Immune Related Adverse Events Among Patients with Previously Diagnosed Autoimmune Diseases after Immune Checkpoint Inhibitor Exposure

Pizuorno Machado, Antonio[1], Shatila Malek[2], Liu, Cynthia[2], Zhang, Hao Chi[2], Thomas, Anusha S[2], Wang, Yinghong[2]

1. Department of Internal Medicine, The University of Texas Health Science Center; 2. Department of Gastroenterology, Hepatology and Nutrition, The University of Texas MD Anderson Cancer Center, Houston, TX

THE UNIVERSITY OF TEXAS MD Anderson Cancer Center
Making Cancer History®

Introduction

- Exposure to immune checkpoint inhibitors (ICI) can predispose to immune-related adverse events (irAE) as well as autoimmune disease (AD) flare ups.
- Previous studies recommended to refrain to use ICI in patients with AD because of the AD flare ups and higher incidence of irAE.
- The characteristics of these two phenomenon has yet to be elucidated. We aim to describe the clinical course, complications, treatment and outcomes of patients with AD on ICI therapy.

Methods

- A retrospective chart review was conducted on cancer patients who were exposed to ICIs between October 2014 and April 2021.
- Patients had a previous diagnosis of AD before starting any dose of ICI.
- Patients were grouped accordingly to their system affected by each AD, eg. endocrine, gastroenterological, neurological etc.
- Patient's clinical characters, treatment, and outcomes were compared between the two groups.

Results

- Among 13,991 cancer patients with an exposure of ICI in the study window, 197 eligible patients were included in our final analysis.
- Overall incidence irAE in our cohort was 21.3%; much higher than comparing other cancer therapies.
- As for the occurrence of AD flare ups,14.7% of our patients had these events; comparing previous studies, they ranged between 18%-52%.
- As for treatment, 149 patients were on PD1/L1 therapy and 14 patients in a CTLA-4 regime and PD1/L! Combined regime.
- Patients with inflammatory bowel disease had the highest incidence of AD flare up in 31.7%.
- Patients with hypothyroidism had the highest incidence of new irAE in 39.2%.
- Patients with previous diagnosis of IBD had overall the more severe irAE with a median CTCAE of 3.5.
- As for irAE, the most common that was present amongst our cohort was colitis, being present in 23.2% of our patients or in 24 out of the 42 patients that had irAE.

Table 1. Summary of AD flare and irAE characteristics per Autoimmune Disease system, N=197

Autoimmune Disease per system	On medical Rx before ICI, N (%)	Flare up after ICI, N (%)	irAE in the same organ of AD, N (%)	irAE in different organ of AD, N (%)
Hematological				
ITP (N=2)	0 (0)	0 (0)	0 (0)	0 (0)
Endocrine				
Hypothyroidism (N=51)	51 (100)	2 (3.9)	0 (0)	20 (39.2)
Neurological				
MS-TM-GBS (N=27)	3 (11.1)	2 (7.4)	0 (0)	5 (18.5)
Rheumatological				
Rheumatoid A (N=58)	58 (100)	15 (25.8)	2 (3.4)	12 (20.6)
Gastroenterological (N=30)	30 (100)	10 (33.3)	6 (20)	5 (16.6)
Microscopic Colitis (N=10)	3(30)	8 (80)	3 (33.3)	1 (10)
Celiac Disease (N=1)	0 (0)	0 (0)	0 (0)	0 (0)
IBD (N=19)	10 (52.6)	6 (31.7)	3 (15.7)	4 (21)

Figure 2A: Summary of pre-existing AD distributions based on the organ involvement of new IRAEs

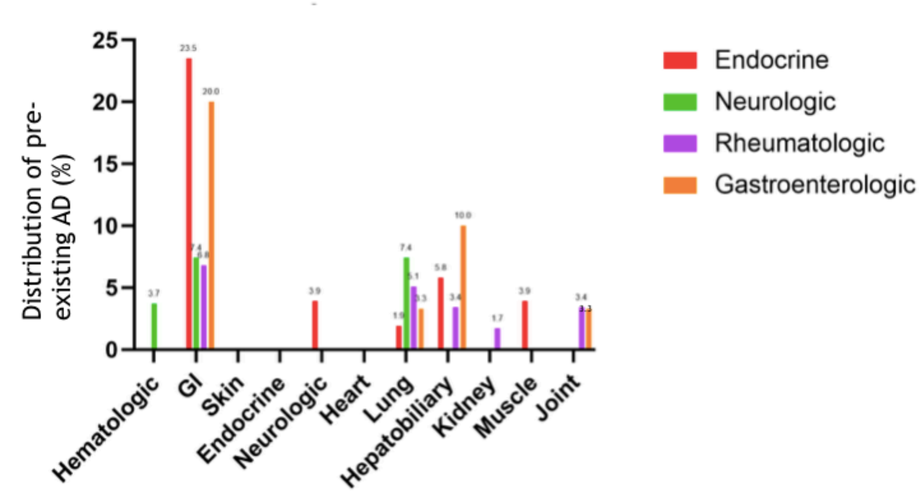
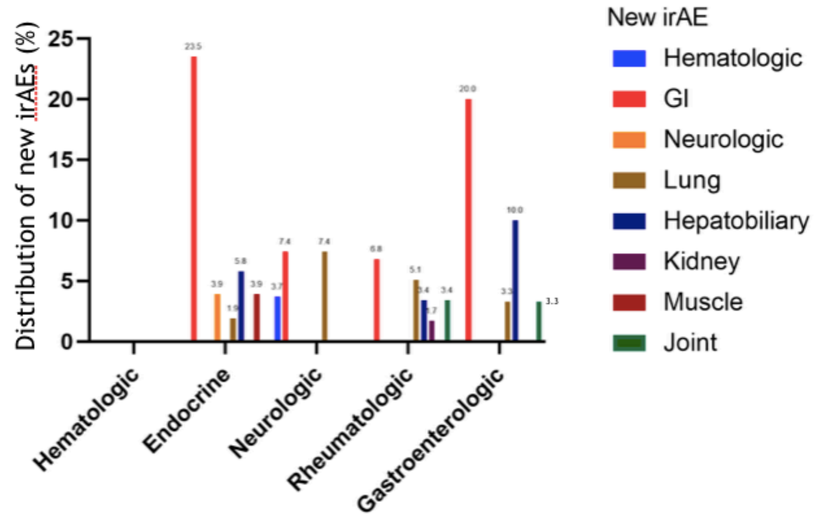


Figure 2B: Summary of new irAE distributions based on pre-existing ADs



Conclusion

- Patients with previous diagnosis of gastroenterological and rheumatologist AD had higher incidence of AD flare ups.
- Patients with previous diagnosis of thyroid and neurological AD had higher incidence of irAE.
- Early recognition of AD flares and/or irAE as well as potentially control of previous AD disease is key for these patients.