Is Bevacizumab a cost-effective option for treatment of Advanced Cervical Cancer

Health Technology Assessment in India (HTAIn)
Postgraduate Institute of Medical Education & Research, Chandigarh

Policy Brief

Executive Summary:

Patients with advanced and metastatic cervical cancer have a poor survival. Assessment of the cost-effectiveness of a new drug, bevacizumab for the treatment of patients with advanced and metastatic cervical cancer in India is undertaken here. Bevacizumab has shown better effectiveness but is associated with great increase in health care costs. We find out whether the incremental cost is worth the potential health gains with the new drug. Health Technology Assessment (HTA) has been chosen approach to explore this question. Literature review, primary data collection, and economics evaluation via Markov model was done for the HTA. Treatment incorporating Bevacizumab to treat advanced cervical cancer patients would need around INR 25.75 lakhs for gaining 1 QALY.

Chemotherapy along with bevacizumab is not a cost-effective alternative when compared to chemotherapy alone.

Context:

Cervical cancer is the 2nd most common cancer affecting women in LMICs. India alone accounts for around one-fourth of world's cervical cancer deaths.

Most of the cervical cancer cases in India are diagnosed in fairly advanced stages. Nearly 15% to 61% of affected women will develop recurrence or metastasis usually within the first 2 years of completing the treatment. Patients with advanced and metastatic cervical cancer usually have poor 1-year survival.

Presently, chemotherapy of cisplatin and paclitaxel is recognized to be the standard of care for the management of these patients. The only randomized controlled trial, GOG 240, has shown clinical benefits with the addition of bevacizumab to the chemotherapy in advanced and metastatic cervical cancer patients.

Recommendations:

- Chemotherapy along with bevacizumab is not a cost-effective alternative when compared to chemotherapy alone at a threshold of 1-times GDP per capita (₹ 1,45,679 during the year 2020) or 3-times GDP per capita for treating advanced cervical cancer patients in India.
- Doublet chemotherapy with paclitaxel and cisplatin has a tolerable toxicity profile, reasonable disease control, and cost effective, hence should be continued to be prescribed in standard treatment guidelines for resource limited countries like India.

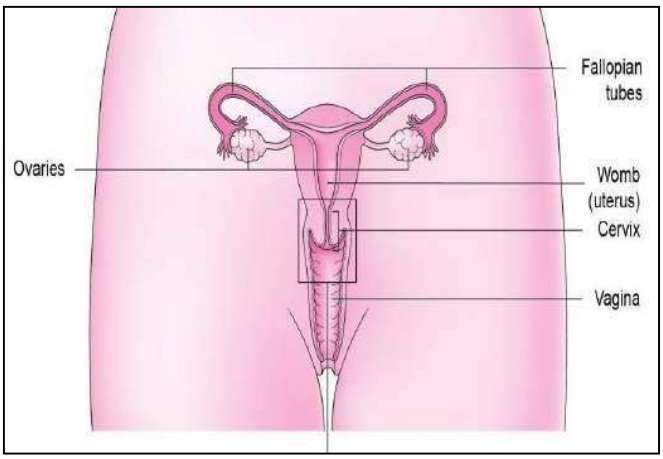


Image source: https://www.rgcirc.org/wp content/uploads/2019/03/FIG.3.jpg

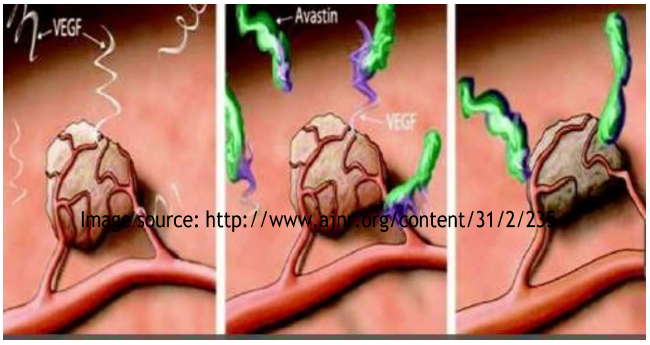
About Bevacizumab:

Cervical cancers are associated with increased levels of VEGF, which is associated with poor prognosis and is the target of antiangiogenesis therapy.
Bevacizumab is an antiangiogenic humanized monoclonal antibody drug, an inhibitor of vascular endothelial growth factor (VEGF) and has shown to improve the survival of patients with advanced cervical cancer.

Policy Brief

Aims and Objectives:

This policy brief addresses the policy question of whether adding a new drug Bevacizumab in standard chemotherapy treatment of advanced cervical cancer will be cost-effective. It summarizes the results of a HTA study on Bevacizumab conducted by HTA Resource Hub PGIMER.



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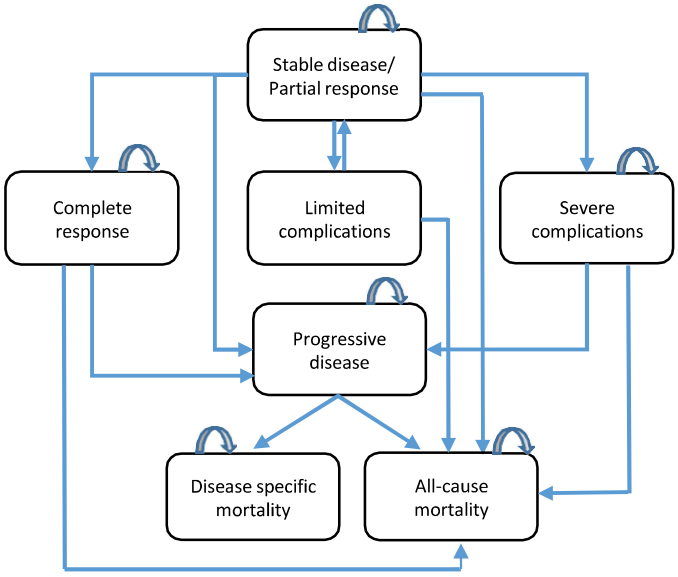
Methods and Approach:

HTA was done using Markov modelling technique (Fig 1) to estimate the lifetime costs and health consequences for patients in advanced and metastatic cervical cancer treated. Treatment done with Bevacizumab plus chemotherapy was compared with chemotherapy alone.

The health outcomes were evaluated in terms of life years (LY) and quality adjusted life years (QALY) lived. The cost effectiveness was assessed in terms of incremental cost effectiveness ratio (ICER) between the intervention and control arm.

Literature review was done, data was collected on OOPE and quality of life values. The health system costs were derived from the previously undertaken costing studies from India. Clinical effectiveness data was taken from the only trial available, GOG 240.



Data Used:

Out-of-Pocket Expenditure (OOPE), the primary data was obtained as a part of developing CADCQoL database.
Transition probabilities and effectiveness parameters were obtained from the GOG-240 trial (Tewari et al)
Utility scores for calculating QALYs, the primary data was obtained as a part of developing CADCQoL database.

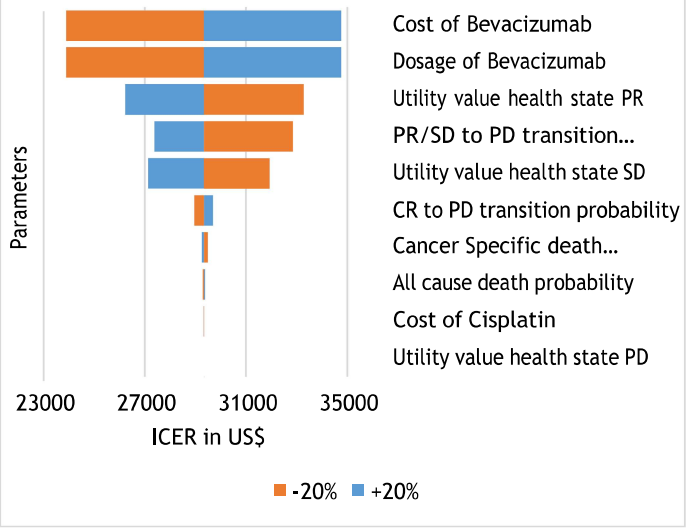
Results and Discussion:

Over the lifetime of a patient of advanced and metastatic cervical cancer, treatment with bevacizumab results in a gain of 3.30 life months 1.55 quality adjusted life months at an additional cost of INR 2.82 lakhs as compared to standard chemotherapy alone. Incremental cost effectiveness ratio of 25.75 lakhs per 1 QALY gained with using Bevacizumab along with standard chemotherapy.

The cost of treating adverse events of this intervention is high, as a result of which the drug remains cost-ineffective even after reducing its prices similar to the prices of control arm drugs.

The sensitivity analysis (Fig.2) showed that the results could vary highly on varying the cost and dosage of Bevacizumab.

Fig. 2: UVA- Tornado Diagram



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