PEY8

WHEN IS IT COST-EFFECTIVE TO TREAT OCULAR HYPERTENSION? RESULTS OF A DECISION-ANALYTIC HEALTH ECONOMIC MODEL

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OBJECTIVE: To assess the cost-effectiveness of treating ocular hypertension (OHT) in the United States. **METHODS:** Cost-effectiveness was estimated using a Markov model. Health states were stable and progressed OHT. Data from the Ocular Hypertension Treatment Study (OHTS) were used to derive practice patterns and transition probabilities. Data were obtained from Blue Cross/Blue Shield for specific unit costs for medications, patient visits, diagnostics, and therapeutic procedures. A payer perspective was adopted, the time horizon was 5 years, and costs were discounted at 3% per year. **RESULTS:** Across all OHT patients, the incremental cost-effectiveness ratio (ICER) was $89,072 to prevent 1 case from progressing to primary open-angle glaucoma. After adjusting for risk factors for progression identified in multivariate analysis in the OHTS trial, minimally cost-effective ICERs were: 20 years above the mean age of 56 years, ICER = $45,155; 4 mmHg above the mean intraocular pressure of 25 mmHg, ICER = $46,748; 40 microns less than the mean central corneal thickness of 573 microns, ICER = $36,683; and 0.2 wider than the mean vertical cup/disc ratio of 0.4, ICER = $35,633. **CONCLUSIONS:** This Markov model was based on the results and practice patterns of the OHTS trial, and the results suggest that treating all OHT patients may not be cost effective. However, treating OHT patients with risk factors for progression, i.e., advancing age, higher intraocular pressures, thinner central corneal thicknesses, and wider vertical cup/disc ratios, does appear to be cost-effective in preventing the onset of glaucomatous damage.

PEY9

ASSESSMENT OF THE COST-EFFECTIVENESS OF TRAVOPROST VERSUS LATANOPROST, AS SINGLE AGENTS FOR GLAUCOMA TREATMENT IN FRANCE

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OBJECTIVES: To assess the cost-effectiveness of travoprost versus latanoprost as single agents to treat glaucoma in France. **METHODS:** A Markov model reproduced the course, over 5 years, of patients beginning a prostaglandin as monotherapy (PM). The effectiveness criterion was 'mean time to treatment change' (MTTC), fitted with a Weibull distribution from a national survey. Possible switches were association (A), treatment substitution (TS) and laser treatment or surgery (LS). After LS, patients could remain without treatment or proceed to PM or TS. Stratification used intra-ocular pressure (IOP) at treatment onset: ≤20 mmHg, 21 to 23 mmHg and ≥24 mmHg. Transition probabilities and costs per treatment line were extracted from two French observational databases. Bootstrap techniques were implemented to drive the probabilistic sensitivity analyses. **RESULTS:** MTTC was 44.3 months for travoprost and 37.7 for latanoprost. Additional costs for Travatan were €52, leading to an 'incremental cost-effectiveness ratio' (ICER) without treatment change of €95 per year. 1.9% of patients treated with latanoprost underwent laser treatment or surgery, compared to 1.2% with travoprost. Results varied with baseline IOP values (≤20, 21 to 23, ≥24 mmHg) such that 55.6%, 53.9% and 50.4% of patients, respectively, remained under travoprost treatment when simulation ended, compared to 32.3%, 26.1% and 26.1% under latanoprost. Thus ICERs, without treatment change, were €140, €45, and €123 per year, respectively. **CONCLUSION:** Travoprost yielded a longer effectiveness profile and minimized early treatment regimen changes. The smaller portion of patients needing a new treatment, laser treatment or surgery virtually compensated for the higher travoprost acquisition cost. Travoprost is a more cost-effective alternative, especially in patients whose IOP at treatment onset lay between 21 and 23 mmHg.

PEY10

COST-EFFECTIVENESS OF TWO TREATMENT SEQUENCES IN GLAUCOMA TREATMENT: XALATAN®-XALACOM® VERSUS TRAVATAN®-DUOTRAV®

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OBJECTIVES: To compare the costs and effectiveness of two treatment sequences, Xalatan®-Xalacom® (X-X) versus Travatan®-DuoTrav® (T-D), in the treatment of glaucoma or ocular hypertension (OHT). **METHODS:** A discrete event simulation (DES) model was constructed. Patients with either glaucoma or OHT were treated first-line with a prostaglandin, either Xalatan® or Travatan®. In case of treatment failure, patients were switched to the specific prostaglandin-timolol sequence Xalacom® or DuoTrav®. Failure was defined as intraocular pressure higher than 18 mmHg (Advanced Glaucoma Intervention Study) at 2 visits. "Time to failure" was estimated from two randomized clinical trials (Xalatan® versus Travatan®, Xalacom® versus DuoTrav®). Log-rank tests were computed. Exponential functions were used to model "time to failure". The economic perspective was that of society in France. The time horizon of the model was 60 months. Resource utilizations were estimated from a national French observational survey. Outcomes included treatment failure and disease progression. Sensitivity analyses were performed. **RESULTS:** Xalatan® treatment resulted in more treatment failures than Travatan® ($p < 0.007$), and Xalacom® more than DuoTrav® ($p < 0.04$). At 60 months, the probability of starting a third treatment line was 39.0% with X-X versus 25.1% with T-D. On average, X-X patients developed 0.51 new visual field defects versus 0.43 for T D patients. The probability of no disease progression at 60 months was 64.2% with X-X and 69.2% with T-D. The 5-years costs of X-X and T-D patients were 3220 euros and 3184 euros, respectively (Travatan® price was 114% Xalatan®; Xalacom® and DuoTrav® prices were hypothesized as equal). **CONCLUSIONS:** Based on well-controlled randomized clinical trial results and using a DES model, the T-D sequence was economically dominant over the X-X sequence.

PEY11

MODELING THE COST AND CONSEQUENCES OF RESTOR®, A MULTIFOCAL INTRAOCULAR LENS (IOL) IN REFRACTIVE SURGERY IN FRANCE

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OBJECTIVE: To model the lifetime costs and consequences of wearing spectacles versus implantation of ReSTOR® (a multifocal IOL), or other multifocal IOLs (MFIOLs), in the treatment of presbyopia. **METHODS:** A Markov model followed subjects from age 45 (presbyopia onset) to death. The prevalence rates of patients without spectacles after ReSTOR® surgery and other MFIOLs were taken from clinical trials. The number of cataract operations avoided by presbyopia surgery (PS) and mortality prevalence rates were estimated from national statistics.