atypical antipsychotics (olanzapine, risperidone, quetiapine, and ziprasidone) using different definitions of persistence and data-cutting criteria to assess their impact on the results and conclusions. METHODS: Using the Pennsylvania Medicaid database (January 1999–June 2003), patients diagnosed with schizophrenia, aged 18–64 who initiated an antipsychotic of interest after a 3-month period without the index drug were identified. A treatment episode was defined as the period from the initiation date of index medication to the first medication gap. To assess the effect of methodological changes on study outcomes three methodologies were implemented: 1) 30- vs. 90-day gap to define treatment discontinuation; 2) multi-episode vs. first- or last-episode; and 3) 1-year fixed study duration. RESULTS: Using a 30-day gap to define treatment discontinuation, 43,491 treatment episodes were identified (olanzapine = 16,709, risperidone = 14,847, quetiapine = 8648, ziprasidone = 3287) for 24,365 patients. Average duration of these episodes was 211, 197, 180, 130 days, respectively for olanzapine, risperidone, quetiapine, and ziprasidone and increased to 233, 236, 201, and 144 days respectively using the last episode approach. Imposing a fixed 1-year study duration effectively truncated the longer treatment episodes and had a different impact on the persistence of olanzapine (190 days), risperidone (183 days), quetiapine (170 days), and ziprasidone (143 days). Similar patterns were observed using a 90-day gap criteria. CONCLUSION: In claims database studies, the approaches used to define persistence and treatment episodes affect the persistence of individual medications and may impact the outcomes and conclusions of a persistence study. It is critical, therefore, to carefully consider the analysis criteria and the use of sensitivity analysis with multiple data-cutting scenarios in order to provide a better understanding of the data.

A MULTI-DOMAIN MICRO-SIMULATION ECONOMIC MODELING FRAMEWORK IN ALZHEIMER’S DISEASE

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OBJECTIVES: To develop a stochastic multi-domain micro-simulation model for evaluation of cost-effectiveness and long-term outcome in Alzheimer’s disease. METHODS: Key disease indicators (e.g. cognitive function, functional abilities—ADLs and care setting) were simulated over time for individual patients using regression functions derived from longitudinal observational data. Micro-simulation of each individual patient enables incorporating individual variability over time into the model, i.e. the disease progression depends on individual characteristics and previous progression rates. The disease indicators together with patient characteristics were used to predict the need for healthcare services and ultimately the need for full-time care. RESULTS: The model simulated individual patients estimating cognitive function, physical function, resource utilization and care setting for each 6 months period until the event of death. Average disease progression rates and estimated resource use well corresponded to what have been observed in clinical practice. CONCLUSION: Existing models stratify patients into artificial cohorts using single domains (typically either cognition or care setting) thereby neglecting important explanatory variables and limiting the extent to which individual variability can be modeled. The proposed model provides a dynamic simulation framework completely based on regression functions. This enables inclusion of all relevant disease indicators and incorporation of individual variability into disease progression functions. The proposed model can be used for economic evaluation of any treatment intervention.