Letter to the Editor

In Response to To Image or Not to Image? A Cost-effectiveness Analysis of MRI for Patients With Asymmetric Sensorineural Hearing Loss

In Reply:

As Dr. Dobie points out, some cost-effectiveness studies use quality-adjusted life years (QALYs) and compare the results to willingness-to-pay (WTP) thresholds. QALYs are based on health utility scores. These are calculated from specific surveys based on a visual analogue scale from 0 to 1, in which participants rank their own health and then decide what they are willing to risk in a transition to a better health state. Studies that focus on comparison of treatment options (for example studies on therapies for cancer that assess survival) generally have well-established literature reporting health utility scores that include QALYs. Markov modeling is also incorporated over a period of years to calculate the total QALYs gained.

For analysis of diagnostic tools such as imaging, which can lead to early detection of a cerebellopontine angle mass in a decision-tree model, there is a paucity of health utility survey data available to account for the discrete benefits from obtaining an earlier diagnosis. Incorporating various treatment options versus continued observation and accounting for likely outcomes and complications would be outside the scope of our study but has been previously performed, where the authors assigned a health utility score of 0.62 for vertigo and compared surgical versus nonsurgical options, survival improvement, and QALYs gained.

The goal of our analysis was to look at the decision-making process of whether to obtain imaging or not on patients who present with asymmetric hearing loss, and if so, which imaging modality is the most cost-effective based on detection rate and cost. The authors believe these parameters have been well incorporated into our model. Our effectiveness was set from 0 (missing a diagnosis or false positive results) to 1 (detection of tumor). This method has been employed in several other cost-effectiveness studies imaging studies, in which the final incremental cost-effectiveness ratio results are compared to WTP thresholds of $25,000 to $50,000. We agree that the study Dr. Dobie is proposing would be a more comprehensive cost-effectiveness study of patients who ultimately get diagnosed and actively treated. However, to incorporate the ultimate clinical outcomes and long-term utilities with QALYs was outside the scope of our objectives, although this represents an interesting future project, particularly when considering previous work by Zygourakis and colleagues on the cost-effectiveness of various vestibular schwannoma treatments.

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DOI: 10.1002/lary.27146