BRENTUXIMAB VEDOTIN INDUCED PULMONARY TOXICITIES IN HODGKIN LYMPHOMA PATIENTS

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Introduction

Brentuximab vedotin (BV) is an anti-CD30 antibody conjugated with the anti-microtubule agent monomethyl auristatin E. Common toxicities include peripheral neuropathy neutropenia, nausea, diarrhea, and fatigue with less frequent effects such as vomiting infusion reactions, fever, alopecia, and arthralgias. Serious complications,including pulmonary toxicity,pancreatitis and progressive multifocal leukoencephalopathy have been reported

Methods

We searched our electronic patient database to identify Hodgkin lymphoma patients diagnosed with Brentuximab-induced toxicities between 2021-2025 Patients' characteristics, treatment and management plans were analyzed. We reportfour patients diagnosed with Brentuximab-induced pneumonitis in our institute.

Clinical Presentations

The first 3 patients were treated with AAVD (Brentuximab vedotin, Doxorubicin, Vinblastine and Dacarbazine). A 21-year-old male, smoker diagnosed with stage IVBX Hodgkin lymphoma (HL). He was admitted with fever, shortness of breath and hypoxia before cycle 6 CT scan revealed extensive bilateral patchy opacities peribronchovascular thickening, and diffuse ground-glass opacities. The second patient was a 53-year-old male, smoker with stage IVB HL, he received 2 cycles of AAVD He presented with shortness of breath and hypoxia. CT scan showed diffuse bilateral central ground glass haziness

Image 1: Patient 2 HRCT at presentation

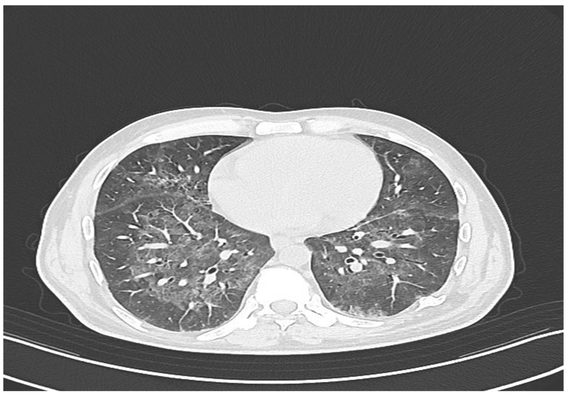
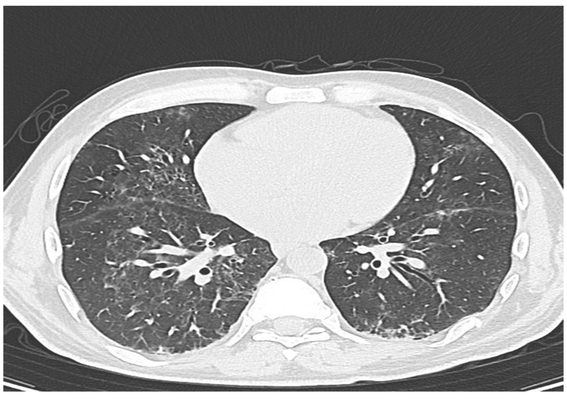


Image 2: Patient 2 HRCT 5 days post High dose Steroids. Almost complete resolution of bilateral central ground glass haziness in bilateral lung fields with persistent reticular thickening



Clinical Presentations cont

The third patient was a 21 Years old male diagnosed with HL Stage IVBX who presented before cycle 6 with respiratory symptoms, fever and a CT scan showing extensive lung changes. All three patients had an extensive infection screening before starting high dose steroids. They all had an excellent response to steroids. All patients recovered well and continued to receive AVD with the omission of Brentuximab. The fourth patient was a 66 years old male who received 2 cycles of AEVD (Brentuximab, Etoposide Vinblastine and Dacarbazine). He was admitted with respiratory symptoms and hypoxia. His CT scan showed diffuse ground glass opacities, he subsequently developed right apical pneumothorax pneumomediastinum and surgical emphysema. He failed to respond to high dose steroids. He was treated with immunosuppression and required long term oxygen therapy. His subsequent investigations revealed a possible undiagnosed interstitial lung disease.

Table 1: Patients characteristics

	Age (Years Old)	Stage	Smoking History	Weigth (kg)	Number of BV cycles received	Cumulative BV dose (mg)
Patient 1	21	IVBX	Yes	80 kg	5	860 mg
Patient 2	53	IVB	Yes	66 kg	2	235 mg
Patient 3	21	IVBX	Yes	119 kg	5	1100 mg
Patient 4	66	IIB	Yes	83 kg	2	300 mg

Conclusions

Pulmonary toxicity is a rare but life-threatening complication associated with BV treatment. A review of the reported case series didn't reveal common potential risk factors Further research and a larger case series are needed to understand the pathology and possible risk factors. The diagnosis is usually made after other potential causes are excluded, particularly infections. Treatment with steroids seems to be effective and should be started promptly once BV pneumonitis is suspected. A thorough assessment of lung function before starting Brentuximab might be helpful and should be considered in high risk patients.

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