Masterclasses

M1.2 Diabetic Eye Disease: What's New? 10:45 Room 221

Cost Effectiveness Analysis of the Current Screening Protocol in Detecting Diabetic Macular Edema (DME)

Wong I
Department of Ophthalmology, The University of Hong Kong, Hong Kong

Objectives

(1) To compare the sensitivity indexes of the current fundus photo-based screening strategy (Strategy A) in detecting diabetic macular edema (DME) with three new screening strategies involving: (a) removing retinal hemorrhage on fundus photo as a surrogate marker for maculopathy (Strategy B), or (b) adding best-corrected visual acuity (BCVA) measurement and performing optical coherence tomography (OCT) scans on selected cases on top of the current protocol (Strategy C), or (c) adding OCT scans for all subjects in addition to the current protocol (Strategy D). (2) To develop a cost-effective model to identify the most cost-effective strategy.

Methodology

In this cross-sectional, observational study, subjects were screened according to the protocol set out in Strategy A, i.e. the current fundus-photo based protocol. BCVA and OCT scans of the macula were performed on all subjects. Each subject was simulated to undergo each of the four strategies. Should maculopathy be detected according to the specific criteria in a particular strategy, it would be recorded and assumed to be referred. Costs of the screening, ophthalmologist consultation, and treatment for up to 12 months were estimated. Quality-adjusted-life-years (QALYs) gained was calculated for each specific strategy. Incremental cost-effective ratios (ICERs) were calculated with Strategy A as the benchmark. The local gross domestic product per capita and US$50,000/QALY gained were used as references to determine cost-effectiveness.

Results

All strategies were found to be "very cost-effective". In particular, Strategy D was found to be most cost-effective among the four. Although it cost the most, it enabled the most QALY gained, hence the cost per QALY gained was the lowest.

Conclusion

Incorporating OCT scans of the macula for all on top of the current protocol (i.e. Strategy D) appeared to be more cost-effective than the current protocol. This should be considered in future planning.