

Auditory brainstem response prior to MRI compared to standalone MRI in the detection of vestibular schwannoma: a modelling study

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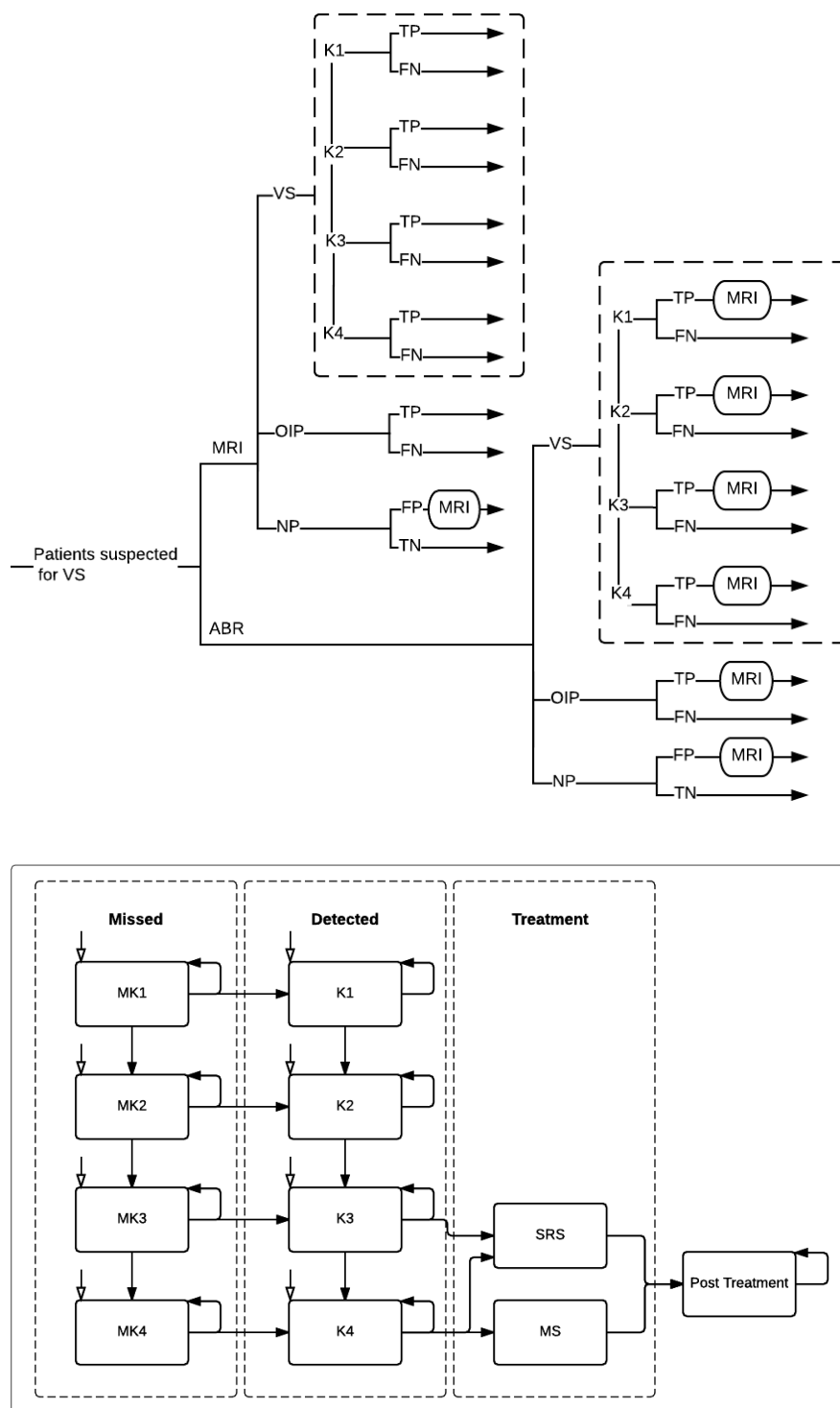
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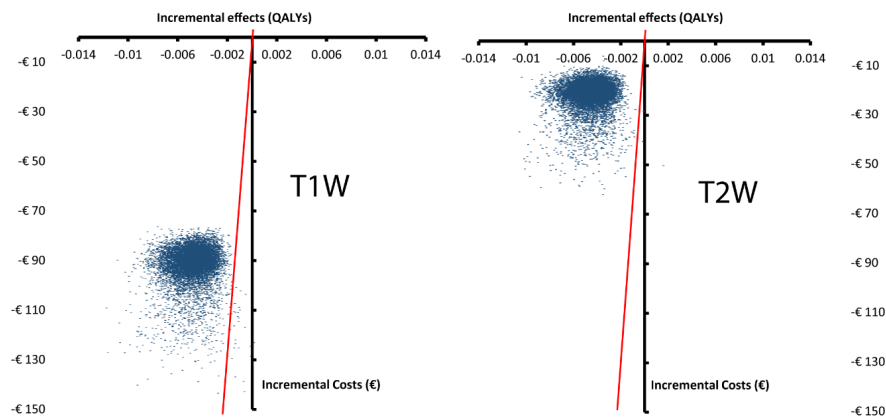
Abstract

Objectives: To determine the cost-effectiveness of auditory brainstem response prior to MRI (ABR-MRI) compared to standalone MRI to diagnose vestibular schwannoma. **Design:** A state transition decision-analytic model was developed to simulate costs and effects (quality-adjusted life years) for both treatment strategies for patients suspected of a vestibular schwannoma. Model input was derived from literature, hospital databases, and expert opinions. Scenario and sensitivity analyses addressed model uncertainty. **Results:** Over a lifetime horizon, ABR-MRI resulted in a limited cost-saving of €68 or €98 per patient (dependent on MRI sequence) and a health loss of 0.005 QALYs over standalone MRI. ABR-MRI, however, did miss patients with other important pathology (2% of the population) that would have been detected when using standalone MRI. Calculating the incremental cost-effectiveness ratio resulted in €14,203 or €19,550 saved per lost QALY if ABR-MRI was used instead of standalone MRI. The results were sensitive to the detection rate of vestibular schwannoma and health-related quality of life of missed patients. **Conclusion:** The cost-saving with ABR-MRI does not seem to outweigh the number of missed patients with VS and other important pathologies that would have been detected when using standalone MRI.

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