

P215A Cost-benefit analysis of a 21-gene recurrence score for early stage breast cancer in Singapore

Health politics/Guidelines

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Goals: Breast cancer represents a significant burden of illness worldwide. The adoption of 21-gene breast cancer recurrence score (RS) for the management of adjuvant therapy was projected to be cost-effective. Singapore presents a unique consumer driven healthcare environment. We assessed the cost and utility of the 21-gene RS for lymph node negative (LN?), estrogen receptor positive (ER+) early-stage breast cancer (ESBC) in Singapore from a patient's perspective.

Methods: We adopted a validated Markov model to calculate the cost and quality of life gained (QALY) with the RS for a representative ESBC patient. The probability of individual's risk of recurrence, chemotherapy benefits and decision impact and QALY were derived from existing studies. The model accounted for both direct and indirect costs associated with adjuvant therapy. Direct costs included chemotherapy, supportive care, administration, and management of adverse events adjusted by incidence, and cost of recurrence. Indirect costs included productivity loss during chemotherapy and distant recurrence. Chemotherapy regimen distribution and costs were obtained from two cancer centers in Singapore.

Results: The pretest probabilities of risk of recurrence per woman as low, intermediate or high were 49.8%, 30.3% and 19.9%, respectively. The average direct potential savings per patient tested in Singapore Dollars (Euro) for chemotherapy drug, supportive care, management of AE and administration were \$2,735 (€1,569), \$1,001 (€574), \$157 (€90) and \$1,245 (€714), respectively. Per patient saving from productivity loss during treatment was \$468 (€249). At manufacturer price, the model projects immediate realized savings of \$435 (€249) with the adoption of the RS. The model also projects \$1,220 (€700) direct savings from preventing distant recurrence. The model projects that a patient would gain 0.12 QALY by avoiding unnecessary chemotherapy, and 0.15 QALY in preventing future distant recurrences. Overall, for an average patient in Singapore, the adoption of the 21-gene RS would be cost-saving and would improve quality of life. Multiple sensitivity analyses demonstrate the robustness of the analysis under a variety of conditions.

Conclusion: For women with ESBC in Singapore, the 21-gene RS is a cost-saving treatment decision tool that favorably affects the lives of women with ESBC.