

Cost-effectiveness analysis of ultrasonography screening for non-alcoholic fatty liver disease in metabolic syndrome patients

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Abstract

Background & Aims: Non-alcoholic fatty liver disease (NAFLD) can be early diagnosed by noninvasive ultrasonography. Currently, there is no cost-effectiveness analysis of ultrasonography screening with intensive weight reduction program in metabolic syndrome patients. This study aimed to estimate costs and clinical outcomes of such program in Thailand. **Methods:** A cost-effectiveness analysis using decision tree and Markov models to estimate lifetime costs and health benefits of screening program versus no screening based on a cohort of 509 Thai metabolic syndrome patients from the largest university hospital in Thailand under societal perspective was done. Effectiveness and utility parameters were based on literatures, while costs and mortality parameters were determined using Thailand database. Costs were presented as year 2014 United States Dollar (USD) values. The results were reported as incremental cost-effectiveness ratios (ICERs) in USD per quality-adjusted life year (QALY) gained with discount rate of 3%. A series of sensitivity analyses including a Monte Carlo simulation were performed to assess the influence of parameter uncertainty on the results.

Results: Ultrasonography screening of 50 years-old metabolic syndrome patients with intensive weight reduction program was cost-effective with ICERs of 958 USD/QALY gained when compared with no screening. According to willingness-to-pay of Thailand (4,848 USD/QALY gained), the probability of being cost-effective was 67%. Screening at ages before 45 years was cost-savings while screening at age between 45-64 years was cost-effective. **Conclusion:** For patients with metabolic syndromes, ultrasonography screening for NAFLD with intensive weight reduction program is a cost-effective program in Thailand. Our findings can be used as part of evidence-informed decision making.

This work is partly presented at [8th International Conference on Clinical Gastroenterology & Hepatology October 03-05, 2016](#)

