

ACTIVATED VITAMIN D THERAPY FOR PATIENTS WITH END STAGE RENAL DISEASE ON HEMODIALYSIS: A COST-UTILITY COMPARISON OF EMPIRIC VERSUS USUAL CARE STRATEGIES Charles B. Arbogast, Stephen W. Olson, Robert M. Perkins, Washington, D.C., USA. Observational analyses conflict with respect to the impact of activated vitamin D therapy on survival, cardiovascular outcomes, and adverse events in patients on hemodialysis. We undertook a cost-utility analysis comparing standard activated vitamin D therapy targeting reduction in elevated serum parathyroid hormone levels with an empiric strategy in which all patients received activated vitamin D. The base case was a 61-year old with end-stage renal disease on hemodialysis. A Markov-Monte Carlo microsimulation was designed from the perspective of a third-party health care payer. A probabilistic sensitivity analysis was performed in order to capture model uncertainty. Patients were followed over a projected lifetime. Two activated vitamin D strategies were compared; a 'standard' strategy, in which patients received activated vitamin D at a threshold serum intact parathyroid hormone level of 300 pg/ml, or an empiric strategy in which all patients were prescribed activated vitamin D. Cost data, measures of patient preferences for different health states, and probabilities of cardiovascular events, bone fractures, metabolic derangements, and mortality were drawn from published studies. The primary outcomes were cost (USD), effectiveness (Quality-adjusted life years, or QALYs), and the incremental cost-effectiveness ratio (cost/QALY). An empiric strategy was cost-effective at \$22,364/QALY compared with standard therapy. When using injectable paracalcitol alone in the empiric treatment arm, the cost effectiveness advantage is diminished substantially (\$229,014/QALY). In the sensitivity analysis, an empiric strategy was cost-effective 43% of the time. The expected value of perfect information at a societal willingness-to-pay of \$50,000/QALY was \$698M for the US population of maintenance hemodialysis patients with heart disease between the ages of 60-64. An empiric activated vitamin D strategy is cost-effective when compared with usual care. These findings are sensitive to the costs associated with specific formulations. Funding for randomized trials which include generic formulations is warranted.

