Impact of Genomic Profiling on Treatment Decisions for Patients with Melanoma and Colorectal Cancer Cohorts

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Background

• Clinical guidelines recommend BRAF and RAS testing in melanoma and colorectal cancer (CRC), respectively, to guide treatment (Tx)
• Limited data supports routine multi-gene profiling

Objective

• To evaluate the impact of multi-gene profiling on genomically-guided Tx

Methods

Study Design & Data Source

• Retrospective cohort study using UUHC Electronic Data Warehouse, Huntsman Cancer Institute (HCI) tumor registry, ARUP laboratories, & Foundation Medicine data

Study Population & Timeline

• Patients treated at HCI for melanoma or CRC and had genomic profiling tested with ARUP solid tumor mutation NGS panel or Foundation One testing panel between Jan 1, 2012 - June 30, 2016
• Index date: date of first genomic profiling result

Outcomes

• Other actionable mutation class, includes mutations that:
  • Do not have an FDA-approved agent for the diagnosed cancer
  • Either has FDA-approved agent used for other cancers, or has an investigational agent affecting mutation pathway
• Impact on practice: measured by rate of genomically-guided therapy use

Results

Table 1. Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Melanoma Cohort (n=123)</th>
<th>Colorectal Cohort (n=66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age at initial cancer diagnosis (years)</td>
<td>60</td>
<td>57</td>
</tr>
<tr>
<td>Sex – male, n (%)</td>
<td>78 (63.4)</td>
<td>42 (63.7)</td>
</tr>
<tr>
<td>Stage at initial cancer diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1 (0.8)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>I</td>
<td>22 (17.9)</td>
<td>4 (6.1)</td>
</tr>
<tr>
<td>II</td>
<td>18 (14.6)</td>
<td>7 (10.6)</td>
</tr>
<tr>
<td>III</td>
<td>7 (5.7)</td>
<td>16 (24.2)</td>
</tr>
<tr>
<td>IV</td>
<td>22 (17.9)</td>
<td>34 (51.5)</td>
</tr>
<tr>
<td>Not reported</td>
<td>53 (43.1)</td>
<td>5 (7.6)</td>
</tr>
<tr>
<td>Lines of treatment, mean (SD)</td>
<td>2.2 (1.4)</td>
<td>2.6 (1.4)</td>
</tr>
<tr>
<td>Mutations detected, mean (SD)</td>
<td>1.7 (1.4)</td>
<td>3.6 (1.9)</td>
</tr>
</tbody>
</table>

Figure 1. Actionable mutations vs. selected treatments

Melanoma Cohort

- 15% Other actionable mutations*
- 95% Genomic guided Tx
- 6% Other Tx

CRC Cohort

- 56% Other actionable mutations**
- 44% Genomic guided Tx
- 10% Other Tx

* Besides BRAF V600 E or V600K mutations
** Besides RAS mutations

Figure 2. Current status of patients with any actionable mutation and no genomic guided treatment.

Melanoma Cohort

- 71% Active Tx
- 21% Deceased
- 8% Transferred/Hospice

CRC Cohort

- 55% Active Tx
- 40% Deceased
- 5% Transferred/Hospice

Conclusions

• Genomic profiling led to modest increase in genetically-guided therapy
• The incremental clinical and economic benefit of guideline-recommended testing needs further investigation by cancer type

For more information, please contact Eman Biltaji via email: e.biltaji@utah.edu

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