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Cost-effectiveness of Niraparib, Olaparib and Rucaparib in treatment of platinum sensitive, recurrent ovarian Cancer

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Objective: To evaluate the cost-effectiveness of new ovarian cancer PARP inhibitor targeted therapy olaparib, rucaparib and nirparib as maintenance therapy for platinum sensitive, recurrent gBRCA ovarian cancer.

Methods: We constructed an economic model to compare the costs and effectiveness associated with each of these treatment options based on clinical trial results from a healthcare sector perspective. Costs were measured in 2017 USD and included not only drug costs but also costs of disease monitoring and management of adverse events throughout the treatment course until disease progression. Effectiveness was measured in quality-adjusted progression-free survival years (QA-PFS) which was computed by adjusting progression free survival years (PFS) by the reported quality of life in these patients. We evaluated the incremental cost-effectiveness ratio (ICER) as measured by dividing the incremental costs by the incremental effectiveness.

Results: At base case, niraparib the most effective treatment option with the highest QA-PFS followed by olaprib and rucaparib. Niraparib was also associated with the highest costs followed by olaprib and rucaparib. The ICERs for niraparib compared to placebo is $260k and $155k compared to olaparib. Sensitivity analysis suggested that BRCA status impact ICERs significantly.

Conclusions: PARP inhibitors significantly extends PFS in recurrent ovarian cancer patients who are sensitive to platinum based chemotherapy but are also associated with high drug costs of over 10k a month. Given a willingness to pay (WTP) between 100-150 QA-PFS, niraparib could be a cost-effective option compared to olaparib when treating patients population with at least 21% carrying BRCA mutations.

Biography

Dr. Lixian Zhong is a health economist who has conducted research on the costs and outcomes associated with pharmaceutical products in both academic institutes and pharmaceutical industry settings. She received her Ph.D from Duke University. Her research has been cited over 600 times. Her research interest lies at the intersection of science, medicine and economics to assess clinical, economic and humanistic values of pharmaceutical interventions. She has conducted research using clinical trial data, real world data and economic modeling to study cost-effectiveness of new interventions for cancer and multiple sclerosis. She is currently an assistant professor in College of Pharmacy at Texas A&M University.

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