## The evolving landscape of gene therapy for congenital severe hemophilia: a 2024 state of the art

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# **Supplementary Material**

### Additional information to Table 1:

<u>KEY CLINICAL INFORMATION (yes/no)</u>: hepatic steatosis (on imaging), alcohol abuse, obesity, type-2 diabetes mellitus, metabolic syndrome.

**<u>FIB4-Index</u>**: index composed of age along with the serum markers of platelets, ALT, and AST. The FIB4-index is calculated as Age × AST (IU/L)/platelet count (×10<sup>9</sup>/L) ×  $\sqrt{ALT}$  (IU/L).<sup>1</sup>

<u>AAR</u> (AST/ALT ratio): Two cut-offs of 0.8 or 1 are used to exclude or include advanced fibrosis among persons with NAFLD. One of the simplest methods to assess hepatic fibrosis using a widely available blood test.

<u>NFS</u> (NAFLD fibrosis score): based on age, BMI, impaired fasting glucose or diabetes mellitus, AST/ALT ratio, platelet count, and the serum level of albumin. NFS is calculated as  $1.675 + 0.0373 \times \text{age}(\text{years}) + 0.0943 \text{ BMI}(\text{kg/m}^2) + 1.133 \times \text{impaired fasting glycaemia or diabetes}(\text{yes} = 1, \text{no} = 0) + 0.993 \times \text{AST/ALT ratio} - 0.0133 \times \text{platelet}(\times 10^9/\text{L}) - 0.663 \times \text{albumin}(\text{g/dL}).^2$ 

<u>*TE*</u> (transient Elastography [on Fibroscan]): measures the liver parenchyma in an area 1 cm wide and 4 cm long. A reliable value is obtained from  $\geq 10$  valid measurements with a success rate of >60%. TE provides the value of liver stiffness in kilopascals (kPa). The major limitations of TE include obesity, significant ascites, and the results being influenced by significant inflammation or congestion along with a post-prandial state.<sup>3</sup>

<u>*MRE*</u> (Magnetic Resonance Elastography): processes every 6-10 mm of liver parenchyma *to* measure liver stiffness (with a non-invasive MRI-based method that uses a low frequency propagating wave [60 Hz vibrations]) with phase-contrast).<sup>4</sup>

#### References

1. Shah AG, Lydecker A, Murray K, et al. Comparison of noninvasive markers of fibrosis in patients with nonalcoholic fatty liver disease. Clin Gastroenterol Hepatol 2009;7:1104-12.

2. Angulo P, Hui JM, Marchesini G, et al. The NAFLD fibrosis score: a noninvasive system that identifies liver fibrosis in patients with NAFLD. Hepatology 2007;45:846-54.

3. Han MA, Saouaf R, Ayoub W, et al. Magnetic resonance imaging and transient elastography in the management of Nonalcoholic Fatty Liver Disease (NAFLD). Expert Rev Clin Pharmacol 2017;10:379-390.

4. Venkatesh SK, Yin M, Ehman RL. Magnetic resonance elastography of liver: technique, analysis, and clinical applications. J Magn Reson Imaging 2013;37:544-55.

### Additional information to Table 3:

Data from: *KAI 1 2024 Valoktokogeeniroksaparvo-veekki (BMN 270) vaikean A-hemofilian hoidossa.pdf (julkari.fi)* Hyvärinen A, Kotajärvi J, Nättinen J, Ruotsalainen J. Photochemotherapy with BMN 270 in the treatment of severe A haemophilia. Fimea julkaisusarja 1/2024. 82 p. ISBN 978-952-7299-58-6.

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