AN APPROACH TO GENERALIZE CLINICAL TRIAL RESULTS TO NON-STUDY POPULATIONS FOR COST-EFFECTIVENESS EVALUATIONS—THE CASE OF THE COLLABORATIVE ATORVASTATIN DIABETES STUDY (CARDS)

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OBJECTIVES: In The Collaborative Atorvastatin Diabetes Study (CARDS), atorvastatin 10mg reduced CHD (36%) and stroke (48%) in primary CVD prevention patients in the UK with type 2 diabetes compared to placebo. However the transferability of the clinical and economic benefits for treatment algorithms and populations beyond the UK are not known. Despite the fact that relative risk reductions are similar between different populations, baseline risk varies according to population. This study outlines an approach to estimate baseline risk in a non-study diabetes population and calculate cost-effectiveness therein using the trial treatment effect.

METHODS: A Markov model was developed using the UKPDS risk function to model the incidence of CHD and stroke assuming “no treatment”. The model allows recalculation of risk for non-study diabetes populations by substituting the UKPDS population, individual, and mean risk factors with those of the population of interest. The treatment effect is determined by multiplying estimated incidence rates by the hazard ratio observed for CHD and stroke in CARDS. Competing hazards are used to estimate non-CV mortality. Model endpoints include event rates, estimated costs, survival and QALYs gained associated with atorvastatin 10mg treatment. RESULTS: Validity was tested by substituting the CARDS trial population individual and mean risk factors with those from the UKPDS risk function. The re-calibrated UKPDS risk function resulted in four-year “no treatment” CHD predicted risk of 6.70% vs. actual risk of 6.52% (97.4% of predicted value). The corresponding stroke incidences were 2.37% and 2.48% (104.8% of predicted value). CONCLUSION: This approach improves the external validity by using the annual adjustment of baseline risk and maintains the internal validity by using observed clinical trial treatment effects. The re-calibrated model accurately predicted the incidence rates observed in the CARDS trial and enhances generalizability of clinical results to a non-study, non-UK population of diabetes patients.

PATIENT ADHERENCE TO AHA GUIDELINES PRE- AND POST AMI

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OBJECTIVE: For patients that suffered from an acute myocardial infarct (AMI), the 2001 guidelines of the American Heart Association (AHA) recommend indefinite treatment with 1) statins; 2) beta-blockers; 3) ace inhibitors or, if not tolerated, angiotensin-receptor blockers; and 4) aspirin. This study investigates how the recommendations are followed by patients and physicians as observed in pharmacy claims.

METHODS: Retrospective, claims database study performed using data from a large health insurer in the Mid-Atlantic region. Patients were selected if they had an initial AMI episode (ICD-9 Code: 410. X 1) between January 1, 2002 and August 31, 2004. These patients were then matched to their pharmacy claims between January 1, 2001 and December 31, 2004. For each patient, adherence is defined as the proportion of days covered.

RESULTS: A total of 1958 patients were identified. The mean age was 60 years and 58% were male. Overall post-AMI adherence rates with recommended therapy were as follows: 1) statins: 43%; 2) beta-blockers: 45%; 3) ace inhibitors or ARB’s: 36%. Requiring at least 6 months (1 year, 2 years) of follow-up data post discharge, adherence rates drop to 1) statins: 42% (40%, 35%); and 2) beta-blockers: 43% (41%, 35%), ace-inhibitors or ARB’s: 35% (33%, 29%). A total of 13% of patients can be defined as adherent to the AHA recommendations, filling more than 80% of all recommended prescriptions, whereas 19% of patients have filled zero of the recommended prescriptions. Notably, 12%-15% of patients were receiving at least one of the drugs even before their first AMI. In this subgroup adherence rates decrease after the AMI by 1) statins: 20%; and 2) beta-blockers: 22%, ace-inhibitors or ARB’s: 30%. CONCLUSION: The AHA post-AMI treatment recommendations are followed only by a minority of patients. In addition, mean adherence rates drop after the AMI if the patient was receiving prophylactic therapy.