vant chemotherapy (ACT). The collection and assessment of data inputs for a U.S. economic model using this prognostic system was reported. Methods: A database and Tufts CECA Registry were searched for model parameters using the following terms and MeSH headings: NSCLC, adjuvant chemotherapy, recurrence, utilization, economics, cost, quality of life, utility, cost-effectiveness, utility—benefit. Inclusion criteria were: randomized controlled trials and decision analytic models, health technology assessments, North American and European studies, quality of life analyses, and early lung cancer. Results: were limited to full text and English articles. We also assessed relevant references listed in these articles. Results: The search yielded one meta-analysis and 7 RCTs assessing ACT in resected NSCLC. These studies report survival (HR 0.75–0.95 favoring ACT), ACT toxicity (30–85% experiencing grade 3-4 toxicity), and stage distribution (Stage IA-7.6%, IB-29.9%, II-35.3%, III-27.2%). They also include disease free survival (HR 0.66-0.98 favoring ACT), but not stratified by NSCLC stage. Monthly cost of NSCLC was found in two studies (initial $5,255-11,496, continuing $2,602-3,733, terminal $8999-16,470). Two studies reported the U.S. cost of ACT treatment ($54,981-369,464, with grade 3-4 events) and one reported a range of cost for early to NSCLC including one with values related to ACT and toxicity with values varying from 0.60 to 0.75. Data reporting current U.S. ACT utilization was not identified. Conclusions: Early NSCLC literature contains the majority of data in summary form, limiting comparisons. Limitations exist, specifically regarding relevance by stage, current ACT utilization and cost of health care resources. These limitations can be overcome using expert opinion, assumptions for guideline adherence and/or conducting observational studies to inform the model.

PRM85 ANALYSIS OF CAUSAL RELATIONS IN STROKE REGISTRY DATA

van Haalen H.G.M., Niewada M.1
1Institute of Econometrics, Warsaw School of Economics, Warsaw, Poland, 2Department of Experimental and Clinical Pharmacology, Medical University of Warsaw, Warsaw, Poland

Objectives: To explore the leading causes of death and disability that represents substantial clinical and economic burden. Understanding treatment patterns and causal relations may help e.g. to identify outcomes predictors and cost drivers. We present a new registry of stroke patients in Poland containing detailed characteristics (demographics, risk factors, prestroke disability, stroke severity), hospital management, treatment outcomes and drugs (pre-admission, during hospitalization, and prescribed at discharge). We used inferred causation approach that deduces causal (and relevant non-causal) interpretation (conditional) independence. In this primary analysis we used 5000 observations from 2007/2008 year, binary variables and assumed no hidden variables. We used Tetrad 4.3.10-6 with PC algorithm. Variables were grouped into five tiers, a priori forbidding some directions of causal influence. Large number of variables led us to a restrictive significance level (p<0.0001).

Results: New insight can be gained from existence, lack of, and the direction of causal relations. Our results: confirmed (without imposing prior knowledge) the role of anticoagulants in reducing vascular events by reducing risk factors and natural sequence of drug management (drugs used prior to, in acute stroke and at discharge), surprisingly suggested no causal relation between some clinical characteristics and drug use (e.g. history of stroke/diabetes and oral anticoagulants) or acute stroke treatment (e.g. aspirin, thrombolyse, stroke unit based treatment) and mortality/post-stroke disability; determined the causal direction between some risk factors (e.g. hypertension and diabetes, gender and AF) or patient history and path of the disease (e.g. stroke at the time of the PLATO trial registration or between periods of disease). Without accurately knowing how long these periods are.

Conclusions: A Markov model is estimated which distinguishes between three time periods and between fatal and non-fatal events. A likelihood function is derived as well as a Bayesian procedure to estimate the model parameters. The approach is tested using simulated data. Subsequently, event free survival data and overall survival data comparing ticagrelor with clopidogrel are taken from the Kaplan-Meier curves presented in the published trial. The model is estimated using these data.

Results: Using simulated data the model mimics the data generating process perfectly and the approach seems quite powerful in distinguishing periods and different agent survival. Furthermore, the validation procedure as applied to the PLATO study conclude from the model that ticagrelor lowers the probability to experience an event in the unstable and stable high risk disease periods.

PRM86 HOW TO SELECT THE RIGHT COST-EFFECTIVENESS MODEL? A SYSTEMATIC REVIEW AND STEPSWISE APPROACH FOR TRANSFERRING AN EXISTING HEALTH ECONOMIC MODEL FOR RHEUMATOID ARTHRITIS

van Haalen H.G.M., Tran-Duy A., Boonen A., Severens J.L.1
1Erasmus University, Rotterdam, The Netherlands, 2Maastricht University Medical Center, Maastricht, The Netherlands

Objectives: To a) perform a systematic literature review to identify existing models for cost-effectiveness analysis of disease modifying anti-rheumatic drugs in Rheumatoid Arthritis, and b) to develop and test a method for the selection of an economic model. Methods: A systematic literature search was performed using Medline, Embase, and the Cochrane Library. The search was restricted to studies of at least 6 months duration for 10 disease-modifying anti-rheumatic drugs. Only studies comparing at least two active treatments were included. Models that did not meet all minimal methodological requirements based on the OMERACT criteria were excluded. Second, the models were assessed based on their fit when transferred to the Dutch health care setting. Transferability factors as published by Welte et al., except for those that were deemed transferable by simple adaptation, were used for this ranking procedure. Finally, the remaining models underwent a general quality check using the Philips checklist. Models showing good fit and high transferability factors were declared to be transferable to the Dutch healthcare using simple adaptation. Results: The systematic literature search resulted in 498 papers, which included 33 unique health economic models. Only six models passed the inclusion criteria, thus requiring a stepwise approach for transferring parameters of a model for the Dutch health care setting. Conclusions: This approach can be applied in various therapeutic areas, provided that the minimal methodological requirements are defined accordingly. Availability of health economic models coupled with structured model selection could improve the efficiency, quality and comparability of health economic evaluations.

PRM87 FINAL VALIDATION OF THE SYRONE DIABETES MODEL

Zalewski A.1, Menézès G.2, Nagyjászsi L.3, Nagyvági S.3, Nagy B.3, Kaló Z.3, Vécsey Z.3
1Eötvös Loránd University, Budapest, Hungary, 2Syonen Research Institute, Budapest, Hungary

Objectives: The Syrone model was developed to predict the long term effects of oral antidiabetic therapy control of type 2 diabetes. After a successful internal validation the model’s outcomes need to be compared to outcomes of cohorts that were not used for the modeling exercise. The objective of this study was to demonstrate the model’s methods and results of the external validation. Methods: As a first step, we identified the applicable clinical trials and cohort studies which had not been used to build the model and simulated the patient cohorts for each study according to the published demographic, epidemiologic characteristics and treatment pattern. The incidence rates of the predicted and observed outcomes were calculated for comparison and the results were evaluated using statistical methods and expert opinion.

Results: 92 validation analyses were performed. The differences between the observed and predicted incidence rates were within the range of 0.44- and 0.001. The slope of the fitted linear regression line was 0.5326 while the R2 value was 0.6956. The macular oedema submodel presented the best fit and the estimated values from the foot ulcer submodel had the lowest accuracy compared with the observed data. Overall the performance was good however it frequently underestimated the incidence of the outcomes observed in the studies. This is most likely due to the limited information about the patient characteristics from the studies under evaluation. In most cases the information published about the population characteristics, treatment patterns and effectiveness were not sufficiently detailed to precisely match the model’s input parameters. Without sufficient information average values were used as input parameters, and this way the model presumably simulated healthier patient cohorts than the ones participated in the studies.

PRM88 DISENTANGLING EFFECTS ON FATAL AND NON-FATAL CARDIOVASCULAR EVENTS OVER TIME

Voskuil A.1, V. Van Hout B.2, Severens J.L.1
1PharmAC, Ltd., York, UK

Objectives: Within acute coronary syndromes (ACS), the risk of experiencing fatal and non-fatal cardiac events is highest immediately after diagnosis and decreases over time. It is well known that patients have up to three potential risk periods. The highest risk (unstable disease) period typically lasts up to 10 days from diagnosis. Patients then become more stable but are still at a high risk of events until approximately 30 days from diagnosis. Beyond 30 days patients are considered stable and at a lower risk of events. Different agents may be best suitable for different periods and may affect different events. The objective of this research is to estimate a model which enables the effects on fatal and non-fatal events following ACS to be disentangled. This is informative for the planning of disease-free without accurately knowing how long these periods are.

Methods: A Markov model is estimated which distinguishes between three time periods and between fatal and non-fatal events. A likelihood function is derived to estimate the model parameters. The approach is tested using simulated data. Subsequently, event free survival data and overall survival data comparing ticagrelor with clopidogrel are taken from the Kaplan-Meier curves presented in the published trial. The model is estimated using these data.

Results: Using simulated data the model mimics the data generating process perfectly and the approach seems quite powerful in distinguishing periods and different agent survival. Furthermore, the validation procedure as applied to the PLATO study conclude from the model that ticagrelor lowers the probability to experience an event in the unstable and stable high risk disease periods.

PRM89 A DE NOVO ECONOMIC MODEL TO ASSESS THE COST AND QUALITY OF LIFE CONSEQUENCES OF AN INTERVENTION FOR LEVODOPA INDUCED DYSKINESIA AMONG PATIENTS WITH PARKINSON’S DISEASE

Bhatcharayya S.1, Sacco F.2, Shiree RM.1, Sonathi V.1, Thomas S.2
1Novartis Healthcare Pvt. Ltd., Hyderabad, India, 2Novartis Pharmaceuticals Corporation, East Hanover, NJ, USA

Objectives: Emergence of long-term side effects of treating Parkinson’s disease (FD) patients with levodopa, particularly dyskinesia (levodopa induced dyskinesia-LID), limit the ability to optimally treat symptoms and consequences of FD. LID-LID with performance of activities of daily living, ambulation and balance and increases health care costs. There are no approved treatments and no studies examining cost-effectiveness of an intervention for FD-LID. Objective of the present study is to develop a de-novo economic model to identify the value drivers for a drug to be cost-effective for treatment of FD-LID. Methods: The model combines a short-term (6 months) decision tree, to determine initial response to the drug, with a long-term Markov approach to model transition of patients across LID severity over lifetime. The model classifies LID severity using modified Abnormal Involuntary Movement scale (mAIMS) with disease states defined as mild (0-12), moderate (13-18) and severe (19-24). Disease state specific costs includes costs of diagnosis, treatment, hospitalization, the use of antiparkinson medications, radiological examinations, hospitalizations, community/social services and unpaid services. State specific utilities were calculated and assigned based on the literature. Conclusions: Although these methods are simple, the ability to improve and halt worsening dyskinesia health states are the greatest value drivers of the treatment for FD-LID. More than 90% of costs were driven by medical costs. A treatment for FD-LID that results in 6-month response rate of at least 25% could increase the economic model of dyskinesia improving and 25% reduction in the probability of dyskinesia worsening results in a 0.28 QALY gain per patient.

Conclusions: This economic analysis suggests that a health care intervention that could improve the clinical parameters of dyskinesia can have significant beneficial impact on costs and utilities. Further studies are required.