



In patients treated with immune checkpoint inhibitors, myocarditis is infrequent compared with other cardiovascular events



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BACKGROUND

Cardiotoxicity with immune checkpoint inhibitor (ICI) treatment has predominantly focused on myocarditis, which has been estimated to affect ~1% of treated patients. To contextualize myocarditis risk in relation to other cardiovascular (CV) events, we explored reporting of myocarditis, heart failure, arterial and venous thrombotic events in ICI-treated cancer patients.

METHODS

Data from adults treated with ICI between January 2011 and April 2019 were extracted by the University of Colorado enterprise health data warehouse which draws from electronic medical records, claims data, state and public data sources. Medical conditions were determined by International Classification of Diseases (ICD) code; analyses are descriptive.

RESULTS

Demographics and CV risk characteristics of the ICI-treated patients are summarized (Table 1). Melanoma (40%) and lung cancer (31%) accounted for the majority of malignancies treated.

Table 1. Cohort characteristics

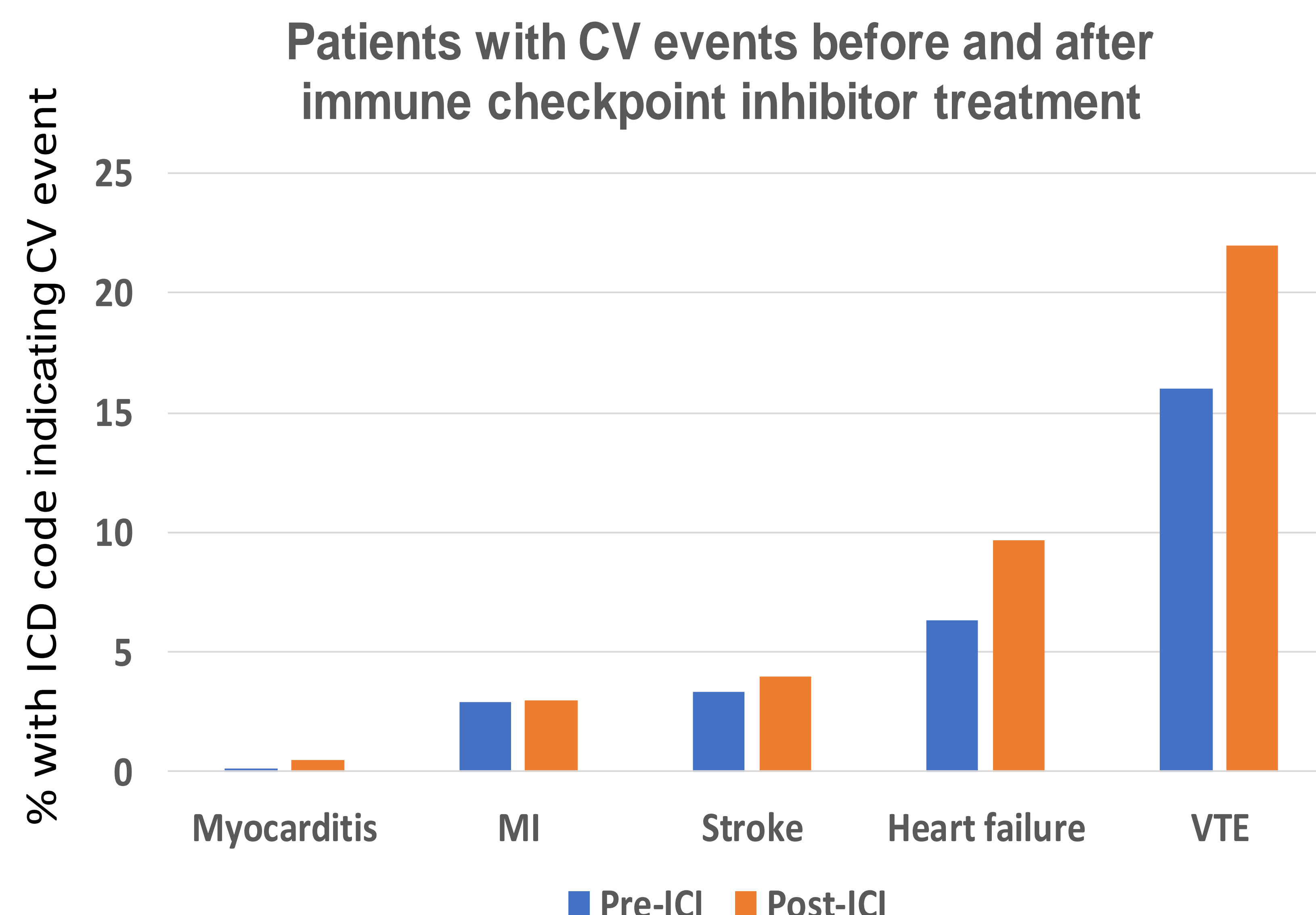
Characteristic	Value
N	1813
Age, mean (SD), years	62.5 (13.5)
Female	41%
Race/ethnicity	
White	90%
Hispanic	6%
Black/African-American	2%
Other, including multiple race	2%
Prior to ICI initiation	
Hypertension	48%
Diabetes mellitus	16%
Current smoker	11%
Coronary revascularization	17%
Chronic kidney disease stage ≥ 3	11%

Table 2. ICI administered

ICI	N (% of patients)
Pembrolizumab	851 (46.9)
Nivolumab	769 (42.4)
Ipilimumab	474 (26.1)
Atezolizumab	104 (5.7)
Durvalumab	21 (1.2)
Avelumab	6 (0.3)
Cemiplimab	6 (0.3)

Pembrolizumab and nivolumab were the most commonly administered ICI (Table 2).

Follow up pre-ICI was 3.2/2.2 years (mean/median), post-ICI 1.4/1.0 years. Both before and after ICI administration, venous thromboembolism (VTE) and heart failure were the most frequent CV events identified by ICD coding (Figure). After initiation of ICI, myocardial infarction (MI) and stroke were reported for 54 (3.0%) and 73 (4.0%) patients, respectively. Myocarditis was more common after ICI than before ICI initiation (1 vs 9 patients [0.1%vs 0.5%]) but was infrequent compared with other CV events.



LIMITATIONS

- Data reflect the experience of a single health system
- Identification of clinical events by ICD coding is less accurate than adjudication based on medical record review
- Adjudication of clinical events by 2 independent cardiologists has been completed; analysis is ongoing

CONCLUSIONS

- Conventional CV risk factors were prevalent among patients treated with ICI
- Arterial and venous thrombotic events and heart failure were much more common than myocarditis in patients treated with ICI

DISCLOSURES

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