

Summary

Cost-Utility Analysis of Antithyroid Drug Therapy versus ^{131}I Therapy for Graves' Disease

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There is no comparative cost-utility study between ^{131}I therapy and antithyroid drugs (ATD) therapy for Graves' disease, though ^{131}I therapy has higher remission rate and less side effects. The objective of the study was to analyze the cost-utility of ATD therapy versus ^{131}I therapy by calculating life-long medical costs and utility, based on the responses of Graves' disease patients to questionnaires. To determine the expected cost and expected utility, a decision tree analysis was designed on the basis of the 2 competing strategies of ATD therapy versus ^{131}I therapy. A simulation of 1,000 female patients weighing ≥ 50 kg who assumed to experience the onset of Graves' disease at the age of 30, to first complain of thyrotoxic symptoms and moderate goiter 2–3 mo. previously, and to undergo a 40-years-long cohort study, was created for each strategy using a decision tree and baselines of

other relevant variables. The variables and costs were based on the literature and hospital bills. The maximum and minimum values of utility were defined as 1.0 and 0.0, respectively. Future costs and utilities were discounted 5%. The medical costs and utilities were 85,739–88,650 yen/patient/40 years and 16.47–16.56/patient/40 years, respectively, for the ATD therapy strategy, and 81,842 yen/patient/40 years and 17.41/patient/40 years, respectively, for the ^{131}I therapy strategy. These results quantitatively demonstrated that the ^{131}I therapy strategy was superior to the ATD therapy strategy in terms of both cost and utility. ^{131}I therapy should be used more widely in Japan because of its greater utility and lower cost.

Key words: Grave's disease, Radioiodine therapy, Antithyroid drug, Cost-benefit analysis.