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Cost-effectiveness analysis for preventing hepatitis B virus reactivation-related death in Japan

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Background:

There is no worldwide standard recommendation for preventing hepatitis B virus (HBV) reactivation for patients with

resolved infection treated with an anti-CD20 antibody for B-cell non-Hodgkin lymphoma. This study aims to compare the cost-effectiveness between two commonly used strategies to prevent HBV reactivation-related death.

Methods:

The two strategies compared were prophylactic antiviral therapy (Pro NAT) and HBV DNA monitoring followed by on-demand antiviral therapy (HBV DNA monitoring) using entecavir (Entecavir, a generic drug for Baraclude). Effectiveness was defined as the prevention of death due to HBV reactivation and costs were calculated under the health insurance system of Japan as of April 2018 using Markov model. A cost-minimization analysis, one of the cost-effectiveness analyses, was applied, since the effectiveness was

the same between the two strategies according to a meta-analysis. To consider the effect of uncertainty for each parameter, probabilistic sensitivity analysis (PSA) was performed. In the scenario analysis, costs were calculated using lamivudine (Zefix) or tenofovir alafenamide (Vemlidy) instead of entecavir. All analyses were done using TreeAge Pro 2019 (TreeAge Software, Inc., MA, USA).

Results:

Estimated costs per patient during the 30 months after initiation of chemotherapy for lymphoma were 1,513 USD with Pro NAT and 1,265 USD with HBV DNA monitoring. A PSA revealed that HBV DNA monitoring was more consistently cost-effective compared with Pro NAT when some parameters were set randomly according to probability distributions. In our scenario analysis, costs of Pro NAT and HBV DNA monitoring were calculated as 2,762 and 1,401 USD using lamivudine, 4,857 and 1,629 USD using tenofovir alafenamide.

Conclusions:

Our cost-effectiveness analysis shows that an HBV DNA monitoring strategy using entecavir should be recommended for preventing HBV reactivation-related death in Japan.

Key messages:

- Cost-effectiveness analysis demonstrated that HBV DNA monitoring was more cost-effective compared to Pro NAT; this result was consistent with PSA.
- HBV DNA monitoring strategy should be recommended to prevent HBV reactivation-related death for the patients with resolved HBV infection in Japan.