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Cost-effectiveness and cost-utility of the treatment of chronic hepatitis B with peginterferon alfa-2a, interferon alfa, and lamivudine in Lithuania

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Key words: *cost-effectiveness; hepatitis B; interferon alfa; peginterferon alfa-2a; lamivudine; Lithuania.*

Summary. *Background. Chronic hepatitis B infection is an important health care problem worldwide. According to the World Health Organization, 10% to 15% of population is infected with hepatitis B virus. Nearly 100 new cases of acute hepatitis B are annually registered in Lithuania, but official statistics covers only 8–25% of all disease incidence. The aim of this study was to evaluate the cost-effectiveness of the treatment of chronic hepatitis B with peginterferon alfa-2a and compare it to treatment with interferon alfa and lamivudine in Lithuania.*

Material and methods. A Markov model was used to evaluate long-term cost-effectiveness of the treatment with peginterferon alfa-2a and to compare it with treatment with interferon alfa and lamivudine. Peginterferon alfa-2a was administered by subcutaneous injections at a dosage of 180 μg every week for 48 weeks; interferon alfa, 6 million IU three times a week for 24 weeks; and lamivudine, 100 mg per day from 48 weeks to 5 years for HBeAg-positive chronic hepatitis B and 100 mg per day up to 5 years in HBeAg-negative chronic hepatitis B.

Results. Treatment with peginterferon alfa-2a gained 1.179 life years as compared to 0.658 life years gained with treatment with interferon alfa; incremental costs per incremental life-year gained (LYG) were 51 256.92 Lt (14 845.03 €). Treatment with peginterferon alfa-2a gained 0.545 quality-adjusted life-years (QALYs) with incremental costs per incremental QALY of 48 980.08 Lt (14 185.61 €). Treatment with peginterferon alfa-2a had twice higher cost-effectiveness than treatment with interferon alfa: 50 4167.00 Lt (146 016.85 €) vs. 954 020.08 Lt (276 303.31 €), respectively. Costs for a complete response were also twice lower. Treatment with peginterferon alfa-2a gained 0.757 incremental LYG more compared to lamivudine (48-week course). Comparing incremental cost-effectiveness using peginterferon alfa-2a for treatment, incremental costs per incremental LYG were 41 993.67 Lt (12 162.21 €); additionally there was a gain of 0.792 incremental QALYs, while incremental costs for incremental QALY were 40 096.19 Lt (11 612.66 €). Complete response costs were 83 515.98 Lt (24 187.89 €) less compared to lamivudine (48-week course).

Conclusions. Treatment of chronic hepatitis B prolongs patients' overall survival and quality-adjusted life. Peginterferon alfa-2a was the most effective drug registered in Lithuania for CHB treatment.

Introduction

Chronic hepatitis B (CHB) infection is an important infectologic problem worldwide. About 10–15% of the world population has CHB infection, which causes acute infections, cirrhosis, hepatocellular carcinomas and account for about 2 million deaths worldwide (1). About 100 new CHB cases (107 cases in 2006 and 84 cases in 2007) are registered in Lithuania annually, but official statistics covers only 8–25% of all disease incidence (2). According to WHO experts, a real prevalence of disease is six times higher than based on official statistics. About 15% of population has detectable serum levels of serologic markers of hepatitis B virus (HBV) infection, and about 2% of population is CHB carriers (3). Epidemiologic data in Lithuania show that 70% to 80% of CHB patients are hepatitis B e-antigen (HbeAg) negative (1). According to the prevalence of CHB, Lithuania belongs to medium prevalence area, and no economic evaluations of CHB burden have been performed in the country (4).

According to current treatment guidelines in

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Lithuania, patients with HBeAg-positive CHB are treated with interferon alfa or lamivudine or with a combination of these drugs, and patients with HbeAg-negative CHB undergo long-term treatment with lamivudine up to 5 years. Currently, clinical trials show a higher effectiveness of peginterferon alfa-2a compared to interferon alfa (5) and lamivudine (6) in both (HBeAg-positive and HBeAg-negative) groups of CHB patients. Peginterferon alfa-2a in trials (5, 6) had higher combined response to treatment (HBeAg seroconversion, HBV-DNA reaction, and serum alanine transaminase [ALT] normalization) – 19%–36% of patients compared to 12% with interferon alfa and 23% with lamivudine.

Currently, interferon alfa and lamivudine are drugs most frequently used for CHB treatment in Lithuania. Often this treatment is ineffective because of disease progression, followed by cirrhosis and hepatocellular carcinoma. Disease progression can also evoke the need for liver transplantation. All these complications increase the health care costs and mortality rates and reduce quality of life.

The aim of this study was to evaluate the cost-effectiveness and cost-utility of CHB treatment using peginterferon alfa-2a and to compare it with treatment with interferon alfa and lamivudine in Lithuania.

Material and methods

The data analysis was performed considering only direct health care costs from the National Health Insurance Fund and benefits (clinical and economic) to health care.

Model description. Various medical and economic processes are worth to consider as dynamic processes or as a chain of events, when transitions from certain states are possible. Usually it is impossible to define the way of disease progress, but using the data from clinical trials, we can mathematically estimate transition probabilities. In this study, a Markov model was used for economic evaluation of long-term treatment with peginterferon alfa-2a and for comparison of its effectiveness with standard treatment with interferon alfa and lamivudine. The evaluation of cost-effectiveness and cost-utility in Lithuania was made for the treatment options with peginterferon alfa-2a.

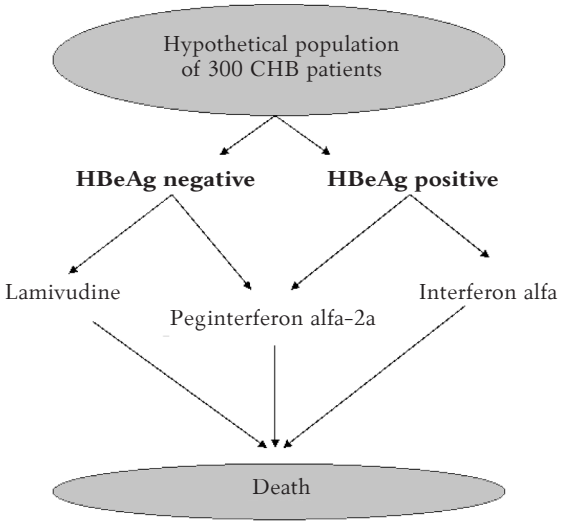

Fig. 1. General model of randomization

A hypothetical cohort of CHB patients with a mean age of 40 years was used in this model. Modeled population is similar to general population of Lithuania according to overall mortality rates and gender distribution. In the model, all patients have CHB at baseline when treatment is prescribed according to the alternative treatment options (Fig. 1).

Knowing all possible scenarios of disease course (Fig. 2) and particular transition probabilities (Table 1), it is possible to simulate the response of alternative treatment options to treatment.

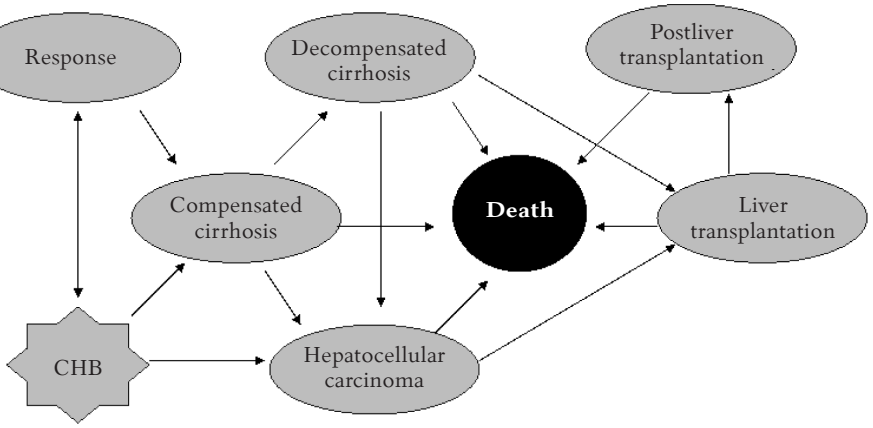

Fig. 2. Structure of the simulated model of chronic hepatitis B (CHB) course

Table 1. Annual transition probabilities between health states, based on clinical trials

Current state	Transition state (to)	Transition rate, % (low–high)	References
Response	CHB after peginterferon alfa-2a	25 (15–35)	6, 9
	CHB after lamivudine	50 (40–60)	10
	CHB after interferon alfa	19.3 (18.5–28.1)	5
	CHB spontaneous remission	6 (3–10)	11, 12
	Compensated cirrhosis	1.3 (1–2)	13
CHB	Compensated cirrhosis	9 (6–12)	14
	Hepatocellular carcinoma	0.83 (0.5–2)	15
	Spontaneous response	1.6 (1–3)	9, 12
Compensated cirrhosis	Decompensated cirrhosis	5 (2.3–5.6)	16
	Hepatocellular carcinoma	7.1 (2.8–7.1)	17
	Death	5.1 (3.4–5.1)	18
Decompensated cirrhosis	Hepatocellular carcinoma	2.5 (2–8)	16
	Liver transplantation	1.4 (0.05–3.1)	19
	Death	39 (23.5–40)	16
Hepatocellular carcinoma	Liver transplantation	0.08 (0.02–0.08)	20
	Death	37.2 (37–56)	21
Liver transplantation (first year)	After liver transplantation	85 (79–90)	19
	Death	15 (10–21)	19
Liver transplantation (later years)	Death	1.5 (1–5.7)	19

CHB, chronic hepatitis B.

In the model, patients are treated by alternative treatment options and are followed up to death. Using the Markov model and annual transition probabilities for different health states, costs and benefits were evaluated for a hypothetical CHB cohort for all alternative treatment options with peginterferon alfa-2a, interferon alfa, and lamivudine. After treatment completion, based on data from clinical trials (5, 7), patients achieve response status (peginterferon alfa-2a, 41%; lamivudine, 28%; and interferon alfa, 26%). All other patients remain in CHB state. The study period covers the period from treatment initiation to patient's death (natural or caused by disease) and is divided into annual cycles, known as Markov cycles, when transitions between health states are possible (according to annual probabilities) (8).

Data. In a Markov model, patients can move from one health state to another according to annual transition probabilities (rates), based on experimental clinical trials (Table 1).

In the model, the same probabilities of transition between health states were used for HBeAg-positive and HBeAg-negative patients. Current evidence shows the differences in disease severity and progression comparing HBeAg-positive and HBeAg-negative patients. These differences are mainly associated with patient's age as HBeAg-negative CHB is more common among older patients. Thus, as suggested in previous studies, we use the same model for HBeAg-positive and HBeAg-negative patients (12, 19, 22).

Quality of life. The parameters of quality of life were retrieved from previous studies (Table 2). In this model, the same quality-of-life coefficients were used for HBeAg-positive and HBeAg-negative patients.

Medications and their dosage. In the analysis, the drugs were used according to the guidelines for CHB treatment and drug annotations. The price of peginterferon alfa-2a was calculated according to producer's price for Lithuania and national drug price calculation methodology for compensated drugs. Peginterferon alfa-2a was administered

Table 2. The impact of hepatitis B-related health states on quality of life

Disease state	Quality of life		Reference
	Coefficient	Confidence interval	
Response	1.0	0.98–1.0	21
Chronic viral hepatitis B	0.95	0.9–0.95	21
Compensated cirrhosis	0.9	0.8–0.92	21
Decompensated cirrhosis	0.54	0.5–0.65	11
Hepatocellular carcinoma	0.5	0.3–0.5	21
Liver transplantation (first year)	0.5	0.5–0.6	23
Liver transplantation (later years)	0.7	0.6–0.8	23
Death	0.0	0.0–0.0	Arbitrary value

by subcutaneous injections at a dosage of 180 μg weekly for 48 weeks; interferon alfa, 6 million IU 3 times weekly for 24 weeks; and lamivudine, 100 mg per day from 48 weeks to 5 years for HBeAg-positive patients and 100 mg per day for 5 years for HBeAg-negative patients. In Lithuania, the costs of the complete treatment course with peginterferon alfa-2a (48 weeks) are 33 791.52 Lt per patient; interferon alfa (24 weeks), 7695.79 Lt; lamivudine (48 weeks), 2847.84 Lt; and lamivudine (5 years), 15 468.18 Lt.

Health care costs. This analysis was performed using the price list of the National Health Insurance Fund and the Ministry of Health. Treatment costs were evaluated for every CHB health state depending on inpatient treatment type, outpatient consultations, examinations, and their reimbursement from the National Health Insurance Fund (Table 3).

Table 3. Annual costs per patient for different health states

Treatment	Average costs, Lt
Long-term virologic response	51.60
Chronic hepatitis B	206.40
Compensated cirrhosis	3163.50
Decompensated cirrhosis	8417.60
Hepatocellular carcinoma	24 005.10
Liver transplantation (first year)	253 723.40
Liver transplantation (later years)	52 005.90

Economic evaluation. The evaluation of cost-effectiveness and cost-utility was made considering the data from previous experimental trials. For comparison of peginterferon alfa-2a with standard CHB treatment, the cost-effectiveness analysis was performed. This allows evaluating the economic costs associated with the disease progression and survival changes.

Cost-effectiveness analysis. This is one of the main methodologies in health economics. The aim of such analysis is to compare the competing interventions in terms of costs per unit of consequence (the same consequence for every treatment alternative). Costs are measured in monetary units while effects are measured in natural units (e.g., hospitalization rates, disease progression, and survival changes).

In cost-effectiveness analysis, the incremental effectiveness is assessed compared to incremental costs using the incremental cost-effectiveness ratio (ICER), which is calculated according to the following formula:

$$ICER = iC/iE \quad (24),$$

where iC indicates incremental costs and iE indicates incremental effectiveness.

In our analysis, only direct costs were evaluated and compared while administering peginterferon alfa-2a, interferon alfa, and lamivudine. Incremental effectiveness was assessed comparing incremental costs of alternative treatment options.

Cost-utility analysis. This is a part of cost-effectiveness evaluation. The aim of this analysis is to compare different interventions in terms of both quantity and quality of life. In this case, competing CHB treatment options were compared in terms of costs per quality-adjusted life-year (QALY) (25–27). For the analysis, we accounted QALY units in terms of qualitative measure (quality of life) and quantitative measure (duration of life).

Discounting. In our Markov model, costs and benefits were discounted at 5% annual rate in order to adjust for long-term changes in treatment costs and outcomes.

Sensitivity analysis. Sensitivity analysis allows predicting outcome changes if the situation is different compared to the basic prediction model (base case) (28). The sensitivity analysis was performed considering lower and upper limits of confidence intervals for treatment effectiveness from clinical trials.

Results

In our Markov model, we performed the life expectancy simulations based on expectancy probabilities for general population of Lithuania. The differences in life expectancy and quality of life were assessed comparing alternative treatments for a cohort of CHB patients.

Results from chronic hepatitis B model. The highest life expectancy gain was achieved with peginterferon alfa-2a (1.179 LYG per patient), and the lowest gain was achieved with lamivudine (48 weeks) (0.423 LYG per patient) (Table 4).

According to our model results in the cohort of CHB patients, differences in QALYs gained comparing alternative treatments showed that the

Table 4. Life-years and quality-adjusted life-years (QALYs) gained in patients with chronic hepatitis B using different treatment alternatives

Treatment strategy		Life-years gained	Incremental QALYs
Lamivudine (48 weeks)	Pessimistic	0.341	0.356
	Realistic	0.423	0.442
	Optimistic	0.542	0.566
Lamivudine (5 years)	Pessimistic	0.94	0.982
	Realistic	1.104	1.153
	Optimistic	1.337	1.397
Peginterferon alfa-2a	Pessimistic	0.849	0.888
	Realistic	1.179	1.234
	Optimistic	1.853	1.944
Interferon alfa	Pessimistic	0.501	0.524
	Realistic	0.658	0.689
	Optimistic	0.976	1.024

Table 5. Cost-effectiveness results

Treatment strategy	Total costs, Lt	Life-years gained	ICER Incremental costs per life-year gained, Lt	QALYs gained	ICER Incremental costs per QALY gained, Lt
Peginterferon alfa-2a	141 166.76	1.179	Reference	1.234	Reference
Interferon alfa	114 482.41	0.658	51 256.92	0.689	48 980.08
Lamivudine (48 weeks)	109 398.55	0.423	41 993.67	0.442	40 096.19
Lamivudine (5 years)	123 876.51	1.104	230 229.69	1.153	214 785.71

ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life-year.

highest QALY gain was achieved with peginterferon alfa-2a (1.234 QALYs gained per patient), while the lowest with lamivudine (48 weeks) (0.442 QALYs gained per patient) (Table 5).

Cost-effectiveness evaluation. In case of the HBeAg-positive CHB status, treatment with peginterferon alfa-2a was compared to treatment with interferon alfa, and in case of HbeAg-negative status, peginterferon alfa-2a to lamivudine. The main results of the cost-effectiveness evaluation are presented in Table 5.

The study results showed that CHB treatment with peginterferon alfa-2a added 0.521 life-years and 0.545 QALYs gained as compared to treatment with interferon alfa.

The incremental cost-effectiveness ratio for the treatment with peginterferon alfa-2a compared to lamivudine was 41 993.67 Lt per LYG and 40 096.19 Lt per QALY gained. Treatment with peginterferon alfa-2a added 0.075 life-years and 0.081 QALYs gained as compared to treatment with lamivudine (5 years).

Treatment with peginterferon alfa-2a compared to interferon alfa had almost two times higher cost-effectiveness per complete response (504 167.00 Lt vs. 954 020.08 Lt). Costs for a patient with complete response were by 449 853.08 Lt lower. Respectively, comparing peginterferon alfa-2a with lamivudine, the complete response was achieved by 83 515.98 Lt lower costs.

Sensitivity analysis. The main results of sensitivity analysis are presented in Table 6.

According to sensitivity analysis, the costs for CHB treatment with peginterferon alfa-2a in Lithuania ranged between 24 412.64 Lt and 230 229.69 Lt per life-year gained and from 23 246.59 Lt to 214 785.71 Lt per quality-adjusted life-year. The treatment with peginterferon alfa-2a was more effective in many cases than treatment with lamivudine and interferon alfa. Incremental effectiveness was achieved at reasonably higher treatment costs.

Discussion

Peginterferon alfa-2a in vitro demonstrates antiviral and antiproliferative activity. According to clinical trials, the effectiveness of CHB treatment with peginterferon alfa-2a was higher compared to treatment with interferon alfa and lamivudine. Peginterferon alfa-2a is superior to lamivudine not only due to better effectiveness, but also due to its dual effect as it demonstrates immunomodulating and antiviral effects.

There are 7 different HBV genotypes known (29), but it is still unknown what genotypes are most prevalent in Lithuania. There is no YMDD HBV testing to assess the resistance to lamivudine. Not every new drug and treatment technology in Lithuania are assessed for its economic benefits compared to alternatives. In many cases, the most important factor in decisions on investment in a new technology is the budget funding and the investment costs.

According to our results, the costs of treatment with peginterferon alfa-2a were higher by 35 068.21 Lt than lamivudine (48 weeks), by 17 290.25 Lt than lamivudine (5 years), and by 26 684.35 Lt than interferon alfa. Such results are in accordance with previous studies where treatment with peginterferon alfa-2a was more expensive by 4912.14 $ than lamivudine

Table 6. Sensitivity analysis for treatment with peginterferon alfa-2a

Comparison/assumption	Incremental cost-effectiveness ratio, Lt		
	Base case	Lower bound	Upper bound
Comparing with interferon alfa			
Costs per life year gained	51 256.92	76 081.14	30 592.25
Costs per quality-adjusted life years	48 980.08	72 775.08	29 146.55
Comparing with lamivudine (48 weeks)			
Costs per life year gained	41 993.67	61 904.46	24 412.64
Costs per quality-adjusted life years	40 096.19	59 169.45	23 246.59
Comparing with lamivudine (5 years)			
Costs per life year gained	230 229.69	–187 768.13	33 561.39
Costs per quality-adjusted life years	214 785.71	–181 602.01	31 708.79

(48 weeks) in Taiwan (11 547.5 Lt)[1] (19) and by 3100 £ (13 526.85 Lt)[2] in the United Kingdom (29).

According to our model data, the course of hepatitis B treatment with peginterferon alfa-2a gains 0.757 life-years and 0.792 quality-adjusted life-years as compared to lamivudine (48 weeks). These results are similar to the study in Taiwan (19) where treatment with peginterferon alfa-2a gained 0.66 life-years and 0.45 QALYs; the results from the study carried out in the United Kingdom indicated that gain was 0.3 quality-adjusted life-years (29). A study by Sullivan et al. found that gain was 0.33 life years and 0.41 quality-adjusted life-years compared to treatment with lamivudine (48 weeks) (30).

Our results demonstrated that the treatment with peginterferon alfa-2a in Lithuania would increase average treatment costs, but complete response would be achieved by lower costs, i.e., 83 515.98 Lt less than complete response with lamivudine. Treatment with peginterferon alfa-2a offers considerably better long-term outcomes. Although there is no consensus on an ICER threshold value yet, in many countries they are defined. The cost-effectiveness threshold value ranged from $50 000 to $100 000 (120 000–240 000 Lt) per quality-adjusted life-year gained (31). According to recommendations, the treatments which incremental effectiveness value does not exceed this range, are regarded as adequate, and in some countries for oncology the range of ICER threshold value is usually much higher (31).

The main limitation of this analysis is that the data used in our Markov model were gathered from other studies. Our analysis by chance may be biased because of differences in methodologies used, data fragmentation, and our assumptions. We lack available data from clinical trials on the disease progression from one state to another; all data are available only about short periods of observations. In our model, we used these data to represent life-long results. Compared to previously published studies, we used an advanced Markov model taking into account the drug resistance, which increases the treatment costs and hospital service use in CHB treatment. This partly could explain higher CHB treatment costs in Lithuania compared to other countries.

[1]Currency exchange rate of the Central Bank of the Republic of Lithuania on September 25, 2008.
[2]Currency exchange rate of the Central Bank of the Republic of Lithuania on September 25, 2008.

Conclusions

Treatment of chronic hepatitis B with peginterferon alfa-2a in HBeAg-positive patients gained 0.52 life-years and 0.545 quality-adjusted life-years. Treatment with peginterferon alfa-2a compared to interferon alfa had almost two times higher cost-effectiveness per complete response (504 167.00 Lt vs. 954 020.08 Lt), i.e., the costs per complete response were by 449 853.08 Lt lower. The incremental cost-effectiveness ratio was 51 256.92 Lt per life-year gained and 48 980.08 Lt per quality-adjusted life-year.

Treatment of chronic hepatitis B with peginterferon alfa-2a in HBeAg-negative patients gained 0.757 life-years and 0.792 quality-adjusted life-years. The costs per complete response for peginterferon alfa-2a were by 83 515.98 Lt lower than for lamivudine. The incremental cost-effectiveness ratio was 41 993.67 Lt per life-year gained and 40 096.19 Lt per quality-adjusted life-year.

Acknowledgment

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Lėtinio hepatito B gydymo peginterferonu alfa-2a, interferonu alfa ir lamivudinu ekonominis sąnaudų veiksmingumo ir sąnaudų naudingumo vertinimas Lietuvoje

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Raktažodžiai: ekonominis vertinimas, hepatitas B, interferonas alfa, peginterferonas alfa-2a, lamivudinas, Lietuva.

Santrauka. *Įvadas*. Lėtinio hepatito B viruso infekcija – viena svarbiausių infektologijos problemų pasaulyje. Pasaulio sveikatos organizacijos (PSO) duomenimis, apie 10–15 proc. pasaulio gyventojų yra užsikrėtę šiuo virusu. Lietuvoje kasmet užregistruojama apie 100 naujų ūminio hepatito B atvejų, tačiau oficialus užregistruotas sergamumas šia liga sąlygoja tik 8–25 proc. oficialioje statistikoje užregistruotų virusinių hepatitų atvejų. Šios analizės tikslas – palyginti ir įvertinti peginterferono alfa-2a ekonominį veiksmingumą gydant lėtinį virusinį hepatitą B Lietuvoje, lyginant su interferonu alfa arba lamivudinu.

Tyrimo medžiaga ir metodai. Siekiant įvertinti ilgalaikį gydymo peginterferonu alfa-2a ekonominį veiksmingumą Lietuvoje bei palyginti jį su interferono alfa arba lamivudino veiksmingumu, šioje analizėje pritaikytas Markovo grandinių ekonominio modeliavimo metodas. Įvertintas gydymo peginterferonu alfa-2a sąnaudų veiksmingumas (s1naudų efektyvumas, angl. *cost-effectiveness*) ir sąnaudų naudingumas (s1naudų naudingumas, angl. *cost-utility*). Peginterferono alfa-2a skiriama po 180 μg injekcijomis į poodį, kas savaitę, gydymo trukmė – 48 savaitės. Interferono alfa skiriama 6 mln. TV tris kartus per savaitę, 24 savaites. Lamivudino skiriama 100 mg per dieną nuo 48 savaičių iki penkerių metų esant lėtiniam hepatitui B su teigiamu HBeAg rodikliu ir 100 mg per dieną iki penkerių metų su neigiamu HBeAg rodikliu.

Rezultatai. Taikant gydymą peginterferonu alfa-2a laimima papildomų 1,179 gyvenimo metų, o skiriant interferono alfa – 0,658 papildomų gyvenimo metų, t. y. taikant gydymą peginterferonu alfa-2a, laimima 0,52 papildomų gyvenimo metų daugiau, o papildomos sąnaudos papildomiems gyvenimo metams yra 51 256,92 Lt (14 845,03 eurų). Taikant gydymą peginterferonu alfa-2a, laimima 0,545 papildomų kokybiškų gyvenimo metų daugiau, o papildomos sąnaudos papildomiems kokybiškiems gyvenimo metams yra 48 980,08 Lt (14185,61 eurų). Be to, gydymas peginterferonu alfa-2a yra beveik du kartus veiksmingesnis už gydymą interferonu alfa (504 167,00 Lt (146 016,85 eurų), palyginti su 954 020,08 Lt (276 303,31 eurų)) – atsakas pasiekiamas dukart mažesnėmis sąnaudomis.

Lyginant peginterferoną alfa-2a su lamivudinu (48 savaičių kursas), taikant gydymą peginterferonu alfa-2a, laimima 0,757 papildomų gyvenimo metų daugiau. Vertinant inkrementinį kaštų efektyvumą, papildomos sąnaudos papildomiems gyvenimo metams, skiriant gydymui peginterferono alfa-2a, yra 41 993,67 Lt (12 162,21 eurų). Be to, taikant gydymą peginterferonu alfa-2a, laimima 0,792 papildomų kokybiškų gyvenimo metų daugiau, o papildomos sąnaudos papildomiems kokybiškiems gyvenimo metams yra 40 096,19 Lt (11 612,66 eurų). Visiškas atsakas pasiekiamas mažesnėmis sąnaudomis, t. y. gydymas peginterferonu alfa-2a kainuoja 83 515,98 Lt (24 187,89 eurų) mažiau.

Išvados. Hepatito B gydymas prailgina pacientų gyvenimo ir kokybiško gyvenimo trukmę. Peginterferonas alfa-2a yra šiuo metu veiksmingiausias Lietuvoje registruotas medikamentas lėtiniam hepatitui B gydyti.

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