Southern Illinois University Edwardsville School of Pharmacy

Evaluation of hospitalizations secondary to PD-1/PD-L1 inhibitor use at a community teaching hospital

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BACKGROUND

- PD-1/PD-L1 inhibitors have proven efficacy in various types of cancer, however, they carry the risk of many immune-mediated reactions/toxicities
- Due to the possibility of these adverse events, the general safety profile of these medications may be considered concerning
- Hospitalizations caused by these adverse events may limit therapy and effect patient outcomes/satisfaction

OBJECTIVE

- To determine the percent of patients who received therapy with a PD-1/PD-L1 inhibitor who required hospitalization from an adverse event directly related to the drug use

METHODS

- Institution's investigational review board granted approval for the study
- Retrospective chart review using the institution's electronic health record (EPIC)
- Database search was conducted to identify patients who had received treatment with one of the PD-1/PD-L1 inhibitors (atezolizumab, durvalumab, nivolumab, or pembrolizumab)
- Inclusion criteria: ≥ 18 years old; had received a PD-1/PD-L1 inhibitor at the institution between 9/4/2014 through 7/30/2020
- Patients were assigned a subject number using a random sequence generator to determine the patient population
- Primary outcome: the rate of hospitalization(s) among patients who received a PD-1/PD-L1 inhibitor
- Secondary outcomes: the rate of hospitalizations directly related to an adverse event caused by a PD-1/PD-L1 inhibitor; to determine if one of the PD-1/PD-L1 inhibitors were associated with an increased number of hospitalizations; to determine mortality rate of patients hospitalized; and to determine the mortality rate due to an adverse event directly related to PD-1/PD-L1 inhibitor use

RESULTS

Table 1: Patient Demographics

	Total (N = 55)
Average age (years)	66
Stage of Cancer	
Stage I	0 (0%)
Stage II	1 (1.8%)
Stage III	16 (28.6%)
Stage IV	39 (69.6%)

Figure 1: Percent of people hospitalized while using a PD-1/PD-L1 inhibitor

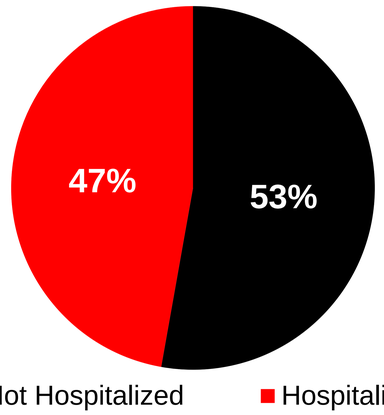
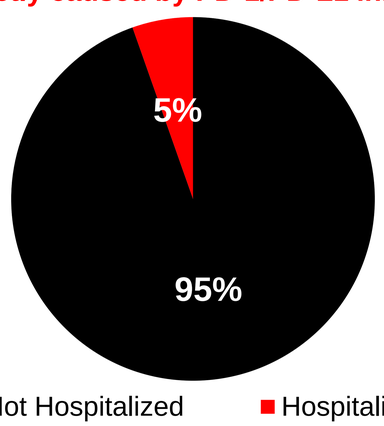


Figure 2: Percent of people hospitalized due to an adverse event directly caused by PD-1/PD-L1 inhibitor use



RESULTS

Table 2: Data pertaining to the drugs included in the study

	Most common diagnosis for use:	Rate of hospitalization:
Atezolizumab	Small cell lung cancer	62.5%
Durvalumab	Non-small cell lung cancer	23%
Nivolumab	Non-small cell lung cancer	58.3%
Pembrolizumab	Non-small cell lung cancer	40%

Table 3: Patient mortality rates

Mortality rate among patients who were hospitalized	15.4%
Mortality rate of patients directly due to PD-1/PD-L1 inhibitor use	0%

CONCLUSIONS

- Many patients were hospitalized while using PD-1/PD-L1 inhibitors
- Most hospitalizations, however, were not attributed to PD-1/PD-L1 inhibitor therapy
- Most patients enrolled in this study were diagnosed with stage III cancer or worse. Because of this, hospitalizations would be common whether these patients were on a PD-1/PD-L1 inhibitor or not