HTA262: Cost effectiveness analysis of paclitaxel micellar for treatment of first relapse platinum sensitive ovarian cancer

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Background

Ovarian cancer is the eighth most commonly occurring cancer in women and the eighteenth most commonly occurring cancer overall. It is estimated there were over 67,770 new cases of ovarian cancer in Europe in 2018, with cases varying from region to region[1]. As diagnosis of ovarian cancer is often in advanced stages where patients display a compromised health-related quality of life (HRQOL)[2]. In platinum-sensitive patients the standard course of treatment consists of cremaphor-based paclitaxel in combination with carboplatin[3].

Paclitaxel micellar, when administered in combination with carboplatin, is the first non-Cremophor-based paclitaxel formulation licensed for the treatment of platinum sensitive ovarian cancer. This reduces the requirement for mandatory pre-medications and reduces the required time infusion[3].

Objectives

The objective of this study aimed to evaluate the cost effectiveness of paclitaxel micellar in combination with carboplatin versus cremaphor-based paclitaxel in combination with carboplatin for the treatment of first relapse patients, from an English payer perspective. The model structure aimed to take a similar approach to other oncology models for better comparability and certainty.

Method

A partition survival model was developed based on data from the pivotal trial comparing paclitaxel micellar with Cremophor-based paclitaxel over a lifetime horizon. Health states were defined by pre-progression, progression, and death. Efficacy was estimated using treatment specific parametric survival curves fitted to a Weibull distribution of the subgroup of patients with one relapse only as illustrated below in figures 1 and 2[4]. Patient benefits were estimated from a combination of treatment specific and health-state specific utilities[4]. Costs associated with drug acquisition of chemotherapy, premedications, and maintenance therapies (at publicly available list price) along with administration and adverse events were considered in the model[5,6]. Probabilistic sensitivity analysis (PSA) was used to quantify uncertainty in modelled outcomes. Costs and benefits were discounted at 3.5% per annum.

Figure 1: Weibull fitted overall survival curves used in model

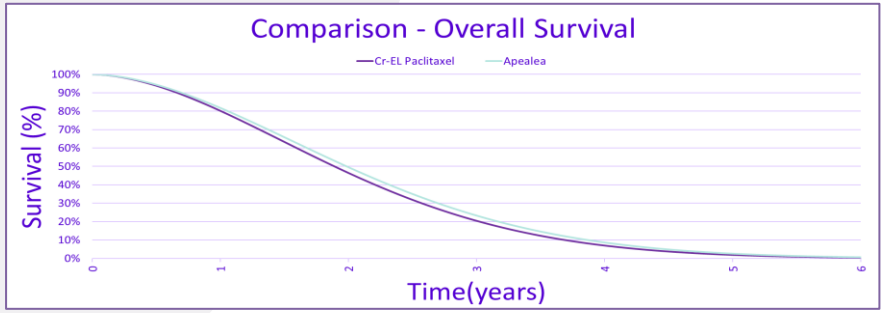
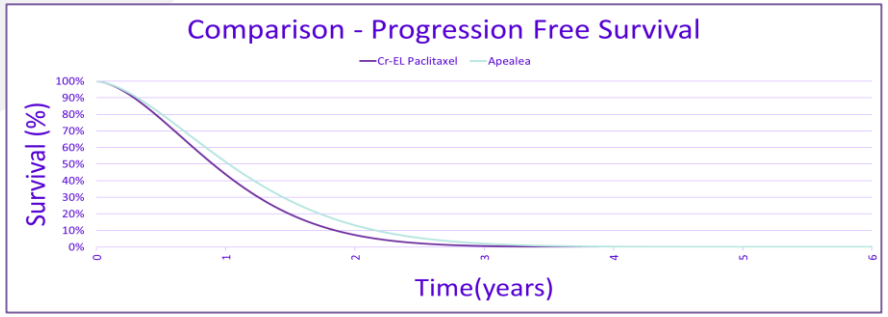


Figure 2: Weibull fitted progression free survival curves used in model



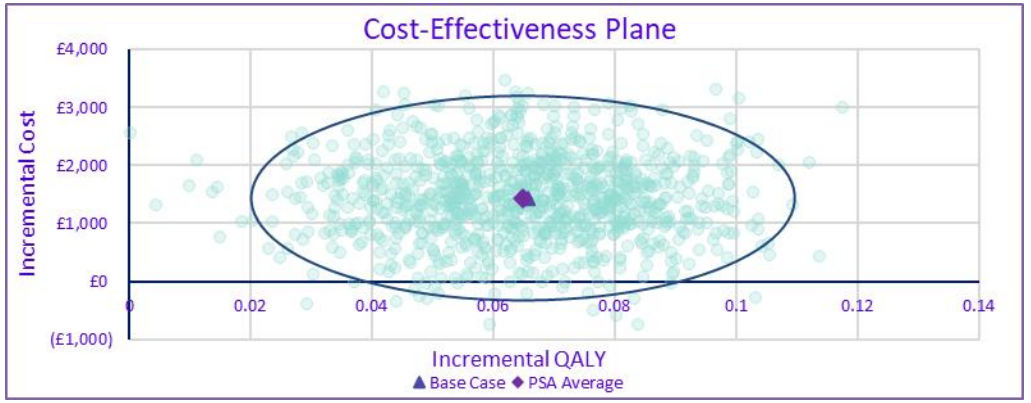
Results

Treatment with paclitaxel micellar was estimated to improve patient overall and progression-free survival, translating to an increase in quality adjusted life years (QALYs) of 0.08. Increases in total drug acquisition costs were partially offset by reduced administration time and premedication usage for patients treated with paclitaxel micellar, leading to an overall cost increase of £1,421 per patient. Increased benefits and costs for patients treated with paclitaxel micellar resulted in an incremental cost-effectiveness ratio (ICER) of £21,632/QALY, with 72% of PSA simulations resulting in a cost-effective ICER at a willingness-to-pay threshold of £30,000. The results of the PSA can be seen below in figure 3.

Conclusion

The results of this analysis suggest that paclitaxel micellar is a cost-effective treatment option for patients with first relapse platinum sensitive ovarian cancer. By improving outcomes and reducing administration costs, paclitaxel micellar may reduce the burden imposed by ovarian cancer on both patients and health service delivery.

Figure 3: Cost effectiveness plane of PSA run for base case parameters (1000 iterations)



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