Healthcare resource utilization and cost of care in patients with BRAF-mutant unresectable/metastatic melanoma in the US

RWD157

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Background

- Melanoma is the fifth most common cancer in the United States (US) and the deadliest form of skin cancer.[1]
- The presence of BRAF V600 mutations, found in approximately 40–60% of melanoma cases, is associated with a worse prognosis.[2]
- Recommended treatment options span from immunotherapy (anti-PD1 monotherapy, anti-PD1/anti-CTLA-4 combination therapy) to targeted therapy (BRAF-MEK inhibitor combination therapy), or combinations of targeted therapy and anti-PD1 therapy.[3]
- Real-world treatment patterns, healthcare resource utilization (HCRU), and cost of care of patients with BRAF-mutant m-melanoma in the US remain unclear.

Objective

- To assess HCRU and costs associated with treatments for patients with BRAF-mutant (BRAF-m) metastatic melanoma (m-melanoma) in the US.

Materials and Methods

STUDY DESIGN

- A retrospective analysis was conducted using US claims data to evaluate patients with BRAF-m m-melanoma. **(Figure 1)**

DATA SOURCES

- Optum Clinformatics (OC) and IQVIA PharMetrics Plus (PP) databases were used for this study. Both databases include pharmacy and medical claims records. OC covers 123 million lives and PP covers 140 million lives.

PATIENT SELECTION CRITERIA

- Patient selection criteria are listed in **Figure 2**.
- As biomarker results were not available in the claims-based databases used for this analysis, receipt of BRAF/MEK following a primary and secondary diagnosis of advanced/metastatic disease was used as a proxy for positive BRAF-m status

DATA ANALYSIS

- Baseline characteristics were assessed in the 12 months leading to the index date (start of first line [1L] of therapy).
- A minimum 3-month follow-up time was required.
- 1L was defined as the treatment regimen received following a primary and secondary m-melanoma diagnosis.
- HCRU **(Figure 3)** and healthcare costs **(Figure 4)** were evaluated on a per-patient-per-month (PPPM) level. All-cause costs were adjusted to 2021 USD using the medical care component of the Consumer Price Index (CPI). Total and categorical healthcare costs are described in **Figure 4**.
- Results are presented as summary statistics (means and standard deviation (SD)) and median and interquartile range (IQR)) or frequencies and percentages with results stratified by database and treatment class (immunotherapy [IO] or targeted therapy [TT]) received in 1L.
- Results are purely descriptive, as comparative analyses were not performed. In the absence of formal hypothesis testing, comparative statements should be interpreted with caution.

Figure 1. Study Design

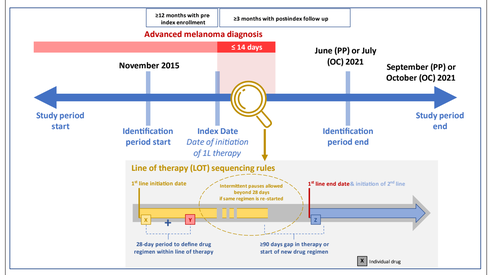


Figure 2. Patient Selection Criteria

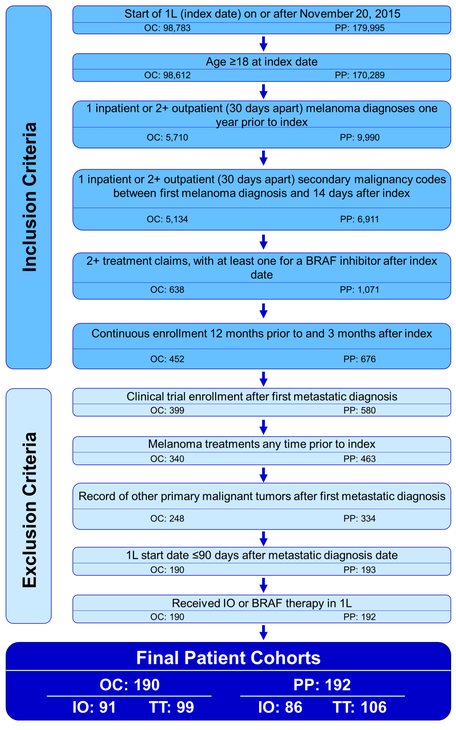


Table 1. Baseline demographic and clinical characteristics

Database	OC		PP	
Characteristics	**IO**	**TT**	**IO**	**TT**
Overall	**91**	**99**	**86**	**106**
Age, years				
Mean (SD)	63 (15)	61 (13)	52 (12)	53 (13)
Median (IQR)	67 (53, 75)	63 (54, 70)	54 (44, 61)	56 (46, 62)
Range	19-89	29-89	23-77	18-80
Sex, n (%)				
Female	35 (38%)	45 (45%)	37 (43%)	47 (44%)
Male	56 (62%)	54 (55%)	49 (57%)	59 (56%)
US Region, n (%)				
North Central	4 (4.4%)	9 (9.1%)	30 (35%)	34 (32%)
Northeast	8 (8.8%)	8 (8.1%)	12 (14%)	22 (21%)
South	36 (40%)	45 (45%)	31 (36%)	36 (34%)
West	27 (30%)	20 (20%)	13 (15%)	14 (13%)
Missing	16 (18%)	17 (17%)	0 (0%)	0 (0%)
Insurance, n (%)				
Commercial	40 (44%)	60 (61%)	60 (70%)	69 (65%)
Medicare	51 (56%)	39 (39%)	4 (4.7%)	6 (5.7%)
Self-insured	0 (0%)	0 (0%)	22 (26%)	31 (29%)
NCI score*, n (%)				
0	32 (35%)	43 (43%)	40 (47%)	35 (33%)
1-2	37 (41%)	23 (23%)	30 (35%)	49 (46%)
3+	22 (24%)	33 (33%)	16 (19%)	22 (21%)
Number of baseline metastases, n (%)				
0	0 (0%)	1 (1.0%)	-	-
1-2	68 (75%)	74 (75%)	65 (76%)	63 (59%)
3+	23 (25%)	24 (24%)	21 (24%)	43 (41%)
Baseline brain metastases, n (%)				
No	74 (81%)	75 (76%)	62 (72%)	71 (67%)
Yes	17 (19%)	24 (24%)	24 (28%)	35 (33%)

*Patients with higher NCI comorbidity index scores have a worse prognosis.

Figure 3. HCRU PPPM during 1L in Patients with BRAF-m m-Melanoma

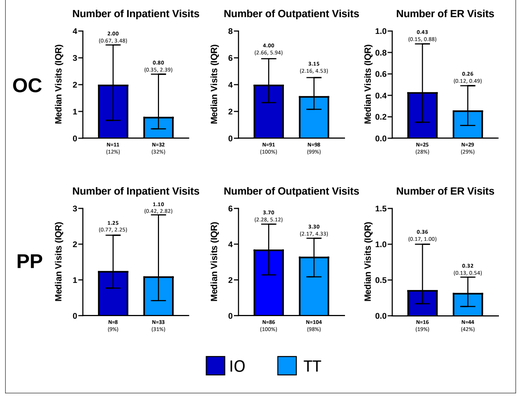
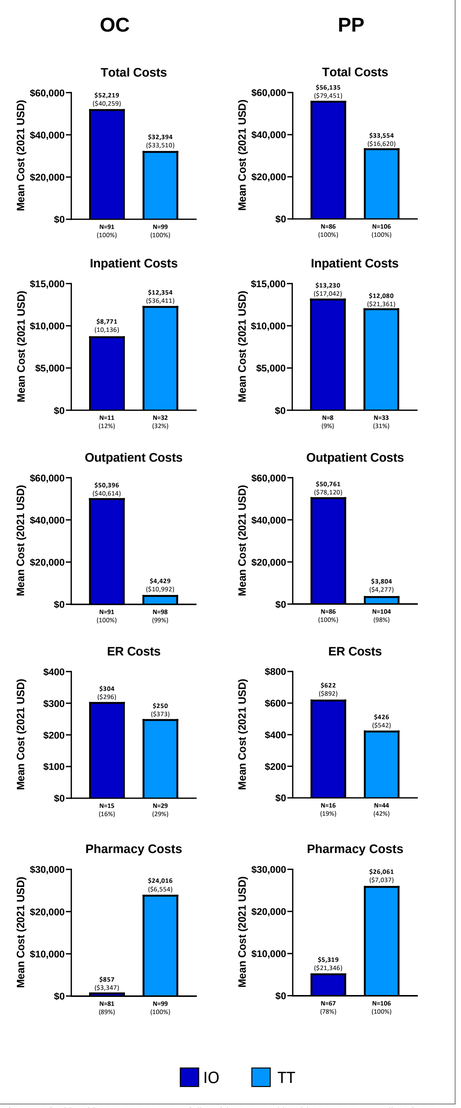


Figure 4. All-cause Costs PPPM during 1L in Patients with BRAF-m m-Melanoma



*Sum of categorical healthcare cots may not fully add up to total healthcare cots. Not all patients had sufficient data to calculate costs.

Results

- 190 patients from OC (IO: n=91, TT: n=99) and 192 from PP (IO: n=86, TT: n=106) met eligibility criteria. **(Figure 2)**
- The median age of IO and TT patients in PP was 56 years old, whereas IO and TT patients in OC were 67 years and 64 years old, respectively. **(Table 1)**
- Greater than 50% of patients were male in both databases and treatment classes. **(Table 1)**
- The TT subgroup had a numerically greater proportion of patients with brain metastasis (OC: 24%, PP: 33%) compared to IO patients (OC: 19%, PP: 28%), and a numerically greater proportion of patients with NCI comorbidity index scores of 3+ (TT - OC: 32%, PP: 21%; IO - OC: 28 %, PP: 17%). **(Table 1)**
- While a numerically greater proportion of TT patients had an inpatient visit (OC: 32%, PP: 31%) compared to IO patients (OC: 9%, PP:12%), IO patients had a numerically greater number of inpatient visits (median PPPM: OC: 2 visits, PP: 1.3 visits) compared to TT patients (median PPPM: OC: 0.8 visits, PP: 1.1 visits). **(Figure 3)**
- Although numerically higher PPPM pharmacy costs were seen in TT patients (OC: $24,016, PP: $26,061) versus IO patients (OC: $857, PP: $5,319), total costs overall were numerically lower in TT patients (OC: $32,394, PP: $33,554) compared to IO patients (OC: $52,219, PP: $56,135). **(Figure 4)**
- The largest PPPM cost difference between IO and TT patients was observed for outpatient costs; outpatient costs for TT patients were numerically lower (OC: $4,429, PP: $3,804) compared to outpatient costs for IO patients (OC: $50,396, PP: $50,761). **(Figure 4)**

Discussion and Conclusions

- The results of this retrospective study suggest differences in clinical characteristics and healthcare costs and resource utilization between patients receiving TT versus IO in 1L m-melanoma.
- TT patients had numerically higher disease burden at baseline compared to IO patients, seen through a higher proportion of patients with high (3+) NCI comorbidity index scores and a higher proportion of brain metastases among TT patients.
- For HCRU, the median number of inpatient stays PPPM was numerically higher in IO therapy compared to TT.
- Mean total costs PPPM were numerically higher in IO patients compared to TT patients in both databases.

LIMITATIONS

- Findings of this study were descriptive, without comparative analyses between the treatment groups as claims data does not have the clinical data necessary to adjust for baseline differences between the cohorts.
- Reported differences or observed trends do not necessarily reflect causal associations, as we did not employ a causal inference framework. Therefore, reported findings could be subject to confounding and selection bias.
- Since mutation status could not directly be ascertained in the claims databases, BRAF-m status was assumed via the use of BRAF TT claims in ≤1 treatment line in the patient journey. This approach may provide an incomplete picture of BRAF+ patient population on IO. Patients who were BRAF-m positive who received IO only and never received TT were not included in this analysis.

References: 1. American Cancer Society. Cancer Facts & Figures 2023. Atlanta: American Cancer Society; 2023. **2.** Spathis A, Katoulis AC, Damaskou V, et al. BRAF Mutation Status in Primary, Recurrent, and Metastatic Malignant Melanoma and Its Relation to Histopathological Parameters. Dermatol Pract Concept. Jan 2019;9(1):54-62. doi:10.5826/dpc.0901a13 **3.** Tanda ET, Vanni I, Boutros A, et al. Current State of Target Treatment in BRAF Mutated Melanoma. Front Mol Biosci. 2020;7:154. doi:10.3389/fmolb.2020.00154

Disclosures: LM, KC and NR are employees of Pfizer. MK, AA and SN are employees of Genesis Research LLC. This study was funded by Pfizer.