

COST EFFECTIVENESS OF MASTECTOMIES OF BRCA1 AND BRCA2 POSITIVE WOMEN OVER OLAPARIB.

Tislow N¹, Stephen B¹, Ware K², PharmD, MBA, AAHIVP

¹Mercer University College of Pharmacy, Atlanta, GA, USA, ²Mercer University College of Pharmacy, Atlanta, GA, USA

Objectives: Breast cancer is the most common type of cancer in women in the United States. Approximately 1 in every 500 women will have a mutation on their BRCA1/2 gene, making the risk of developing breast cancer even higher. Prophylactic mastectomies are used to prevent cancer before it develops. *Olaparib* is a first-line, targeted therapy for patients with BRCA gene-mutated breast cancer. With a current lack of economic evaluation between these two therapies, the objective of this study was to determine the cost-effectiveness of having a prophylactic mastectomy after finding the BRCA gene mutation or waiting until the development of breast cancer and being treated with guideline-directed therapy such as olaparib.

Methods: We performed a targeted literature review using PubMed articles from 2010-2023, reporting the cost and life expectancies/mortality benefits of each treatment type. We found the cost of having a prophylactic bilateral mastectomy and the cost of therapy with olaparib after the development of breast cancer and averaging that cost over a QALYs expectancy of 13.8 months. We then compared each therapy's total and indirect costs with QALYs to determine which therapy was more cost-effective.

Results: A bilateral mastectomy with DEIP reconstructions increases QALYs by 17.53 years, costing \$94,733. Olaparib increases QALYs by 1.15 years or 13.8 months, costing \$14,523 monthly. Based on the average treatment time, if the patient continues olaparib throughout the treatment process, the total cost would be \$200,417.40. Adverse effect treatments from olaparib have an indirect cost of roughly \$5,595. Mammoplasty is a potential indirect cost for a mastectomy at roughly \$4,294.

Conclusions: The cumulative indirect and direct cost of mastectomies is \$99,027; comparatively, olaparib treatment is \$206,012.40. With mastectomies being the proactive decision and overall more affordable, and BRCA+ patients having a 45-85% chance of developing breast cancer in their lifetime, a mastectomy is proven to be more cost-effective overall than olaparib treatment.