SUPPLEMENTAL MATERIAL

Supplemental Table 1. Search strategies.

Line #	Database (platform): MEDLINE (Ovid)
1	COVID-19.rx,px,ox. or severe acute respiratory syndrome coronavirus 2.os.
2	("COVID-19" or COVID19 or "COVID 2019" or "novel coronavirus" or "SARS-CoV" or "SARS-CoV-2" or "SARS2" or "2019-nCoV" or ncov19 or ncov-19 or "2019-novel CoV" or sarscov2 or sarscov-2 or Sars-coronavirus2 or Sars-coronavirus-2 or SARS-like coronavirus* or coronavirus-19).ti,ab,kf.
3	(coronavirus* or "corona virus*").ti,kf.
4	Coronavirus Infections/
5	or/1-4
6	20191201:20301231.(dt).
7	5 and 6 [COVID-19, SARS-COV-2]
8	limit 7 to english language
9	exp Neoplasms/
10	(cancer* or carcinom* or tumor* or tumour* or neoplas* or malignan* or metasta* or myeloma* or leuk?emia* or lymphoma* or sarcoma* or melanoma* or oncolog*).ti,ab,kf.
11	9 or 10 [Cancer]
12	8 and 11
13	(checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ti,kf,rn.
14	(checkpoint and (inhibitor* or modulator* or antibod* or block*)).nm.
15	(checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ab.
16	(("cytotoxic T lymphocyte associated" adj3 "4") or "CTLA 4" or CTLA4).ti,kf,rn.
17	("Cytotoxic t-lymphocyte antigen" adj3 "4").ti,kf,rn.
18	("Cytotoxic t-lymphocyte antigen" or "cytotoxic T lymphocyte associated").nm.
19	(ipilimumab or "MDX CTLA 4" or Yervoy or "MDX 010" or MDX010 or "BMS-734016" or BMS734016).mp.
20	("Programmed Cell Death 1" or PD1 or "PD 1").ti,kf,rn,nm.
21	(pembrolizumab or Keytruda or Lambrolizumab or "Merck 3475" or Merck3475 or "MK 3475" or MK3475 or "Sch 900475" or Sch900475 or "HSDB 8257").mp.
22	(nivolumab or "BMS 936558" or BMS936558 or "MDX 1106" or MDX1106 or "ONO 4538" or ONO4538 or Opdivo).mp.
23	("AMP 514" or AMP514 or MEDI0680 or "MEDI 0680").mp.
24	("programmed death ligand 1" or "PD L1" or PDL1 or "B7-H1" or B7HI).ti,kf,rn,nm.
25	(atezolizumab or Tecentriq or MPDL3280A or "MPDL 3280A" or RO5541267 or RO-5541267 or RG 7446 or RG7446 or "CD274 ANTIGEN" or "CD274 protein").mp.
26	(durvalumab or imfinzi or "MEDI 4736" or MEDI4736).mp.
27	(avelumab or Bavencio or MSB0010718C or "MSB 0010718C" or MSB0010682).mp.
28	("BMS 936559" or BMS936559 or MDX1105 or "MDX 1105").mp.

29	(Cemiplimab or libtayo or REGN2810 or "REGN 2810").mp.
30	or/13-29
31	12 and 30 [COVID-19 + cancer patients + immunotherapy (checkpoint inhibitors)]
Line #	**Database (Platform): Embase (Ovid)**
1	("COVID-19" or COVID19 or "COVID 2019" or "novel coronavirus" or "SARS-CoV" or "SARS-CoV-2" or "SARS2" or "2019-nCoV" or ncov19 or ncov-19 or "2019-novel CoV" or sarscov2 or sarscov-2 or Sars-coronavirus2 or Sars-coronavirus-2 or SARS-like coronavirus* or coronavirus-19).ti,ab,kw.
2	(coronavirus* or "corona virus*").ti.
3	severe acute respiratory syndrome/
4	coronavirus infection/
5	"coronavirus disease 2019"/
6	or/1-5
7	limit 6 to english language
8	limit 7 to dc=20191201-20221231
9	exp malignant neoplasm/
10	(cancer* or neoplas* or tumo?r* or leuk?emia* or lymphoma* or melanoma* or carcinoma* or sarcoma* or oncolog*).ti,ab,kw.
11	9 or 10
12	8 and 11
13	(immun* adj3 checkpoint adj3 (inhibitor* or modulator* or antibod* or block*)).ti,hw,kw.
14	(("cytotoxic T lymphocyte associated" adj3 "4") or "CTLA 4" or CTLA4).ti,kw,hw.
15	("Cytotoxic t-lymphocyte antigen" adj3 "4").ti,kw,hw.
16	(ipilimumab or "MDX CTLA 4" or Yervoy or "MDX 010" or MDX010 or "BMS-734016" or BMS734016).ti,ab,hw,kw,du,tn.
17	("Programmed Cell Death 1" or PD1 or "PD 1").ti,kw,hw,du,tn.
18	(pembrolizumab or Keytruda or Lambrolizumab or "Merck 3475" or Merck3475 or "MK 3475" or MK3475 or "Sch 900475" or Sch900475 or "HSDB 8257").ti,ab,kw,hw,du,tn.
19	(nivolumab or "BMS 936558" or BMS936558 or "MDX 1106" or MDX1106 or "ONO 4538" or ONO4538 or Opdivo).ti,ab,kw,hw,du,tn.
20	("programmed death ligand 1" or "PD L1" or PDL1 or "B7-H1" or B7HI).ti,kw,hw.
21	(atezolizumab or Tecentriq or MPDL3280A or "MPDL 3280A" or RO5541267 or RO-5541267 or RG 7446 or RG7446 or "CD274 ANTIGEN" or "CD274 protein").ti,ab,kw,hw,du,tn.
22	(avelumab or Bavencio or MSB0010718C or "MSB 0010718C" or MSB0010682).ti,ab,kw,hw,du,tn.
23	(Cemiplimab or libtayo or REGN2810 or "REGN 2810").ti,ab,kw,hw,du,tn.
24	(durvalumab or imfinzi or "MEDI 4736" or MEDI4736).ti,ab,kw,hw,du,tn.
25	or/13-24
26	12 and 25

Supplemental Table 2. Characteristics of the participants included in the studies

Study ID	Country	Age	Cancer types	Types of ICI	Interval between last ICI dose and COVID-19 diagnosis	Funding
Prospective cohorts						
Mandala 2021[22]	Italy	66.5 mean (SD 12.1)	melanoma, lung, renal cell carcinoma	anti-PD-1, anti-PD-L1, anti-CTLA4	median 23.5 (IQR 14-42) days	None
Nichetti 2020[25]	Italy	62 median (IQR 54.5-71)	breast, colorectal, gastric, head and neck, lung, melanoma, pancreatic, prostate, renal, sarcoma, urothelial, neuroendocrine	pembrolizumab nivolumab	median 50 days	None
Yarza 2020[32]	Spain	66	kidney, lung, colorectal, upper gastrointestinal, bladder, breast, gynecological, prostate, thyroid, head and neck, sarcoma.	NR	within 28 days	None
Retrospective cohorts						
Albiges 2020[10]	France	61 median (IQR 52-71)	breast, gynecological, head and neck, gastrointestinal, genitourinary, thoracic, dermatology, others. Mature B cell neoplasm, acute	NR	within 90 days	NR

			myeloid leukemia, Hodgkin lymphoma.			
Assaad 2020[9]	France	63.8 mean (SD 2.2)	breast, colorectal, soft tissue sarcomas, renal cell carcinoma, pancreas, uterine, bone, peritoneal, esophagus, adrenal, anal carcinoma, ovarian, prostate, testis adenocarcinoma, glioma, duodenum, parotid, maxillary sinuses, supraglottis, thymoma, bladder carcinoma	anti-PD-1, anti-PD-L1	within 30 days	NetSARC (INCA & DGOS) and RREPS (INCA & DGOS), RESOS (INCA & DGOS) and LYRICAN (INCA-DGOS-INSERM 12563), Institut Convergence PLASCAN (17-CONV-0002), Association DAM's,Ensemble contre Le GIST, Eurosarc (FP7-278,742), la Fondation ARC, Infosarcome, InterSARC (INCA), LabEx DEvweCAN (ANR-10-LABX-0061), Ligue de L'Ain contre le Cancer, La Ligue contre le Cancer, EURACAN (EC 739,521)
Dai 2020[12]	United States	64 median	lung, gastrointestinal, breast, thyroid, blood cancer, cervix, esophagus	anti-PD-1	within 40 days	None
Garassino 2020[13]	Italy	68 median (IQR 61.8-75)	thoracic malignancy	NR	within 60 days	None
Gonzalez-Cao 2020[23]	Spain	69 median (range 6 - 94)	melanoma	anti-PD-1	undergoing cancer treatment	NR
Grivas 2021[14]	United States	70 median (IQR 60-79)	breast, prostate, thoracic, lower gastrointestinal, genitourinary, gynecological, upper gastrointestinal,	NR	within 90 days	Vanderbilt Institute for Clinical and Translational Research grant support

			endocrine, skin cancer, head and neck, sarcoma, nervous system, lymphoid neoplasms, multiple myeloma, myeloid neoplasm			
Gulati 2021[15]	United States	66	NR	anti-PD-1, anti-PD-L1, anti-CTLA4	within 1 year	NIH
Hwang 2021[16]	United States	66 median (IQR 55-75)	hematological, breast, genitourinary, lung, gastrointestinal, abdominal, gynecological, CNS and brain, skin, head and neck,	NR	within 30 days	None
Jee 2021[17]	United States	NR	breast, colorectal, renal, bladder, melanoma, cervical, uterine, esophageal, stomach, hepatocellular carcinoma.	anti-PD-1, anti-PDL1, anti-CTLA4	within 90 days	NIH
Klebanov 2021[18]	United States	66.6 mean (SD 12)	hematological, solid	pembrolizumab, nivolumab, atezolizumab, ipilimumab, cemiplimab, avelumab, durvalumab	NR	NR
Lara 2020[19]	United States	64 median (IQR 51-73)	gynecological	pembrolizumab, nivolumab, NC318	within 50 days	NIH
Lin 2021[20]	United States	65 median (range 31-94)	breast, gynecological, gastrointestinal, lung, head and neck, genitourinary, brain, osteosarcoma, hematological	atezolizumab, durvalumab, pembrolizumab, nivolumab	within 30 days	NR

Luo 2020[21]	United States	68 median (IQR 61-75)	lung	anti-PD-1	within 45 days	NR
Moritz 2021[38]	Germany	65 median (IQR 26-88)	melanoma	anti-PD-1	median 17 days (range 0-51)	None
Pinato 2020[26]	United Kingdom	68 mean (SD 12.8)	head and neck, lung, gastrointestinal, breast, gynecologic, genitourinary, lymphoma/leukemia	NR	mean 19.3 days (SD 33.3)	None
Robilotti 2020[7]	United States	60	leukemia, lymphoma, myeloma, breast, colorectal, lung, prostate	pembrolizumab, nivolumab, atezolizumab, avelumab, durvalumab, ipilimumab, nivolumab + ipilimumab	within 90 days	NR
Trojaniello 2021[39]	Italy	NR	skin cancer	cemiplimab, nivolumab, pembrolizumab, ipilimumab	undergoing ICI treatment	None
Tyan 2020[31]	United States	72 median (range 45-83)	thoracic, melanoma and non-melanoma skin cancer, gastrointestinal, hematologic	atezolizumab, durvalumab, pembrolizumab, nivolumab, ipilimumab	median 29 days	NR
Case reports						

Buyansky 2021[11]	Canada	62	squamous cell carcinoma	durvalumab	10 days	Fonds de Recherche du Québec en Santé
Ramos-Ruperto 2021[27]	Switzerland	76	lung cancer	pembrolizumab	undergoing ICI treatment	NR
Rolfo 2020[28]	Colombia	1. 62 2. 58	lung	1. ipilimumab + nivolumab 2. pembrolizumab	2 days	NR
Serra-Garcia 2021[29]	Spain	48	basal cell carcinoma	cemiplimab	NR	None

NR = not reported; NA = not applicable; ICI = immune checkpoint inhibitor; IQR = interquartile range; SD = standard deviation; anti-PD-1= programmed cell death protein 1 inhibitors; anti-PD-L1= programmed death-ligand 1 inhibitors; anti-CTLA4 = cytotoxic T lymphocyte-associated protein 4 inhibitor

Supplemental Table 3. Risk of bias of cohort studies. Newcastle Ottawa Scale

Author	Selection				Comparability		Outcome			Total quality score
	Representativeness of exposed cohort	*Selection of non-exposed cohort*	*Ascertainment of exposure*	*Demonstration that outcome of interest was not present at start of study, OR baseline assessment*	*Adjust for the most important risk factors*	*Adjust for other risk factors*	*Assessment of outcome*	*Follow-up length*	*Loss to follow-up rate*	
Albiges 2020	☆	☆	☆	☆	☆			☆	☆	7
Assaad 2020	☆	☆	☆	☆	☆	☆		☆	☆	8
Dai 2020	☆	☆	☆	☆	☆	☆		☆	☆	8
Garassino 2020	☆	☆	☆	☆	☆		☆	☆	☆	8
Gonzalez-Cao 2020	☆	☆	☆				☆	☆	☆	6
Grivas 2021	☆	☆		☆	☆	☆	☆	☆		7
Gulati 2021	☆	☆	☆	☆				☆	☆	6
Hwang 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Jee 2021	☆	☆	☆	☆				☆	☆	6
Klebanov 2021			☆	☆	☆				☆	4
Lara 2020	☆	☆	☆		☆		☆	☆	☆	7
Lin 2021	☆	☆	☆		☆	☆	☆	☆	☆	8
Luo 2020	☆	☆	☆	☆			☆		☆	6
Mandala 2021	☆	☆	☆	☆			☆	☆	☆	7
Moritz 2021	☆		☆				☆		☆	4
Nichetti 2020	☆	☆	☆	☆			☆	☆	☆	7
Pinato 2020	☆		☆		☆			☆	☆	5
Robilotti 2020	☆	☆	☆	☆	☆		☆	☆	☆	8
Trojaniello 2021	☆		☆	☆			☆		☆	5
Tyan 2020	☆	☆			☆		☆	☆	☆	6
Yarza 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Supplemental Table 4. Results of individual cohort studies

Study ID	Outcome	ICI events/total (%)	Chemotherapy events/total (%)	ICI + chemotherapy events/total (%)	Targeted therapy events/total (%)	No treatment events/total (%)	Hormone therapy events/total (%)	No ICI treatment events/total (%)	Adjusted analysis OR (CI95%)
Albiges 2020[10]	Clinical Worsening	3/19 (16.8)	26/66 (39.4)	-	7/30 (23.3)	-	-	-	NR
	Mortality	3/19 (16.8)	18/66 (27.3)	-	2/30 (6.7)	-	-	-	NR
Assaad 2020[9]	Mortality	0/3 (0)	0/16 (0)	-	-	5/26 (19.2)	-	-	NR
Dai 2020[12]	Mortality	2/6 (33.3)	1/12 (8.3)	1/3 (33.3)	0/4 (0)	-	-	-	NR
	Severe COVID-19	4/6 (66.7)	-	-	-	-	-	-	NR
	ICU admission	-	-	-	-	-	-	-	NR
Garassino 2020[13]	Hospital admission	26/34 (76.5)	35/48 (72.9)	16/20 (80)	17/28 (60.7)	42/52 (80.8)	-	-	NR
	Mortality	11/33 (33.3)	22/46 (47.8)	-	8/28 (28.6)	13/49 (26.5)	-	-	NR
Gonzalez-Cao 2020[14]	Mortality	3/22 (13.6)	-	-	2/16 (12.5)	4/12 (33.3)	-	-	NR
Grivas 2021[14]	Mortality	39/248 (15.7)	144/802 (18)	-	104/693 (15)	374/2807 (13.3)	47/483 (9.7)	-	0.91 (0.56-1.47)
	ICU Admission	15/248 (6)	29/802 (3.6)	-	34/693 (4.9)	142/2807 (5.1)	20/483 (4.1)	-	NR
	Hospital Admission	75/248 (30.2)	293/802 (36.5)	-	243/693 (35.1)	953/2807 (34)	149/483 (30.8)	-	NR
	Mechanical ventilation	11/248 (4.4)	31/802 (3.9)	-	48/693 (6.9)	167/2807 (5.9)	24/483 (5)	-	NR
	Severe COVID-19	-	-	-	-	-	-	-	0.86 (0.64-1.16)
Gulati 2021[15]	Venous thromboembolism (VTE)	23/199 (11.6)	-	-	62/675 (9.2)	-	26/363 (7.2)	-	NR

Hwang 2021[16]	Mortality	6/12 (50)	12/39 (30.8)	-	12/63 (19)	152/1175 (12.9)	-	-	5.22 (1.2-22.3)*
Jee 2021[17]	Respiratory failure or death	14/51 (27.5)	14/38 (36.8)	-	-	-	-	-	NR
Klebanov 2021[18]	COVID-19 infection	22/1545 (1.4)	-	-	-	-	-	213/20418 (1)	1.38 (0.89-2.13)
	Mortality	9/22 (40.9)	-	-	-	-	-	61/213 (28.6)	1.60 (0.78-3.29)
Lara 2020[19]	Severe COVID-19	3/8 (37.5)	6/35 (17.1)	-	2/13 (15.4)	-	0/9 (0)	-	NR
Lin 2021[20]	Hospital Admission	5/10 (50)	16/35 (45.7)	-	-	-	-	-	NR
Luo 2020[21]	Hospital Admission	18/26 (69.2)	18/26 (69.2)	12/14 (85.7)	7/10 (70)	-	-	-	1.20 (0.33-4.23)
	ICU/Intubation/DNI	7/26 (26.9)	11/26 (42.3)	6/14 (42.9)	5/10 (50)	-	-	-	0.83 (0.24-2.82)
	Mortality	5/26 (19.2)	9/26 (34.6)	4/14 (28.6)	1/10 (10)	-	-	-	1.13 (0.25-5.03)
Mandala 2021[22]	COVID-19 infection	52/159 (32.7)	13/50 (26)	-	24/84 (28.6)	-	-	-	NR
	Hospital admission	7/52 (13.5)	1/13 (7.7)	-	-	-	-	-	NR
	Mortality	6/52 (11.5)	2/13 (15.4)	-	-	-	-	-	NR
	Serious adverse events	9/52 (17.3)	2/13 (15.4)	-	-	-	-	-	NR
		4/107 (3.7) no SARS-CoV-2	1/37 (2.7) no SARS-CoV-2						
Moritz 2021[38]	Mortality	0/13 (0)	-	-	-	-	-	-	NR
	ICU Admission	2/13 (15.4)	-	-	-	-	-	-	NR
	COVID-19 infection	13/652 (2)	-	-	-	-	-	-	NR
	irAEs	0/13 (0)	-	-	-	-	-	-	NR
	Mortality	2/4 (50)	2/5 (40)	-	-	-	2/2 (100)	-	NR

Nichetti 2020[25]	COVID-19 infection	4/493 (493)	-	-	-	-	-	7/822 (0.85)	NR
Pinato 2020[26]	Mortality	NA	-	-	-	-	-	-	HR 0.80 (0.46-1.40)**
Robilotti 2020[7]	Hospital admission	-	-	-	-	-	-	-	2.66 (1.05-6.54)
	Severe respiratory illness	-	-	-	-	-	-	-	2.22 (1.06-4.65)
Trojaniello 2021[39]	Severe COVID-19	1/17 (5.9)	-	-	-	-	-	-	NR
	irAEs	0/17 (0)							
Tyan 2020[31]	Mortality	7/25 (28)	-	-	-	-	-	9/25 (36)	0.36 (0.07-1.87)
	Hospital admission	19/25 (76)	-	-	-	-	-	24/25 (96)	NR
	ICU admission	5/25 (20)	-	-	-	-	-	10/25 (40)	NR
Yarza 2020[32]	Respiratory failure	4/8 (50)	19/36 (52.8)	-	2/7 (28.6)	-	6/7 (85.7)	-	NR
	ARDS	3/8 (37.5)	7/36 (19.4)	-	1/7 (14.3)	-	4/7 (57.1)	-	NR
	Mortality	-	-	-	-	-	-	-	0.15 (0.01-1.65)

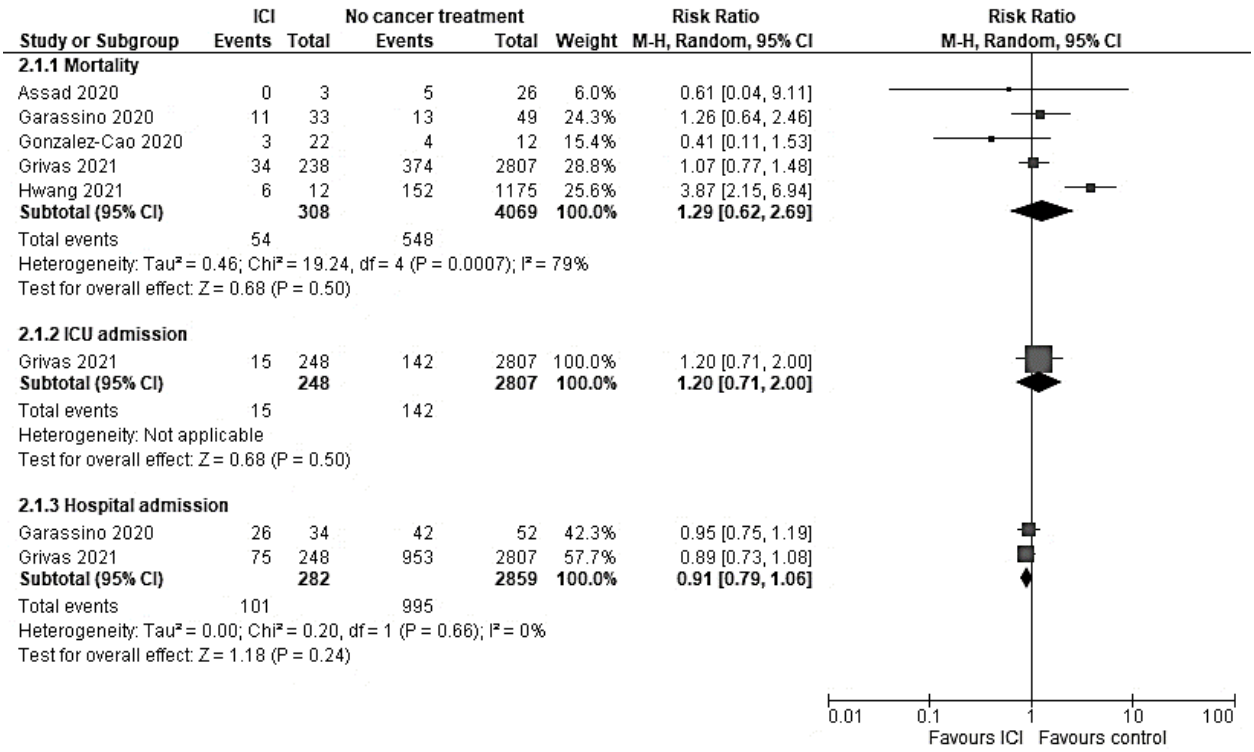
ICU = intensive care unit; ARDS: acute respiratory distress syndrome; DNI = do not intubate; NR = not reported; irAE = immune related adverse event; HR = hazard ratio; CI = confidence interval

*The comparison group was cancer patients without treatment

**univariable analysis

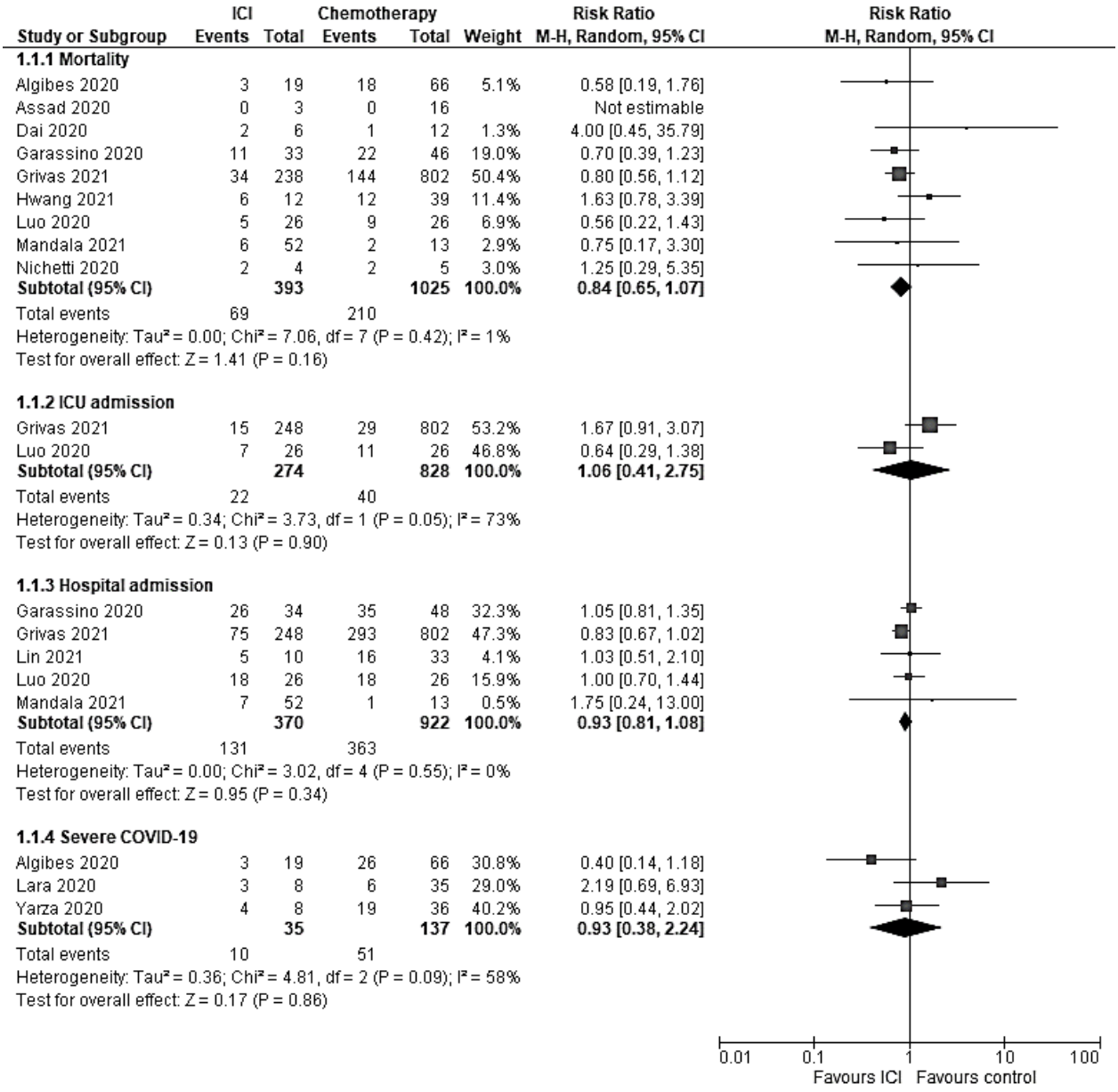
FOREST PLOT

Supplemental Figure 1. Comparison ICI versus no cancer treatment



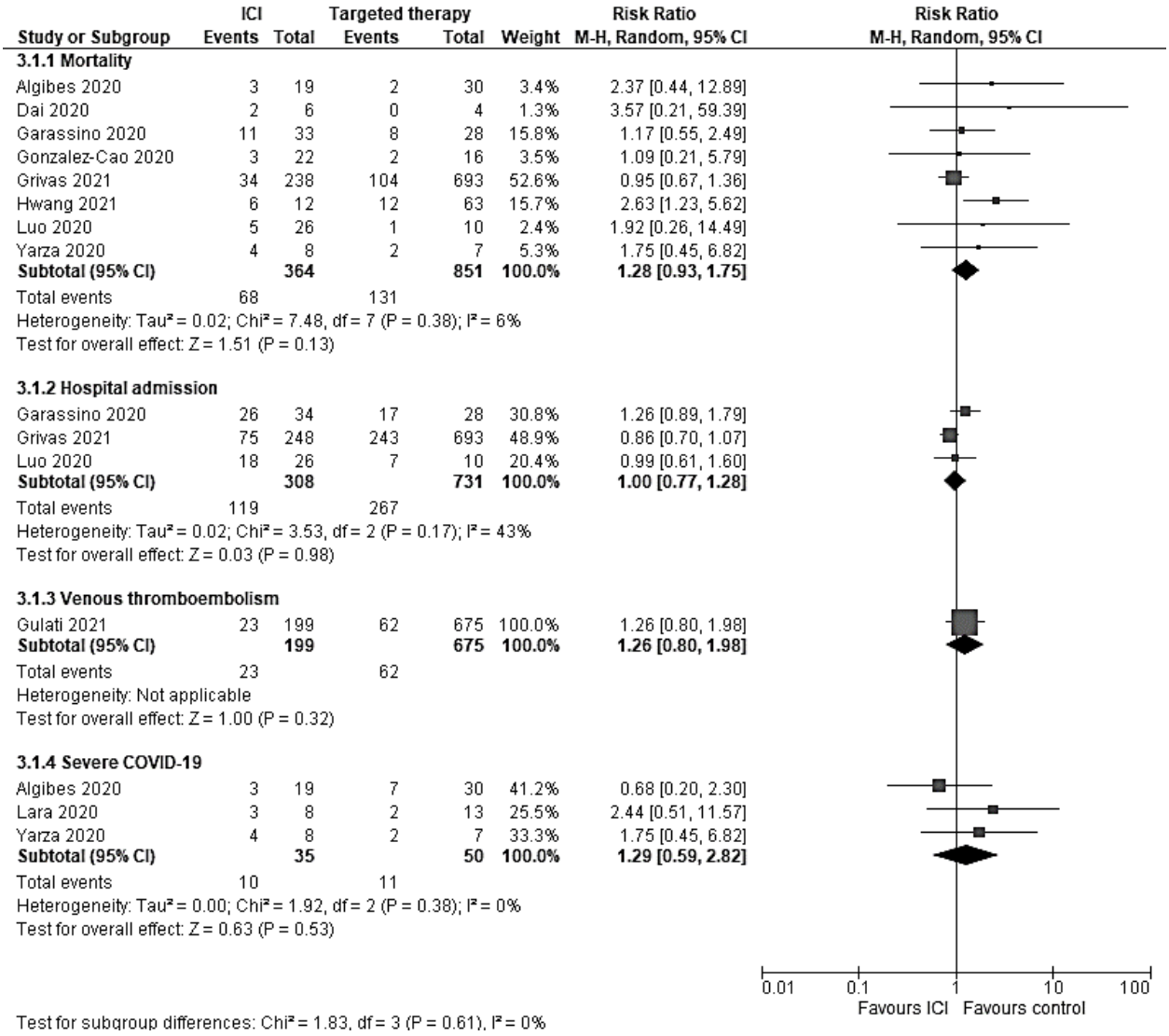
ICI= immune checkpoint inhibitor

Supplemental Figure 2. Comparison ICI versus chemotherapy



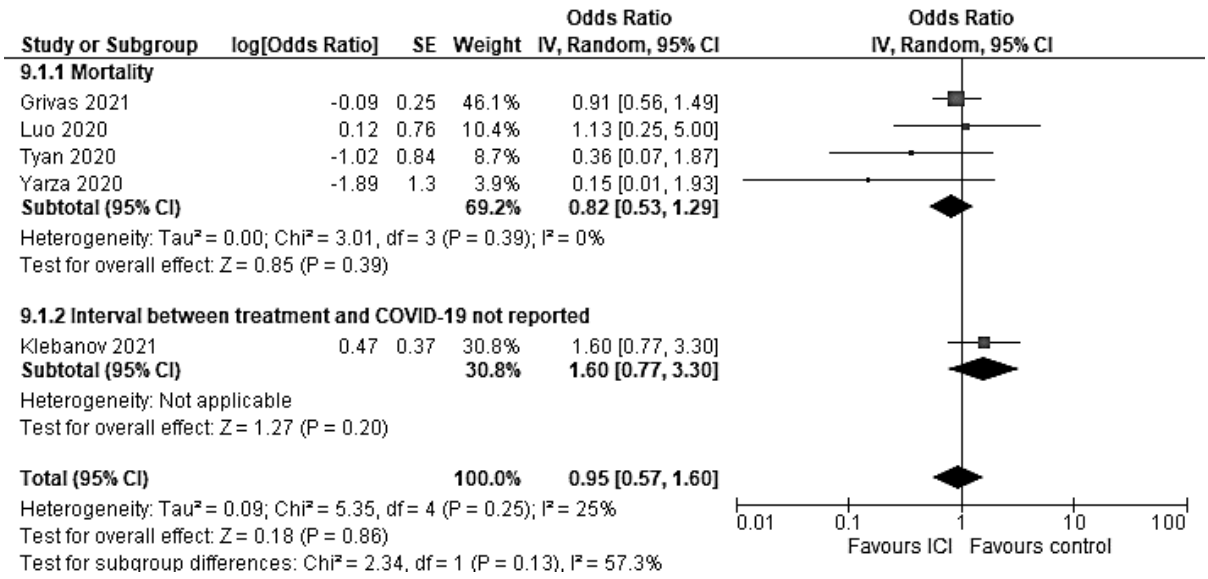
ICI= immune checkpoint inhibitor

Supplemental Figure 3. Comparison ICI versus targeted therapy



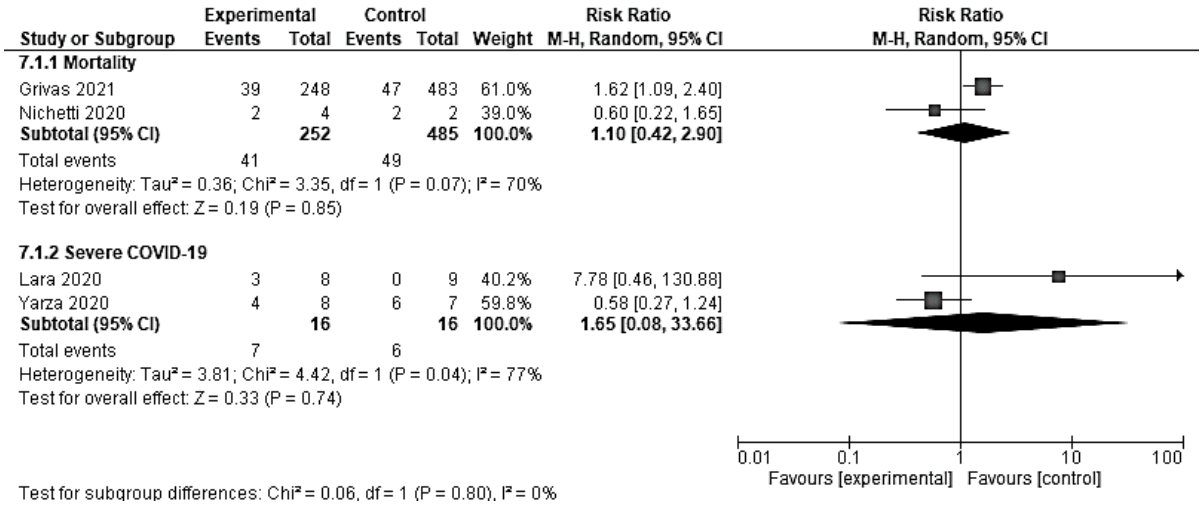
ICI= immune checkpoint inhibitor

Supplemental Figure 4. Comparison ICI versus no ICI. aOR



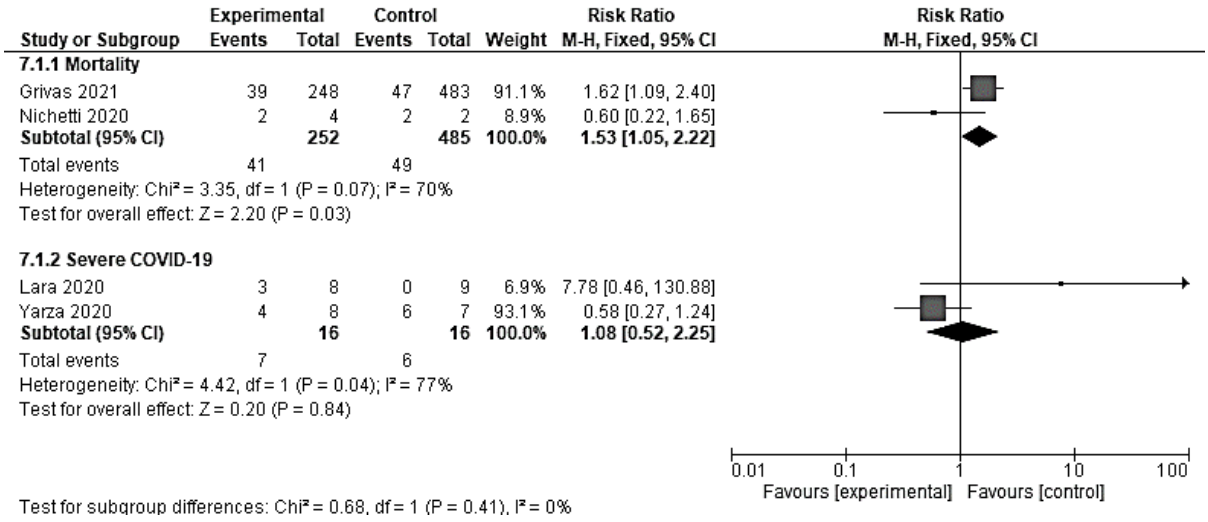
ICI=immune checkpoint inhibitor; aOR=adjusted odds ratio

Supplemental Figure 5.a. Comparison ICI versus hormone therapy. Metanalysis using random effects model



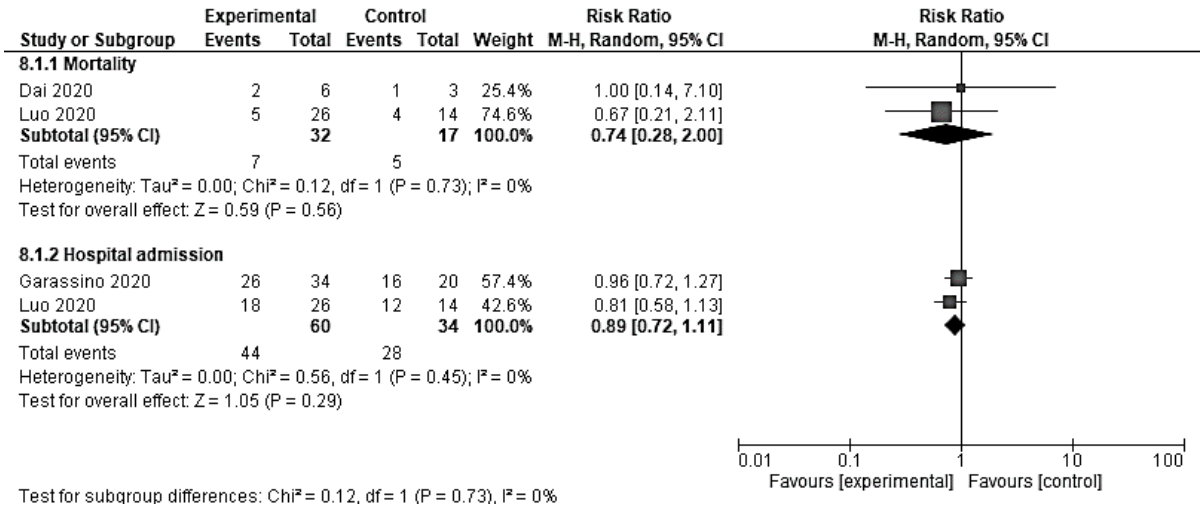
ICI= immune checkpoint inhibitor

Supplemental Figure 5.b. Comparison ICI versus hormone therapy. Metanalysis using fixed effects model



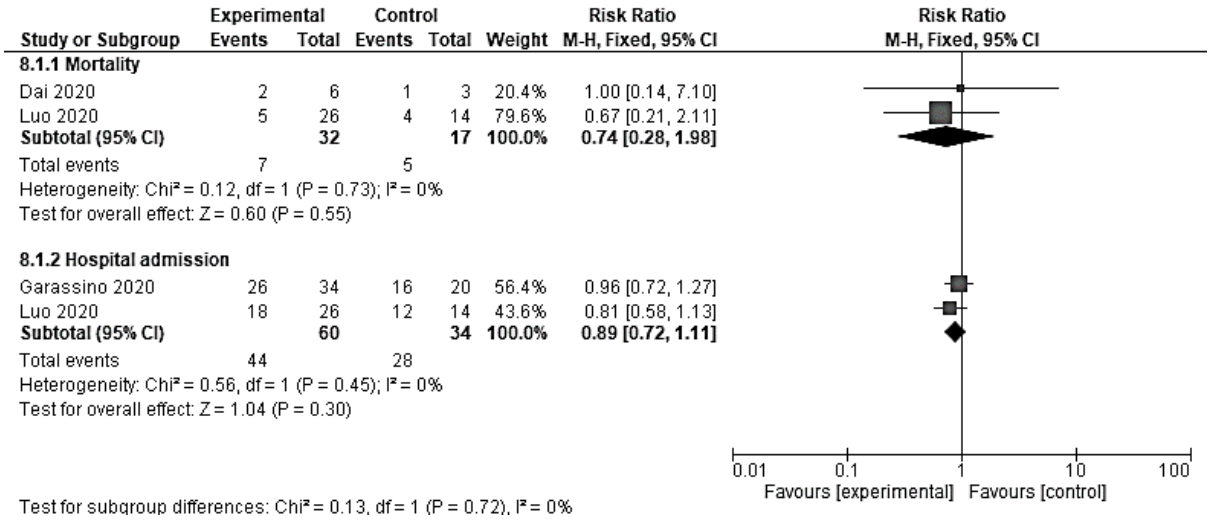
ICI= immune checkpoint inhibitor

Supplemental Figure 6.a. Comparison ICI versus chemotherapy + ICI. Metanalysis using random effects model



ICI= immune checkpoint inhibitor

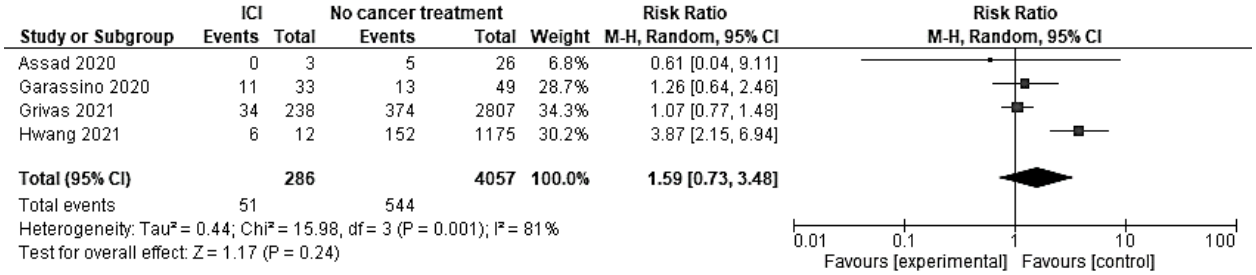
Supplemental Figure 6.b. Comparison ICI versus chemotherapy + ICI. Metanalysis using fixed effects model



ICI= immune checkpoint inhibitor

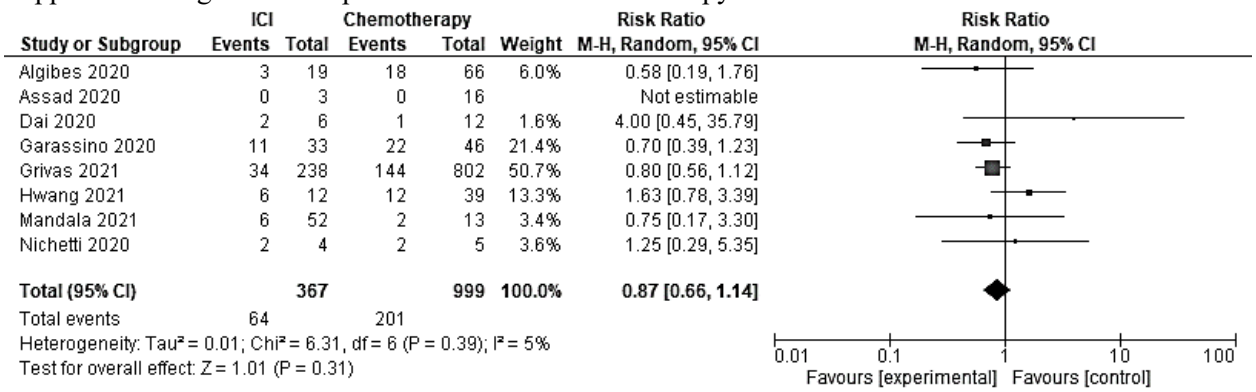
Sensitivity analysis excluding studies with high risk of bias for the outcome mortality

Supplemental Figure 7. Comparison ICI versus no cancer treatment



ICI= immune checkpoint inhibitor

Supplemental Figure 8. Comparison ICI versus chemotherapy



ICI= immune checkpoint inhibitor

Appendix 1

Case reports description

1. **Buyanski** *et al*. reported the case of a 62-year-old patient with poorly differentiated squamous cell carcinoma of unknown primary origin with lymph node metastases and peritoneal carcinomatosis. He was treated with durvalumab (1,500 mg monthly) since 2017. The patient presented a bullous pemphigoid-like eruption and the immunotherapy was discontinued. In 2020 the patient restarted durvalumab. Three weeks after restarting the treatment, the patient was admitted to the hospital for COVID-19. During the hospital stay, the patient developed severe rapidly progressive acute kidney injury with refractory hyperkalemia requiring hemodialysis. Biopsy of the kidney showed severe acute tubulointerstitial nephritis. Prednisone was started and kidney function was recovered. One explanation is and immune regulation dysfunction produced by SARS-CoV-2 exaggerated by the treatment with anti-PD-L1.
2. **Ramos-Ruperto** *et al.* reported the case of a 76-year-old man under treatment with pembrolizumab for lung cancer. He was admitted to the hospital for fever and dyspnea and oxygen saturation lower than 90%. He was diagnosed with COVID-19. After 10 days of respiratory support, the patient was discharged after improvement of fever and oxygenation. Two weeks after discharge the patient returned to the hospital because of daily fever. Blood cultures and viral serology were negative. He evolved with pancytopenia, organomegaly, and elevation of cytokines and ferritin. The diagnosis was hemophagocytic lymphohistiocystosis ad high-dose immunoglobulins were started. The patient improved and discharged from the hospital. The hypothesis was that treatment with anti-PD-1 contributed to hemophagocytic lymphohistocystosis (HLH) in the of context of SARS-CoV-2 infection. HLH related to ICI occur in 0.06% of patients.
3. **Rolfo** *et al*. published 2 case reports of patients with lung cancer treated with ICI who developed atypical skin manifestations. The first case report is a 62-year-old man with stage IV squamous cell lung cancer treated with combination of nivolumab + ipilimumab. He was diagnosed with symptomatic mild COVID-19. The patient developed urticarial popular lesions with minimal erythema located in the lower dorsal, lumbar and gluteal region. Besides, the patient had a burning sensation in the skin and severe joint pain

with reactive polyarthritis. Corticosteroids were administrated and the patient improved the symptoms. The second case was a 58-year-old woman with lung adenocarcinoma treated with chemotherapy + pembrolizumab. The patients presented with respiratory symptoms and was diagnosed with COVID-19. After 48 hours, the patient developed several lesions with targetoid appearance and late-onset painful oral ulcers. The biopsy of skin lesions was consisted with erythema multiforme. The symptoms were controlled with corticosteroids and antihistamines.

4. **Serra-Garcia** *et al*. reported the case of a 48-year-old woman with history of unresectable facial basal cell carcinoma treated with cemiplimab. She presented at the emergency department with painful digital distal ulcers without any COVID-19 respiratory symptoms. He had necrotic scar and bullae formation on the second, third, and fourth fingertips of the right hand and erythema with a necrotic scar on the fifth fingertip of the left hand. RT-PCR was positive for COVID-19. The lesions worsened to fingertip ischemia and the ICI was stopped. The patient was admitted and received alprostadil. After 1 week the patient improved the lesions and was discharged. It is hypothesized that in this patient with cemiplimab therapy, COVID-19 immune dysregulation could have triggered sever ischemia lesions