# Functional Cure in a Chronic Hepatitis B Patient with Exceptionally High HBsAg Levels: A Case Report

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## Background

Recent studies have shown that chronic hepatitis B (CHB) patients with low levels of hepatitis B surface antigen (HBsAg) are more likely to achieve a functional cure through pegylated interferon (PEG-IFNα)-based antiviral therapy. While patients with high baseline HBsAg levels are generally considered to have a lower rate of achieving a functional cure within a limited course of treatment. However, achieving a functional cure in these patients remains challenging, as they also carry a comparatively higher long-term risk of developing hepatocellular carcinoma (HCC).

## Case presentation

We describe a case of a 45-year-old male patient with an extremely high baseline HBsAg level of 190,060 IU/mL who ultimately achieved a functional cure after a total of 80 weeks of PEG-IFNα-based treatment, following three rounds of PEG-IFNα-based combination therapy. Interestingly, the patient received three different commercial formulations of pegylated interferon-α during these treatment courses: Pegasys (pegylated interferon α-2a, F. Hoffmann-La Roche Ltd, Basel, Switzerland), PegIntron (pegylated interferon α-2b, Schering-Plough, Kenilworth, NJ, USA), and PegBeron (pegylated IFN-α-2a, Y-shaped, 40 kDa; Xiamen Amoytop Biotech, Xiamen, Fujian Province, China). Notably, the first two treatment rounds were part of two separate international multicenter clinical trials—the ARES study (NCT00877760, registered in 2009 with Dr. Harry Janssen as principal investigator) and the Pegon study (NCT01532843, initiated in 2012 with Dr. Harry Janssen as principal investigator). The patient maintained virologic suppression and serologic response during a 68-week follow-up period after discontinuing all medications.

## Discussion

Discussion: This case illustrates that a functional cure is achievable in CHB patients with very high baseline HBsAg levels through individualized, multi-stage therapy. Repeat or intermittent PEG-IFNα treatment may help overcome immune exhaustion and enhance cure rates, even in patients traditionally considered difficult to treat. This subgroup should not be overlooked by clinicians, as individuals with extremely high baseline HBsAg levels—particularly among Asian populations—may still carry a long-term risk of developing hepatocellular carcinoma, even if they are in the immune-tolerant phase during the optimal age window for curative treatment.

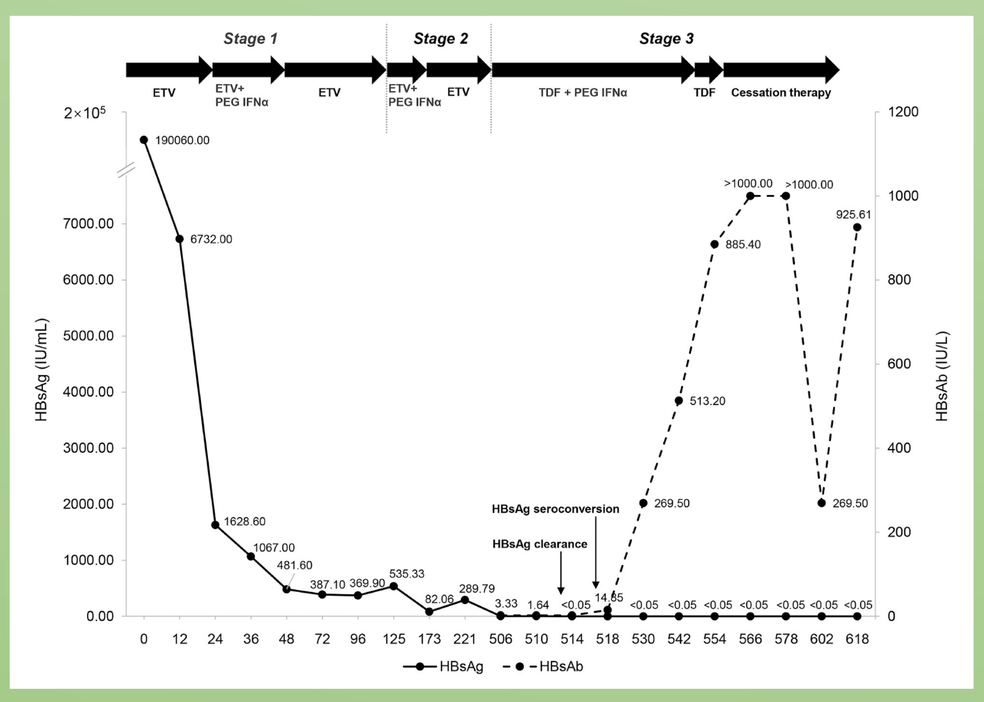


Figure 1. Changes in HBsAg and HBsAb levels throughout the study.

## Conclusions

Functional cure can be achievable within a limited treatment duration in CHB patients with extremely high baseline HBsAg levels through a strategic, staged use of combination antiviral therapies. This case supports a more inclusive and personalized approach to CHB management.