Summary

Cost-Effectiveness of Exercise $^{201}$Tl Myocardial SPECT in Patients with Chest Pain Assessed by Decision-Tree Analysis

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To evaluate the potential cost-effectiveness of exercise $^{201}$Tl myocardial SPECT in outpatients with angina-like chest pain, we developed a decision-tree model which comprises three 1000-patient groups, i.e., a coronary arteriography (CAG) group, a follow-up group, and a SPECT group, and total cost and cardiac events, including cardiac deaths, were calculated. Variables used for the decision-tree analysis were obtained from references and the data available at our hospital. The sensitivity and specificity of $^{201}$Tl SPECT for diagnosing angina pectoris, and its prevalence were assumed to be 95%, 85%, and 33%, respectively. The mean costs were $84.9 \times 10^4$ yen/patient in the CAG group, $30.2 \times 10^4$ yen/patient in the follow-up group, and $71.0 \times 10^4$ yen/patient in the SPECT group. The numbers of cardiac events and cardiac deaths were 56 and 15, respectively in the CAG group, 264 and 81 in the follow-up group, and 65 and 17 in the SPECT group. SPECT increases cardiac events and cardiac deaths by 0.9% and 0.2%, but it reduces the number of CAG studies by 50.3%, and saves $13.8 \times 10^4$ yen/patient, as compared to the CAG group. In conclusion, the exercise $^{201}$Tl myocardial SPECT strategy for patients with chest pain has the potential to reduce health care costs in Japan.

Key words: Decision tree analysis, Cost-effectiveness, $^{201}$Tl, Myocardial SPECT, Chest pain.