26394 - COST-EFFECTIVENESS OF VARICELLA ZOSTER VACCINATION IN OLDER ADULTS

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INTRODUCTION

Shingles are painful and may lead to post-herpetic neuralgia (PHN). A recent randomized controlled trial documents that an investigational live attenuated varicella-zoster vaccine given to immunocompetent patients >60 yrs of age resulted in a reduction in the incidence of subsequent shingles.¹ There was also a reduction of the pain and duration of shingles and of PHN.¹ We evaluated the incremental cost-effectiveness of mass vaccination with the new vaccine for elderly patients.* We hypothesized that the vaccine may be cost-effective at certain cost ranges and presumed years of effectiveness.

METHOD

Our reference case is a 65-yr-old immunocompetent person. Using decision analysis software (TreeAge 2005, Williamstown, MA, USA), we developed a Markov model for calculating the composite expected values of health benefits and of expenditures of two public health strategies: (1) vaccinating immunocompetent older adults against herpes zoster (HZ) using the new vaccine, and (2) no vaccination. We then calculated the incremental cost to incremental effectiveness [in the form of quality-adjusted life year (QALY)] gained ratio (ICER) of the two strategies. The influence of costs and duration of vaccine effectiveness was determined by sensitivity analysis. The costs (based on average 2002 US costs) were from the perspective of 3rd party payers and QALYs were derived from published and institutional data. All other data required for the model were derived from the literature. The Markov process cycled up to the number of years of presumed effectiveness of the vaccine. Subjects are expected to be re-vaccinated upon loss of effectiveness of the vaccine.

RESULTS

Fig. 1 shows the ICER vs. cost of vaccine. The various plots show the effect of the presumed duration of effectiveness of the vaccine on the ICER.

DISCUSSION

A mass vaccination program will cost money. There will be improvement in quality of life by vaccinated individuals. In developed countries, the willingness-to-pay (WTP) threshold is commonly US\$50,000/QALY gained, although the figure varies. If the projected ICER is less than a country's WTP, it may be considered cost-effective. The average duration of follow up of the patients in the vaccine study was 3.11 years.¹ The exact duration of vaccine effectiveness is unknown at this time. However, if one were to assume that effectiveness should reasonably last 9 years, for example, then the vaccine would only be considered cost-effective if it costs US\$60. For comparison, the licensed childhood chickenpox vaccine, which is at least 14 times less potent than this varicella zoster vaccine, costs US\$40 per dose.

REFERENCE

1. Oxman MN, et al. N Engl J Med 2005; 352:2271-84.

*Supported by a Hong Kong Teaching Development Grant CUHK Project 3204007

Incremental cost effectiveness ratio of varicella zoster vaccination for older immunocompetent adults according to the presumed years of vaccine effectiveness