ADJUSTING OVERALL SURVIVAL ESTIMATES FOR TREATMENT SWITCHING: A CASE STUDY IN METASTATIC CASTRATION-RESISTANT PROSTATE CANCER

OBJECTIVES: In oncology trials, it is common practice to offer patients the possibility to switch from their randomized treatment to a more active treatment during disease progression. When patients switch to, and benefit from, active post-progression therapies which do not form part of the standard treatment pathway, a standard intention-to-treat (ITT) analysis may inaccurately estimate the “true” overall survival (OS) with these new therapies.

METHODS: Published treatment switching adjustment methods were applied including the Inverse Probability of Censoring Weights (IPCW) and a two-stage accelerated failure time model. The suitability of each method was evaluated by examining the study characteristics, the treatment switching mechanism, and by assessing the plausibility of the underlying assumptions of the models in the context of the PREVAIL study.

RESULTS: Overall, 183/845 (21%) patients in the placebo arm and 129/872 (15%) patients in the enzalutamide arm of PREVAIL switched to non-standard antineoplastic therapies. The unadjusted ITT analysis for OS resulted in a hazard ratio (HR) of 0.706 (95% CI: 0.595 - 0.837) for enzalutamide compared to placebo, which was reduced to 0.662 (95% CI: 0.568 - 0.809) using the two-stage method with no recensoring and 0.625 (95% CI: 0.517 - 0.752) using the IPCW method.

CONCLUSIONS: Adjusting for non-standard subsequent therapies given in PREVAIL resulted in a larger estimated treatment effect on OS associated with enzalutamide. This suggests receipt of non-standard subsequent antineoplastic therapies caused the ITT analysis to underestimate the true treatment effect of enzalutamide on OS.

CONDITIONAL SURVIVAL PROBABILITIES FOR PREVIOUSLY UNRETRATED ADVANCED MELANOMA PATIENTS RECEIVING IPILIMUMAB: MODEL BASED ANALYSIS

OBJECTIVES: In the last 3 years, many new advanced melanoma treatments have come to market. Ipilimumab was the first compound to demonstrate a statistically significant improvement in overall survival in two Phase III RCTs and observational studies of long-term survival up to 10 years. The suitability of each method was evaluated by examining the study characteristics, the treatment switching mechanism, and by assessing the plausibility of the underlying assumptions of the models in the context of the PREVAIL study.

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THE UTILIZATION OF LAPAROSCOPIC VERSUS OPEN LIVER RESECTION FOR HEPATOCELLULAR CARCINOMA OR SECONDARY COLORECTAL METASTASES: A BUDGET IMPACT ANALYSIS

OBJECTIVES: Clinical research has demonstrated that laparoscopic resection for hepatocellular carcinoma or colorectal metastases is oncologically equivalent patient outcomes when compared to open liver resection, while also providing a statistically significant reduction in postoperative complications. Approximately 16% of all liver resections in Canada are laparoscopic in nature. While the cost of laparoscopic liver resection is higher than that of the open technique, ongoing improvements in the technique and perioperative care for patients undergoing major hepatectomies have resulted in a reduction of the cost differential. This study was conducted to determine the budget impact of increasing the proportion of laparoscopic vs. open liver resection in a Canadian hospital.

METHODS: We examined the budget impact of increasing the percentage of laparoscopic liver cases from 16% to 40%, while decreasing the number of open cases proportionately in a hospital that performs 50 resections annually. The model incorporates the costs associated with surgery, length of stay (taking into account facility and staff costs) and postoperative complications. The cost data used in the model was obtained from peer reviewed literature, the Ontario Case Costing Initiative and costing data from a large Canadian hospital. Data on patient outcomes was obtained from published meta-analyses. A multivariate sensitivity analysis using a Monte Carlo simulation was completed to ensure scientific rigour.

RESULTS: Laparoscopic liver resections are associated with higher device costs, but similar overall procedure costs. The additional device cost is offset by a shorter length of stay and lower rate of post-operative complications. The model establishes that 30% of liver resections are associated with cost savings of up to $1,500 per patient. The model recommends that Canadian hospitals increase the proportion of laparoscopic liver resections to 30%.

CONCLUSIONS: Increasing the proportion of laparoscopic liver resections is associated with cost savings and a reduction in postoperative complications. The model recommends that Canadian hospitals increase the proportion of laparoscopic liver resections to 30%.

THE ECONOMIC IMPACT OF THE ADDITION OF AXITINIB AS A SECOND LINE TREATMENT FOR METASTATIC RENAL CELL CARCINOMA IN THE ECUADORIAN PUBLIC HEALTHCARE SECTOR

OBJECTIVES: Estimate the annual economic impact of the introduction of axitinib as therapy for metastatic renal cell carcinoma (mRCC) in the budget of the Ministry of Health.