

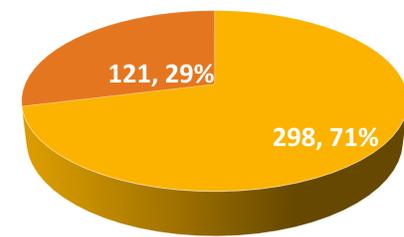
Tolerability of Immune Checkpoint inhibitors in Patients with Underlying Autoimmune Conditions: A Single Center Experience in Rural Maine.

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Abstract

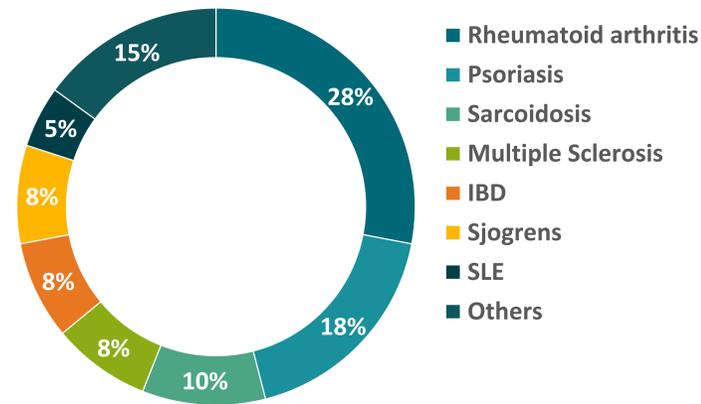
Cancer Immunotherapy is frequently associated with immune-mediated side effects, and is often not recommended in patients with underlying autoimmune conditions. The exact incidence of these side effects is largely unknown, as patients with preexisting autoimmune conditions were largely excluded from clinical trials. We conducted a retrospective chart review analysis of patients with cancer who received Nivolumab or Pembrolizumab, from 2015 till early 2019, at our institution. Among the patients who received immunotherapy, we identified those with underlying autoimmune conditions, excluding thyroid disease, and then developed a disease flare. Out of 419 patients, 121 received Pembrolizumab and 298 received Nivolumab. Eighteen patients in Pembrolizumab group and 21 in Nivolumab group had underlying autoimmune conditions. The most common autoimmune conditions were rheumatoid arthritis (RA), psoriatic arthritis (PA), sarcoidosis and inflammatory bowel disease (IBD). The most common treated malignancies were lung (53%) followed by melanoma (20%). Out of the 39 patients, 11 (28%) (4 from Pembrolizumab and 7 from Nivolumab) developed disease flare. Three had RA, 2 PA, 2 lichen planus, 2 IBD, one multiple sclerosis and one polymyalgia rheumatica flares respectively. Treatment was discontinued for 4 patients, continued without interruption for 4 patients, held for 2 patients and dose reduced for one. The majority (81%) developed a flare within first 3 cycles of initiation of treatment.

Introduction



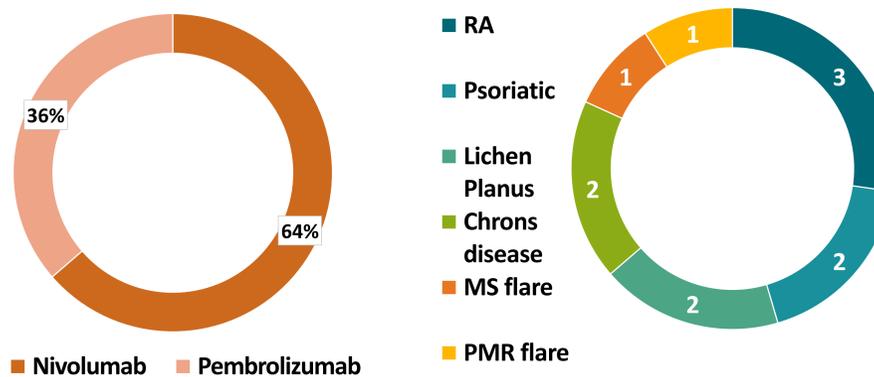
- The above figure illustrates the No and % of patients that received the particular drug
- We had a total of 419 patients who received Nivolumab and Pembrolizumab in our study.
- Among these patients we identified those with underlying autoimmune conditions, excluding underlying autoimmune thyroid disease, and then who developed a disease flare.

Underlying Autoimmune disease



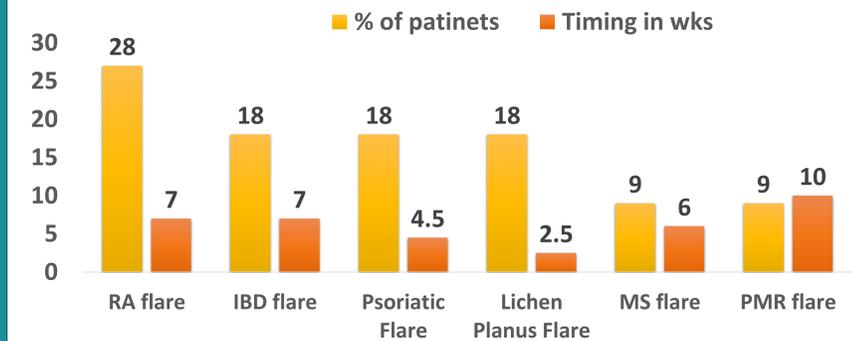
- The above figure shows the % of patients with underlying autoimmune diseases that received treatment with ICIs.
- We had a total of 39 patients who had underlying AI disorder, 21 in Nivolumab and 18 in Pembrolizumab group.
- Average age in patients with underlying AI disorders in our study population is 61, Majority (56%) were females.
- Out of 39 patients 11 (28% - 4 from Pembrolizumab and 7 from Nivolumab group) developed flare of underlying AI disorder

Auto immune disease flares



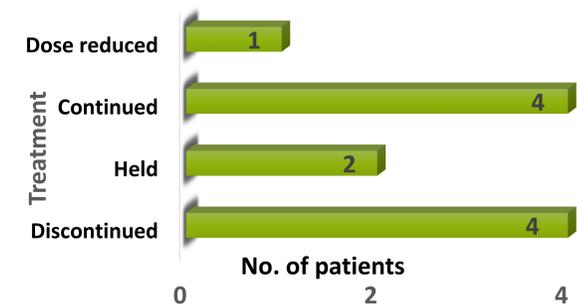
The above chart on the left shows the % of flares for the individual drug, 7 Nivolumab recipients and 4 pembrolizumab recipients developed the flares. The chart on the right shows the individual autoimmune disease flares, RA was the most common flare up noticed in our patients population.

Timing of the flares



- The above graph shows the % of flare of the underlying autoimmune disorder and timing of development of flare in weeks.
- Rheumatoid arthritis flare is the most common flare up followed by IBD, Psoriatic arthritis and Lichen Planus.
- Average time in weeks to develop flares after initiation of ICIs is 5 weeks.

Management



- The above graph shows the management. Treatment was discontinued in 4 patients due to severity of side effects.
- Treatment was continued without interruption in 4 patients
- Dose reduction of Nivolumab was required in 1 patient
- Nivolumab and pembrolizumab were held in 1 patient each for 8 months and 6 weeks respectively and was well tolerated upon rechallenge

Conclusion

In our study population, patients with underlying autoimmune conditions tolerated immunotherapy fairly well. Treatment was stopped in only 4 out of 39 (10%) patients. We believe that further research is warranted in this arena.