Prevalence and characterization of joint manifestations induced by checkpoint inhibitors in oncologic patients

Paula Carbó Mestres [1], Carolina Pérez García [1-2]. 1.- Universitat Pompeu i Fabra. 2.- S. Reumatologia. Hospital del Mar. Barcelona

Introduction

Immune checkpoint inhibitors (ICIs) activate the immune response by inhibiting agents that diminish T-cell function, representing an innovative treatment for cancers such as non-small cell lung cancer and melanoma.

They primarily focus on blocking CTLA-4, PD-1, and PD-L1, which are crucial for T-cell activation. While beneficial to 15-60% of patients, immune-related adverse events (irAEs) are common, affecting various tissues and may indicate a better response to treatment.

Rheumatic irAEs, such as arthritis, are frequent and sometimes require treatment with DMARDs for severe cases.

Objectives

The main aim of this project is to analyze the prevalence and incidence of Rh-irAEs among patients who are undergoing ICIs in Hospital del Mar between August 2021 and August 2022. Moreover, possible differences in prevalence and incidence between our cohort and the one studied among 2016 and 2018 will be accounted. Other secondary objectives are:

- Define how immunomodulate side effects are and their intensity.
- Study the necessity of a new therapeutic scheme for oncologic patients who follow ICIs to minimize Rh-irAEs.

Methods

In the 2021-2022 cohort, 135 patients treated with ICIs were included, and data were collected regarding their age, cancer diagnosis, prior treatments, and rheumatologic side effects. Details were recorded about the type of ICI used, treatment duration, and the number of doses administered before the onset of Rh-irAEs. Laboratory analyses were performed to assess inflammatory markers.

In the 2016-2018 cohort, 21 patients treated with ICIs were included, and similar data were collected regarding age, cancer diagnosis, prior treatments, and rheumatologic side effects. Laboratory analyses were also conducted in this cohort.

Both cohorts were compared in terms of the prevalence and severity of rheumatologic side effects, as well as the treatment administered to address these side effects.

Table 2. Underlying cancer diagnoses of 2016-18 cohort

Lung carcinoma	**7 (33.32%)**	**Bladder carcinoma**	**2 (9.52%)**
Lung adenocarcinoma	5 (23.84%)	Clear renal cell carcinoma	2 (9.52%)
Melanoma	2 (9.52%)	Sigma adenocarcinoma	1 (4.76%)
Medullar colon carcinoma	1 (4.76%)	Lung adenocarcinoma + Urothelial carcinoma	1 (4.76%)

Results

In the 2021-2022 cohort, it was observed that most of patients were younger compared to the 2016-2018 cohort. The most common rheumatologic side effects were arthralgia and arthritis. Levels of C-reactive protein (CRP) were lower in this cohort.

In the 2016-2018 cohort, all patients developed rheumatologic side effects, with arthritis and arthralgia being the most common.

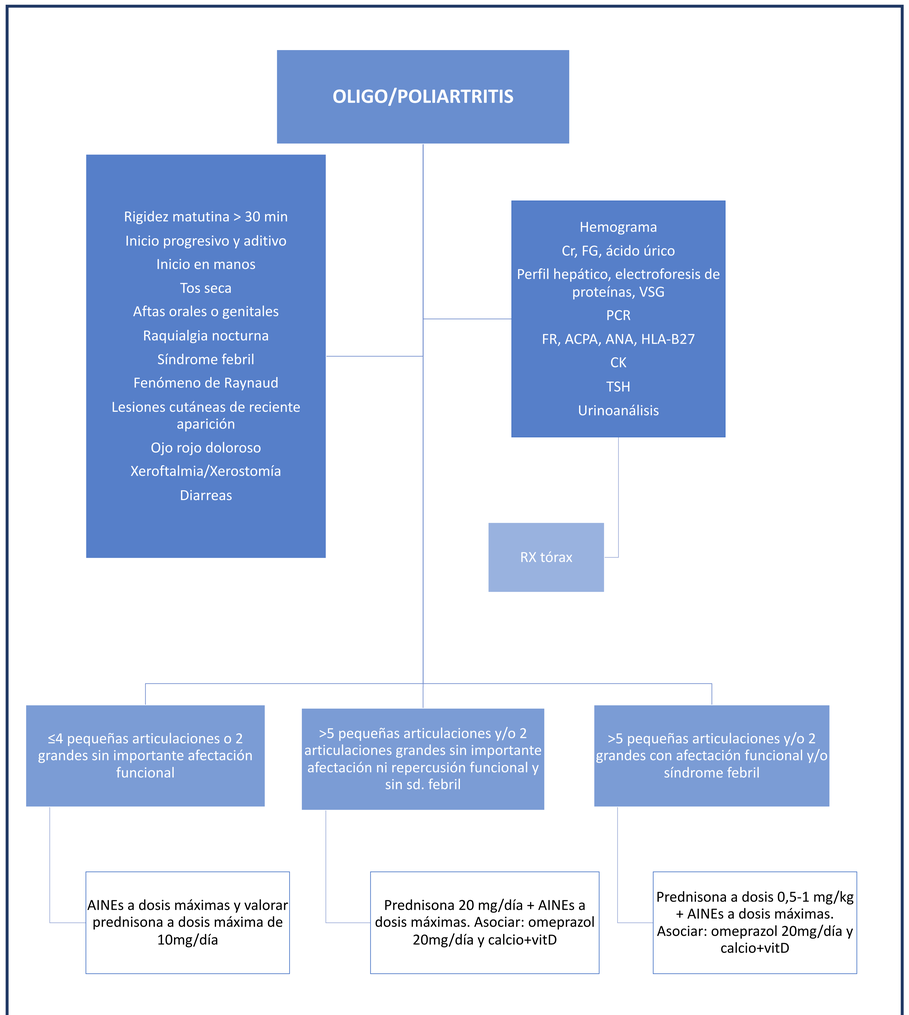
Comparison between both cohorts revealed that there were no significant differences in the prevalence or severity of rheumatologic side effects between them. Furthermore, no significant differences were observed in the treatment administered to address these side effects between the two cohorts.

Table 1. Underlying cancer diagnoses of 2021-2022 cohort

Lung carcinoma	**49 (36.3%)**	**Squamous nasopharynx carcinoma**	**3 (2.22%)**
Lung adenocarcinoma	37 (27.41%)	Oral cavity carcinoma	2 (1.48%)
Melanoma	14 (10.37%)	Neuroendocrine carcinoma	2 (1.48%)
Urothelial carcinoma	11 (8.15%)	Gastric adenocarcinoma	1 (0.74%)
Clear renal cell carcinoma	5 (3.71%)	Larynx carcinoma	1 (0.74%)
Hepatocellular carcinoma	4 (2.96%)	Squamous esophagus carcinoma	1 (0.74%)
Supraglottic carcinoma	4 (2.96%)	Pancoast tumor	1 (0.74%)

Table 3. Comparison between 2021-2022 cohort and 2016-2018 cohort.

	2021-2022 cohort	**2016-2018 cohort**
Age	54.4 years (SD 15,313)	68.1 years (SD 13.088)
Time before Rh-irAE	4.85 months (SD 3.764)	4.96 months (SD 3.927)
Doses before Rh-irAE	2.1 doses (SD 1.449)	2.25 doses (SD 1.282)
PCR	0.17 (SD 0.38)	8.86 (SD 11.52)
ACPA	Negative	282.638 (SD 1076.08)
RF	Negative	36.9 (SD 100.32)
ANA	Negative	Negative
ANCA	Negative	Negative



Conclusions

The study suggests that the use of ICIs is on the rise, and rheumatologic side effects do not appear to be more severe with the newer drugs. This supports the safety of using ICIs in cancer treatment. However, limitations of the study, such as sample size and lack of representation of the general population, should be taken into consideration.

In summary, the results indicate that ICIs continue to be a safe treatment option in oncology, and the prevalence and severity of rheumatologic side effects have not significantly changed with the introduction of new medications.

N.º 399