

Supplementary information

Appendix S1 Inclusion criteria

Articles were finally included if they met all of the following criteria: (1) the diagnostic results of COVID-19 were laboratory-confirmed; (2) the use of anticancer therapies was within 6 months before the diagnosis of COVID-19; (3) reporting the associations between anticancer treatments and the outcomes of patients; (4) presenting the explicit and comprehensive details of anticancer treatments; (4) sample size should be more than 10 patients; (5) articles were published as full text in English or Chinese; (6) reviews, editorials, conference abstracts and comments were excluded.

Appendix S2 Search details

PubMed

#1 "Neoplasms"[Mesh]

#2 "cancer" OR "tumor" OR "tumour" OR "carcinoma" OR "neoplasm" OR "sarcoma" OR "melanoma" OR "malignancy" OR "leukemia" OR "leukeamia" OR "myeloma" OR "lymphoma" OR "adenoma"

#3 "Immunotherapy"[Mesh] OR "Drug Therapy"[Mesh] OR "Radiotherapy"[Mesh] OR "Specialties, Surgical"[Mesh] OR "Antineoplastic Agents"[Mesh]

#4

"chemotherap*" OR "cytotoxic" OR "chemical therap*" OR "chemo-treatment*" OR "chemical treatment*" OR "radiation" OR "radiotherap*" OR "radiation treatment*" OR "irradiation" OR "chemoradiation" OR "immunotherap*" OR "immunological therap*" OR "immunization therap*" OR "immune therap*" OR "immuno-oncology therap*" OR "immunological treatment*" OR "immune treatment*" OR "immunization treatment*" OR "target therap*" OR "targeted therap*" OR "targeting therap*" OR "target treatment*" OR "targeted treatment*" OR "targeting treatment*" OR "molecular target treatment*" OR "molecular targeted treatment*" OR "molecular targeting treatment*" OR "molecular target therap*" OR "molecular targeted therap*" OR "molecular targeting therap*" OR "molecularly targeted therap*" OR "target cancer therap*" OR "targeted cancer therap*" OR "targeting cancer therap*" OR "molecularly targeted drug*" OR "surgery" OR "surgeries" OR "hormonal therap*" OR "hormone therap*" OR "hormonal treatment*" OR "hormone treatment*" OR "treatment*" OR "therap*" OR "cancer therap*" OR

“adjuvant therap*” OR “neoadjuvant therap*” OR “drug therap*”

#5 "COVID-19" [Supplementary Concept] OR "severe acute respiratory syndrome coronavirus 2"
[Supplementary Concept]

#6 “coronavirus” OR “2019-nCoV” OR “2019nCoV” OR “COVID-19” OR “SARS-CoV-2” OR
“novel coronavirus pneumonia”

#7 2019/01/01:3000/12/31[Date - Publication]

(#1 OR #2) AND (#3 OR #4) AND (#5 OR #6) AND #7

Embase

#1 'neoplasm'/exp AND [2019-2020]/py

#2 ('cancer':ti,ab,kw OR 'tumor':ti,ab,kw OR 'tumour':ti,ab,kw OR 'carcinoma':ti,ab,kw OR
'neoplasm':ti,ab,kw OR 'sarcoma':ti,ab,kw OR 'melanoma':ti,ab,kw OR 'malignancy':ti,ab,kw OR
'leukemia':ti,ab,kw OR 'leukeamia':ti,ab,kw OR 'myeloma':ti,ab,kw OR 'lymphoma':ti,ab,kw OR
'adenoma':ti,ab,kw) AND [2019-2020]/py

#3 ('drug therapy'/exp OR 'radiotherapy'/exp OR 'cancer therapy'/exp OR 'surgery'/exp) AND [2019-
2020]/py

#4 ('chemotherap*':ti,ab,kw OR 'cytotoxic':ti,ab,kw OR 'chemical therap*':ti,ab,kw OR 'chemo-
treatment*':ti,ab,kw OR 'chemical treatment*':ti,ab,kw OR 'radiation':ti,ab,kw OR
'radiotherap*':ti,ab,kw OR 'radiation treatment*':ti,ab,kw OR 'irradiation':ti,ab,kw OR
'chemoradiation':ti,ab,kw OR immunotherap*':ti,ab,kw OR 'immunological therap*':ti,ab,kw OR
'immunization therap*':ti,ab,kw OR 'immune therap*':ti,ab,kw OR 'immuno-oncology
therap*':ti,ab,kw OR 'immunological treatment*':ti,ab,kw OR 'immune treatment*':ti,ab,kw OR
'immunization treatment*':ti,ab,kw OR 'target therap*':ti,ab,kw OR 'targeted therap*':ti,ab,kw OR
'targeting therap*':ti,ab,kw OR 'target treatment*':ti,ab,kw OR 'targeted treatment*':ti,ab,kw OR
'targeting treatment*':ti,ab,kw OR 'molecular target treatment*':ti,ab,kw OR 'molecular targeted
treatment*':ti,ab,kw OR 'molecular targeting treatment*':ti,ab,kw OR 'molecular target
therap*':ti,ab,kw OR 'molecular targeted therap*':ti,ab,kw OR 'molecular targeting therap*':ti,ab,kw
OR 'molecularly targeted therap*':ti,ab,kw OR 'target cancer therap*':ti,ab,kw OR 'targeted cancer
therap*':ti,ab,kw OR 'targeting cancer therap*':ti,ab,kw OR 'molecularly targeted drug*':ti,ab,kw

OR 'surgery':ti,ab,kw OR 'surgeries':ti,ab,kw OR 'hormonal therap*':ti,ab,kw OR 'hormone therap*':ti,ab,kw OR 'hormonal treatment*':ti,ab,kw OR 'hormone treatment*':ti,ab,kw OR 'treatment*':ti,ab,kw OR 'therap*':ti,ab,kw OR 'cancer therap*':ti,ab,kw OR 'adjuvant therap*':ti,ab,kw OR 'neoadjuvant therap*':ti,ab,kw OR 'drug therap*':ti,ab,kw) AND [2019-2020]/py

#5 'coronavirus disease 2019'/exp AND [2019-2020]/py

#6 ('coronavirus':ti,ab,kw OR '2019-ncov':ti,ab,kw OR '2019ncov':ti,ab,kw OR 'covid-19':ti,ab,kw OR 'sars-cov-2':ti,ab,kw OR 'novel coronavirus pneumonia':ti,ab,kw) AND [2019-2020]/py

(#1 OR #2) AND (#3 OR #4) AND (#5 OR #6)

Cochrane library

#1 MeSH descriptor: [Neoplasms] explode all trees

#2 "cancer" OR "tumor" OR "tumour" OR "carcinoma" OR "neoplasm" OR "sarcoma" OR "melanoma" OR "malignancy" OR "leukemia" OR "leukeamia" OR "myeloma" OR "lymphoma" OR "adenoma"

#3 [Drug Therapy] explode all trees

#4 [Radiotherapy] explode all trees

#5 [Specialties, Surgical] explode all trees

#6 [Antineoplastic Agents] explode all trees

#7 "chemotherap*" OR "cytotoxic" OR "chemical therap*" OR "chemo-treatment*" OR "chemical treatment*" OR "radiation" OR "radiotherap*" OR "radiation treatment*" OR "irradiation" OR "chemoradiation" OR "immunotherap*" OR "immunological therap*" OR "immunization therap*" OR "immune therap*" OR "immuno-oncology therap*" OR "immunological treatment*" OR "immune treatment*" OR "immunization treatment*" OR "target therap*" OR "targeted therap*" OR "targeting therap*" OR "target treatment*" OR "targeted treatment*" OR "targeting treatment*" OR "molecular target treatment*" OR "molecular targeted treatment*" OR "molecular targeting treatment*" OR "molecular target therap*" OR "molecular targeted therap*" OR "molecular targeting therap*" OR "molecularly targeted therap*" OR "target cancer therap*" OR "targeted cancer therap*" OR "targeting cancer therap*" OR "molecularly targeted drug*" OR

“surgery” OR “surgeries” OR “hormonal therap*” OR “hormone therap*” OR “hormonal treatment*” OR “hormone treatment*” OR “treatment*” OR “therap*” OR “cancer therap*” OR “adjuvant therap*” OR “neoadjuvant therap*” OR “drug therap*”

#8 [Coronavirus Infections] explode all trees

#9 "coronavirus" OR "2019-nCoV" OR "2019nCoV" OR "COVID-19" OR "SARS-CoV-2" OR "novel coronavirus pneumonia"

(#1 OR #2) AND (#3 OR #4 OR #5 OR #6 OR #7) AND (#8 OR #9)

Table S1 Univariate analysis of the association between potential confounders and the risk of death

| Potential confounder | Death | |
|---|----------------------|----------------|
| | Odds ratio (95% CI) | <i>P</i> value |
| Sex (female) | 0.584 (0.241–1.410) | 0.232 |
| Smoke (current/former) | 2.225 (0.920–5.380) | 0.076 |
| Age (≥65 years) | 3.911 (1.457–10.497) | 0.007** |
| Cardiovascular and cerebrovascular diseases | 2.908 (1.181–7.158) | 0.02* |
| Lung disease | 1.785 (0.528–6.027) | 0.351 |

* $P < 0.05$; ** $P < 0.01$

Table S2 Univariate analysis of the association between potential confounders and the risk of severe events

| Potential confounder | Severe events | |
|---|---------------------|----------------|
| | Odds ratio (95% CI) | <i>P</i> value |
| Sex (female) | 0.474 (0.267–0.843) | 0.011* |
| Age (≥65 years) | 3.611 (1.996–6.532) | <0.001*** |
| Cardiovascular and cerebrovascular diseases | 2.398 (1.352–4.254) | 0.003** |
| Lung disease | 1.671 (0.558–5.005) | 0.359 |

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

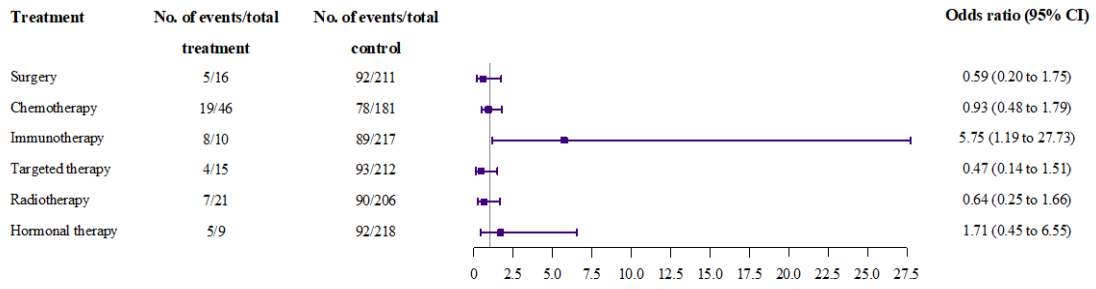


Fig. S1 Univariate analysis of the association between antitumor regimens and the risk of severe events. CI: confidence interval.

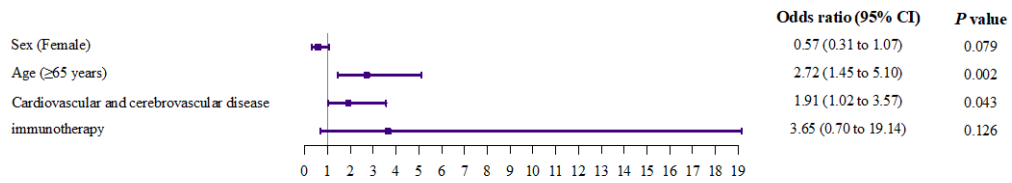


Fig. S2 Multivariate analysis of the association between antitumor regimens and the risk of severe events. CI: confidence interval.