Cancer Immunotherapy Response Rates Across Ethnic Groups

Valeria Mejia[1], Lisa Tran[2], Sandip Patel, M.D.[2]
[1]San Diego State University, [2]UC San Diego Moores Cancer Center

San Diego State University • UC San Diego Moores Cancer Center
PARTNERSHIP SCHOLARS
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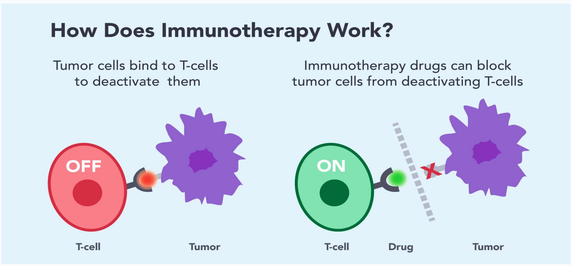
SAN DIEGO STATE UNIVERSITY
UC San Diego Health
MOORES CANCER CENTER

BACKGROUND

Cancer immunotherapy is a treatment that stimulates your own immune system to fight cancer cells. Today, the analysis of patients under this treatment could help researchers understand how well immunotherapy works and how safe it is, and to explore why some patients may respond better. Focusing on ethnicity across histology could reveal differences in response rates in ethnic groups. Across the multiple factors that could explain response rate, ethnicity is an important filter because it composes a multifactorial concept including, but not limited to genetic background.



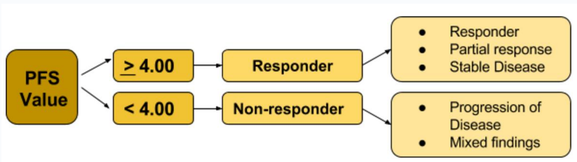
SPECIFIC AIMS

1. Illustrate the demographics of patients under cancer immunotherapy and retrospectively interpret clinical data from patients who obtained immunotherapy treatment.
2. Present how the response rate in Hispanic and Latino patients differs from the rest of the ethnic groups in this study: Asian, Black, White.
3. Display the response rate of histology across all ethnicities and present major differences among them.

METHODS

A retrospective chart review was conducted by collecting data from 164 patients. This information was coded with a study number to avoid disclosing the patient's name or identifying information. Clinical data included information such as demographics, cancer diagnosis, treatment histories, treatment outcomes, family history of cancer, and toxicity.

Progression Free Survival (PFS) is the length of time during and after the immunotherapy treatment of a disease, such as cancer, that a patient lives with the disease but it does not worsen or deteriorate. PFS was calculated in months from start date to the day they progressed or based on their most recent visit with their oncologist. The following concept map illustrates the criteria of categorizing a patient as responder or non-responder:



RESULTS

Fig. 1 Immunotherapy Patients Across Ethnicity

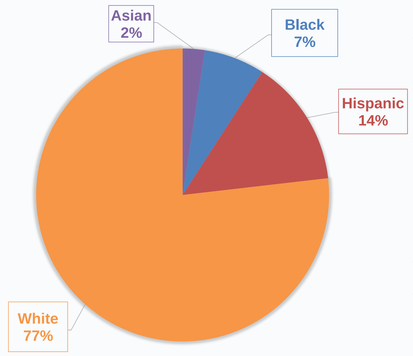


TABLE 1. Demographics

Criteria	Statistics
Median age	62
Age Range	[27-93]
Female	71 (43%)
Male	93 (57%)
Patients on FDA	56%
Patients on Clinical Trial	44%
Total No. of Patients	164
No. PSF Patients	125
Indeterminate	20
Pending	19

Fig. 2 Average PFS Across Ethnicities

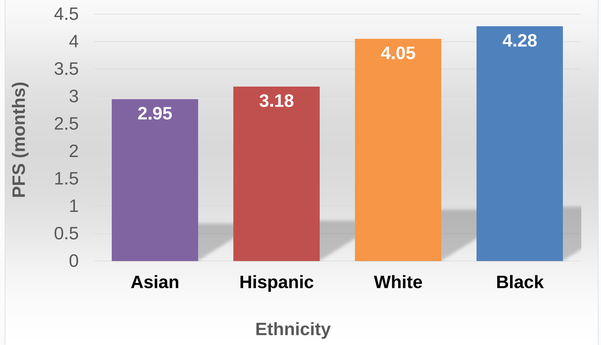


TABLE 2. Progression Free Survival Statistic Summary

Range	Median	Responder avg.	Non-responder avg.	Overall avg.
[0.07-19.00]	2.57	6.81	1.66	3.91

Fig.3 Response Rate Across Ethnicity

TABLE 3. Number of Patients Across Ethnicity

Ethnicity:	Asian	Black	Hispanic	White
Responders	1	4	5	42
Non-responders	1	5	20	52

Fig. 4 Average Progression Free Survival of Hispanic/Latino vs. Whites

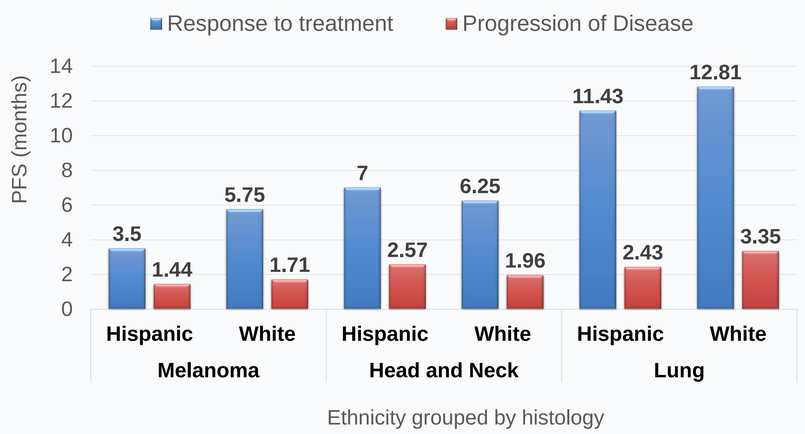


Fig. 5 Average Progression Free Survival Across Histology

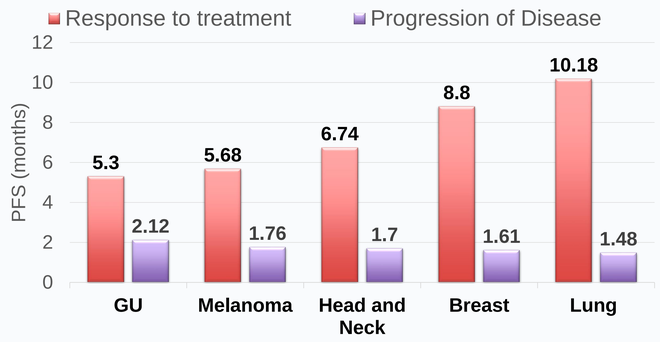


TABLE 4. Overview of Progression Free Survival (PFS) across Histology

Histology	Total Number Patients	Number of Responders	Number of non-Responders	% Response
Head and neck	38	14	15	36.8%
Melanoma	36	15	13	41.7%
Lung	30	10	16	30.0%
GI	28	2	16	7.1%
GU	16	4	5	25.0%
Breast	8	4	3	50.0%
Hematologic	5	3	2	60.0%

All data was updated as of August 1st 2017

CONCLUSIONS

Figure 1 illustrates the majority of immunotherapy patients under the White ethnic group. According to **Figure 2**, the Black population had an overall longer PFS average across histology compared to other ethnicities. Across all ethnicities, the Hispanic/Latinos had the lowest response rate to cancer immunotherapy treatment (20%) compared to other ethnicities (**Figure 3**). There was only enough patient data to make a comparison between two ethnic groups: Hispanic/Latinos and Whites. **Figure 4** illustrates their comparison across the three most common cancer histology: melanoma, head and neck, and lung. It is observed that PFS is longer in Whites (except for head and neck cancers). This means that their disease could remain stable or respond to treatment without progressing. **Figure 5** displays the PFS average across some of the most common types of cancers, comparing the responder patients vs. the non-responder patients. Lung and breast cancer evidently have the leading PFS across histology for the responders, and simultaneously, the shortest PFS for non-responders.

Hispanics seem to have similar benefit to cancer immunotherapy to other ethnic groups, however the overall response rate in Hispanics is more than 20% lower than the rest. However, those patients that did response tended to have prolonged survival, especially if they had lung or head and neck cancer. Research into biomarkers to determine which patients benefit from cancer immunotherapy are crucial in determining which patients benefit from cancer immunotherapy, and research efforts into explaining the lower rate of response to cancer immunotherapy in Hispanic patients should focus on social as well as biologic. Another following step in this research would be to consider a more diverse population or analyze more patients that fall under the minority population: Hispanics, Asian and Blacks. It would be important to consider community outreach efforts to make sure Hispanic cancer patients are aware of cancer immunotherapy as a treatment option. Furthering these studies would help us understand what factors influence response rates across different ethnicities.

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FOR MORE INFORMATION:

Valeria Mejia, SDSU-UCSD Partnership Scholar
Email: vmejia@sdsu.edu

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