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Costs and Cost-Effectiveness of Four Treatment Regimens for Latent Tuberculosis Infection.

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RATIONALE: Isoniazid given daily for 9 months is the standard treatment for latent tuberculosis infection (LTBI), but its effectiveness is limited by poor completion rates. Shorter course regimens and regimens using directly observed therapy result in improved adherence but have higher upfront costs.
OBJECTIVES: To evaluate the costs and cost-effectiveness of regimens for the treatment of LTBI.
METHODS: We used a computerized Markov model to estimate total societal costs and benefits associated with four regimens for the treatment of LTBI: self-administered isoniazid daily for 9 months, directly observed isoniazid twice-weekly for 9 months, directly observed isoniazid plus rifapentine once weekly for 3 months, and self-administered rifampin daily for 4 months. In the base-case analysis, subjects were assumed to have newly positive tuberculin skin tests after recent exposure to infectious tuberculosis.
MEASUREMENTS AND MAIN RESULTS: We determined the costs of treatment, quality-adjusted life-years gained, and cases of active tuberculosis prevented. In the base-case analysis, rifampin dominated (less costly with increased benefits) all other regimens except isoniazid plus rifapentine, which was more effective at a cost $48,997 per quality-adjusted life year gained. Isoniazid plus rifapentine dominated all regimens at a relative risk of disease 5.2 times the baseline estimate, or with completion rates less than 34% for isoniazid or 37% for rifampin. Rifampin could be 17% less efficacious than self-administered isoniazid and still be cost-saving compared with this regimen.
CONCLUSIONS: In our model, rifampin is cost-saving compared with the standard therapy of self-administered isoniazid. Isoniazid plus rifapentine is cost-saving for extremely high-risk patients and is cost-effective for lower-risk patients.

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