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Cost-effectiveness analysis of Enzalutamide, Abiraterone acetate plus prednisone, Cabazitaxel plus prednisone for the treatment of visceral metastatic Castration Resistant Prostate Cancer (mCRPC) after Docetaxel therapy

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[Posters] “Cost-effectiveness analysis of Enzalutamide, Abiraterone acetate plus prednisone, Cabazitaxel plus prednisone for the treatment of visceral metastatic Castration Resistant Prostate Cancer (mCRPC) after Docetaxel therapy”

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Background: Prostate cancer is the second leading cause of death after lung cancer among men in the US. The America Cancer Society predicts 164,690 new cases and 29,430 prostate cancer deaths in 2018. In 2014, nearly US $13.4 billion was spent on prostate cancer in the US and expected to reach US $15.4 billion by 2020.

Objective: To conduct a cost-effective analysis of visceral mCRPC therapies post-docetaxel failure from a US healthcare payer perspective utilizing life-time horizon Markov model. These medications received highest National Comprehensive Cancer Network guideline recommendation to treat visceral mCRPC post-docetaxel failure.

Methods: A pharmacoeconomic model was constructed using Microsoft Excel® supported by visual basic codes and macros functions to estimate the cost-effectiveness [cost per Life Year Gained (LYG)] and cost-utility analyses [cost per Quality Adjusted Life Year (QALY)] of visceral mCRPC therapies. Probabilistic sensitivity analysis was conducted to assess the robustness of base-case analysis and provide cost-effectiveness acceptability curve at various willingness-to-pay thresholds.

Results: About (98.7 %) of patients who receive abiraterone acetate plus prednisone, (83.8 %) who receive cabazitaxel plus prednisone and (86.8 %) who receive enzalutamide are expected to die in 3 years. Enzalutamide provided higher rates (36.1 %) of progression-free survival than cabazitaxel plus prednisone (3.2 %) and abiraterone acetate plus prednisone (12.8 %). Enzalutamide was found to be more effective (1.58 LYG and 0.79 QALY) compared to abiraterone plus prednisone (1.20 LYG and 0.58 QALY) and cabazitaxel plus prednisone (1.48 LYG and 0.56 QALY). Enzalutamide was also associated with lower incremental costs ($157,830) compared to abiraterone acetate plus prednisone ($235,853) and cabazitaxel plus prednisone ($496,756).

Conclusion: Enzalutamide is cost-effective compared to abiraterone acetate plus prednisone and cabazitaxel plus prednisone from a US healthcare perspective. In addition, abiraterone acetate plus prednisone is less effective and less costly compared to cabazitaxel plus prednisone.