TREATMENT CHOICES BASED ON MULTIPLATFORM PROFILING PLATFORM UNLIKE THOSE WITH SEQUENCING ALONE, DO NOT CAUSE A COST EXPLOSION IN REFRACTORY CANCER PATIENTS

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Amended Abstract

BACKGROUND: Molecular testing of cancers is quickly becoming standard of care and some approaches are becoming commercial or in original. Some oncologists remain apprehensive about the clinical utility of molecular profiling, based on the degree to which information can be used in a treatment decision, and whether it leads to selection of more expensive treatments that may not be accessible.

OBJECTIVES: The aim of this study is to examine the decision impact of a multiplatform tumor profiling service, Caris Molecular Intelligence (CMI), and evaluate CMI-guided treatment costs compared to prior and planned treatments in prospective and retrospective clinical studies.

METHODS: In 5 physician-led clinical studies, the treatment decision prior to receipt of the CMI report was captured (n=467 patients). A systematic review of treatment data from 10 clinical studies of CMI (n=385 patients) allowed a comparison of planned versus actual (n=137) and prior versus actual (n=229) treatment costs. Costing information was taken from the British National Formulary (BNF) giving a treatment cost per cycle per patient. Decision impact (n=225) and treatment cost per cycle (n=252) were also compared from studies of next generation sequencing (NGS) only approaches.

RESULTS: Decision impact was changed in 88% of CMI-profiled cases compared to 29% of NGS-only approaches. The CMI-guided treatment cost per cycle was £995 in 385 treated patients. Planned treatment costs were comparable to actual treatment costs (£979 versus £945; p=0.6319). In 231 patients profiled using FMI, the treatment decision was changed in 67 cases (29%) and remained unchanged in 165 cases (71%).

Study Highlights – Testing and Treatment Cost per PFS Gain

- The planned line of treatment costs an average of £558 per week of PFS gained.
- The average cost of the prior line of treatment is £321 per week of PFS gained and is 40% lower than the planned line.
- The costs of CMI testing and CMI-guided treatment amounted to an average of £500 per week of PFS gained, 7% lower than planned treatment costs.
- The average costs of FMI testing and associated treatments was £945 per week of PFS gained, 76% higher than planned treatment costs.

Table 2 – Cost of Testing and Associated Treatments Per PFS Gained

<table>
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<th>Prior</th>
<th>Planned</th>
<th>CMI-guided</th>
<th>FMI-guided</th>
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</table>

Conclusions

- CMI’s multiplatform approach results in a much higher decision impact than F1’s NGS-only approach, based on the guidance provided towards conventional chemotherapy options rather than focusing on targeted therapies.

- The cost of treatment for CMI guided treatments is not significantly different from the treatments that had previously been given or those that would have been given in the absence of profiling. This is because the majority of treatments are conventional chemotherapies. The cost of F2-directed therapies is 280% higher as the majority of sequencing-guided treatments are expensive targeted therapies.

- The incremental cost of CMI testing generates value through improved clinical outcomes.

- The improved outcomes observed with CMI mean that the cost of treatment including testing is comparable to that which could be expected with planned therapies. Although sequencing-guided treatments bring benefit, the high testing and treatment costs mean that the cost per PFS gain is greatly increased compared to the originally planned treatments.

References