# 臺灣地區 e 抗原陽性慢性 B 型肝炎患者使用 Telbivudine 治療之成本效用分析

## Cost-Effectiveness Analysis of Telbivudine Therapy for HBeAg-positive Chronic Hepatitis B Patients in Taiwan


### 中文摘要

研究背景與目的：B 型肝炎病毒感染(Hepatitis B virus, HBV)爲臺灣很重要的健康議題。臺灣每年 B 型肝炎帶原率爲 15-20%，屬盛行率高的國家之一。慢性 B 型肝炎所導致病程惡化至肝硬化及肝癌將爲國人健康帶來莫大影響，但若慢性 B 型肝炎患者能被有效被照護積極接受治療，則可避免病患者病程演變至嚴重階段，不僅對病患與家屬有益，對減輕整體社會經濟負擔也有正面意義。近期 Liaw (2008)臨床研究發現在療效終點定義爲 HBV DNA 小於 100,000copies/mL 下，e 抗原陽性慢性 B 型肝炎使用 telbivudine 治療後，無論是在 HBV DNA 抑制、肝功能正常化與肝組織改善，會比使用 lamivudine 治療療效更好。雖然臨床療效已被證實，其成本效益尙未被評估。因此，本研究目的在於探討 e 抗原陽性慢性 B 型肝炎患者使用 telbivudine 治療的成本效益。

材料與方法：本研究以健保局觀點，使用臺灣慢性 B 型肝炎患者治療之臨床醫學參數及相關治療成本，並透過決策分析模式對 e 抗原陽性慢性 B 型肝炎病患進行模擬，探討接受不同治療方案之成本效用分析。電腦模擬模式以 1 年爲一個循環週期，模擬終點追蹤直到虛擬族群中所有病患均死亡爲止，評估計算相關成本、品質校正生活年、終身健康照護成本及效用。主要三個評估治療方案包括(一)未使用任何抗病毒藥物。(二)使用 lamivudine 治療 2 年。(三)使用 telbivudine 治療 2 年。研究最終以品質校正生活年作爲終生照護之效用指標，成本及效用折現 3%，並對模式參數進行單維敏感度分析以了解結果之不確定性。

結果：將 e 抗原陽性病患使用 telbivudine 2 年與未接受任何抗病毒治療方案相比較結果發現使用 telbivudine 終生健康照護成本 NT$323,921，未接受任何抗病毒治療終生健康照護成本 NT$231,826，使用 telbivudine 治療會增加 NT$92,095。然而，在使用 telbivudine 治療後會比增加 3.99 QALYs。另外，比較 e 抗原陽性慢性 B 型肝炎病患使用 telbivudine 2 年與用 lamivudine 治療 2 年之結果發現，使用 telbivudine 終生健康照護成本 NT$323,921，較使用 lamivudine 高 NT$35,929，但使用 telbivudine 治療後會比 lamivudine 治療多 0.83QALYs，其遞增成本效益比爲 NT$43,225/QALY。

結論：從本研究之結果顯示，雖然使用 telbivudine 治療兩年之終生照護成本預期較使用 lamivudine 多 35,929 元，但使用 telbivudine 之後可多獲得 0.83QALYs，其遞增成本效益比爲 NT$43,225/QALY，顯示具成本效益。



### 英文摘要

Background and Objective: Chronic hepatitis B (CHB) infection is an important public health problem in Taiwan.The carrier rate of hepatitis B surface antigen

(HBsAg) is as high as 15% to 20% in Taiwan, one of the highest in the world. Patients with chronic HBV infection are at risk of developing cirrhosis or hepatocellular carcinoma (HCC). Once CHB patients get suitable treatment, the progression to further sequalae could be stopped. The benefits would not be only to the individual, but to the society as a whole. A recent study found that telbivudine is more effective than lamivudine in treating hepatitisB e antigen (HBeAg)-positive CHB patients, but its cost-effectiveness has not been evaluated. The aim of this study was to estimate the cost-effectiveness of telbivudine therapy for HBeAg–positive CHB patients in Taiwan.
Methods: We conducted a cost-effectiveness analysis by building a decision analytic model. This study adopted the National Health Insurance perspective. The analysis considered a lifetime horizon. A hypothetical population with HBeAg-positive CHB with mean age of 32 was simulated. Disease progression probabilities, treatment effectiveness, costs and quality-of-life data were obtained from published literature and a phase III Globe clinical trial. We assumed a treatment duration of 2 years. The strategies included in the model are: 1) no antivial therapy; 2) lamivudine treatment for 24 months; 3) telbivudine treatment for 24 months. Quality-adjusted life years, lifetime costs, and incremental cost-effectiveness ratios (ICERs) were estimated. Costs and benefits were discounted at 3% per annum.
Result: In the group of patients with HBeAg-positive chronic hepatitis, telbivudine treatment for 24 months group was the most effective yet the most expensive, compared with no antivial therapy group and lamivudine treatment for 24 months group. The cost of using telbivudine average lifetime was evaluated to be NT$323,921 while the cost for patients with no antivial therapy was evaluated to be NT$231,826. Although telbivudine therapy was more expensive than no antivial therapy, it could slow the disease progression. After adjustment for quality of life in the various HBV-related health status, patients using telbivudine treatment gain 21.31QALYs and patients not receiveing antivial therapy gain 17.32 QALYs. The gain in quality-adjusted life-years (QALYs) for patients using telbivudine treatment was 0.83 QALYs with an additional cost of 35,929 NTD, compared to patients with lamivudine treatment. Using telbivudine treatment cost an incremental NT$ 43,225 per quality-adjusted life year (QALY) gained.
Conclusion: In Taiwan, treatment of HBeAg-positive CHB patients, 24 weeks of telbivudine sequential antiviral therapies may be highly cost-effectiveness. Treatment with telbivudine may bring to much effectiveness in health care systems with limited resources, especially in those serving population with a high prevalence of HBeAg-positive CHB patients.