Modeling the Societal Costs of Poor Glaucoma Medication Adherence

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PURPOSE

• At least half of people diagnosed with glaucoma do not take their prescribed medications1 though these medications have been proven to decrease glaucoma related vision loss.2
• Poor medication adherence remains an important contributor to why glaucoma remains a leading cause of blindness in the US and worldwide.
• Our purpose was to understand the societal economic impact of poor glaucoma medication adherence.

METHODS

• We conducted a cost-utility analysis that assessed the societal costs of poor adherence to glaucoma medications among people ≥40 years of age with newly diagnosed glaucoma on a 60-year (full life) time horizon.
• Glaucomatous progression was based on data from the recent United Kingdom Glaucoma Treatment Study.3 Participants with glaucoma entered the model at age 40 with a mean deviation in the better seeing eye of 1.4dB ± 1.94 and -3.4dB ± -3.4dB in the worse seeing eye.3
• Participants who worsened each year accumulate -0.8dB loss among those with mild and moderate disease and -1.6dB loss among those with severe disease compared to -0.18 loss for those who remain stable.4
• Probabilities of worsening disease were assigned among treated patients according to clinical trial data.5
• Medication adherence values were assigned, and those with poor adherence were modeled as having outcomes similar to the placebo arm.6
• As patients’ mean deviation deteriorated, they transitioned between health states from mild (≤6dB) to moderate (≥6dB to ≥12dB), to severe glaucoma (≥12dB to ≥23dB) to unilateral (≥23dB) and bilateral blindness.
• At each health state, patients incurred direct and indirect medical costs and established health utilities.

RESULTS

The model was constructed as a series of Markov cycles (10,000 iterations) using treatment, disease progression, resource utilization, and outcomes over one-time life time horizon. All patients entered the model with mild glaucoma; the odds of disease progression determined the declined reduction in each year of the model, the accumulation of which determined each subsequent state transition.

The following ICER values correspond to maximum and minimum estimates per QALY: Mild disease, $34,687 (high) and $8,687 (low). Severe disease, $46,013 (high) and $11,311 (low).

CONCLUSIONS

• Adherence to glaucoma medications resulted in improved quality of life at an ICER of $13,027/QALY.
• At a standard US willingness to pay of $50,000/QALY, there would be ample economic value in programs targeted at improving glaucoma medication adherence.

SUPPORT

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REFERENCES