median of 10 valid measurements. A success rate of more than 60% is required and the IQR must be as low as possible at least less than 30% of the value of the median at best less than 21%. It is also important to check the elastogram of the appearance of the shock wave propagation curve. Values can range from 2 to 75 kPa. The harder a medium is, the more its elasticity increases [6]. The examination is carried out on the right side at the level of the liver by intercostal route in a patient in a position lying on his back with the right arm raised behind the head to free the right hypochondrium. The probe is perpendicular to the surface of the skin. No preparation

is necessary. The patient does not have to be fasting. After applying gel to the skin. The operator will perform successive valid measurements. The examination is painless and quick. At the time of the measurement, the patient feels a slight vibration at the point of contact of the probe on the skin.

In our study, the mean age of the patients was 49.6 ± 11.2 years. We note a female predominance of 52.1% contrary to study Touri S *et al.*, [7]. Liver elasticity in chronic HbeAg negative infections is generally normal. The median value of elasticity was 5.6 Kpa (2. 5–20 Kpa). These Results are similar to Charif I *et al.*, [8]. Fibrosis was not significant in the majority of our patients 83.3% and significant only in 16.6% a cirrhosis is in present 3.3%. Several studies have found comparable results, in particular to the Senegal study (significant fibrosis 18.08%) [8], to Charif I (significant fibrosis in 8.3%), without any case of cirrhosis in his series.

CONCLUSION

Fibroscan® showed the absence of significant fibrosis in the majority of patients with chronic HbeAg negative infection. On the other hand, it made it possible to objectify significant fibrosis and cirrhosis in 16.6% of cases. Thus, The fibroscan is an excellent non-invasive to for the evaluation of fibrosis in chronic HbeAg negative infections.

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