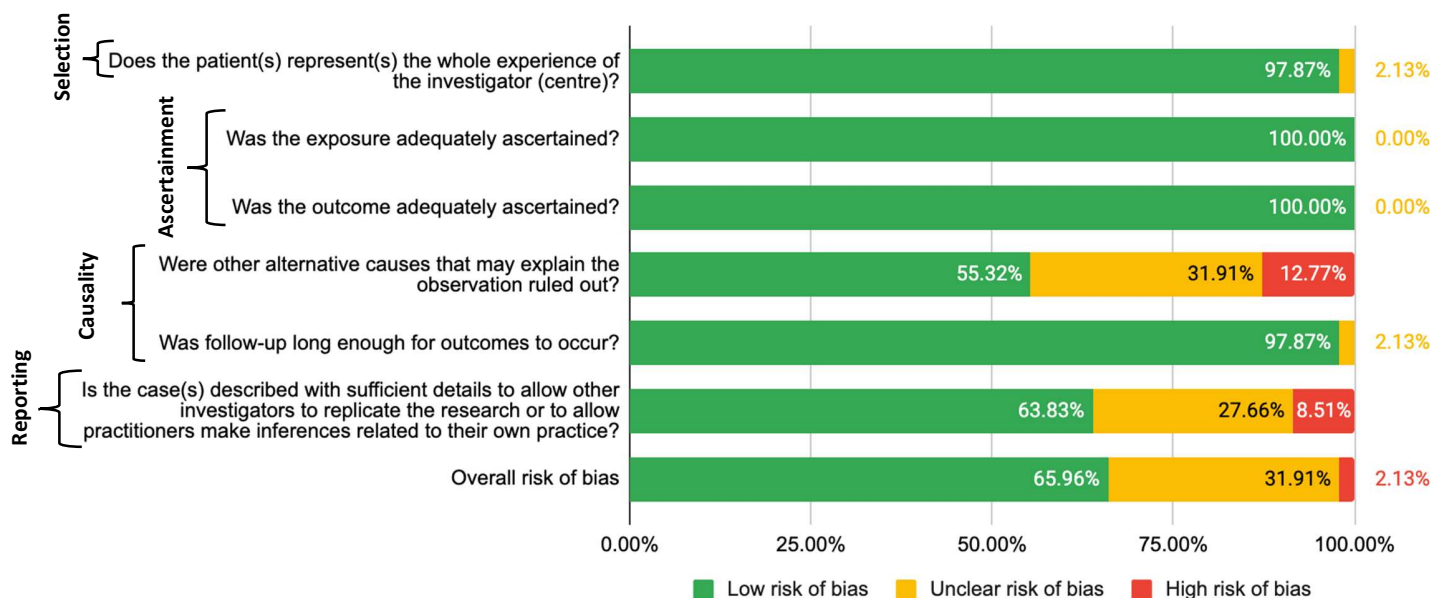




Scheme S1. Overall synthesis of quality assessment and risk of bias.

Supplementary Table S1. Literature search results

Date of Search	Database	Search String	Total results retrieved	Search Details
18-May-21	PubMed	((("Aspergillosis"[Mesh] AND disseminat*[tw]) OR (disseminat*[tw] AND aspergillosis[tw]) OR "Neuroaspergillosis"[Mesh] OR "neuroaspergillosis"[tw] OR "nervous system invasive aspergillosis"[tw] OR "cerebral aspergillosis"[tw] OR "central nervous system aspergillosis"[tw] OR "CNS aspergillosis"[tw] OR "brain aspergillosis"[tw] OR "intracranial aspergillosis"[tw] OR "cranial aspergillosis"[tw]) AND ("Antineoplastic Agents"[Mesh] OR "Antineoplastic"[tw] OR "Antineoplastic Agent"[tw] OR "Antineoplastic Agents"[tw] OR "Antineoplastic Drug"[tw] OR "Antineoplastic Drugs"[tw] OR Antineoplastic[tw] OR "Antitumor Drug"[tw] OR "Antitumor Drugs "[tw] OR "Antitumor Agent"[tw] OR "Antitumor Agents"[tw] OR "Cancer Chemotherapy Drug"[tw] OR "Cancer Chemotherapy Drugs"[tw] OR "Cancer Chemotherapy Agent"[tw] OR "Cancer Chemotherapy Agents"[tw] OR "Chemotherapy, Cancer, Regional Perfusion"[Mesh] OR "Neoplasms/drug therapy"[Mesh] OR "Neoplasms/administration and dosage"[Mesh] OR ((cancer*[tw] OR neoplasm*[tw] OR "hematologic malignancy"[tw] OR "hematologic malignancies"[tw] OR leukemia[tw] OR lymphoma[tw]) AND (chemotherapy[tw] OR antineoplastic[tw] OR antitumor[tw] OR antitumour[tw] OR anti-angiogenic[tw] OR immunomodulatory[tw] OR cytotoxic[tw] OR chemotherapeutic*[tw] OR immunomodulator*[tw] OR immunosuppressant*[tw] OR immunocompromis*[tw])))	213	
18-May-21	Embase	((disseminated NEAR/5 aspergillosis) OR (dissemination NEAR/5 aspergillosis) OR 'central nervous system aspergillosis'/exp OR 'central nervous system aspergillosis' OR 'neuroaspergillosis' OR 'nervous system invasive aspergillosis' OR 'cerebral aspergillosis' OR 'CNS aspergillosis' OR 'brain aspergillosis' OR 'intracranial aspergillosis' OR 'cranial aspergillosis') AND ('cancer chemotherapy'/exp OR (cancer NEAR/5 chemotherapy) OR 'antineoplastic agent'/exp OR 'antineoplastic agent' OR (('neoplasm' OR 'hematologic malignancy' OR 'leukemia' OR 'lymphoma') AND ('chemotherapy' OR 'antineoplastic' OR 'antitumor' OR 'antitumour' OR 'anti-angiogenic' OR 'immunomodulatory' OR 'cytotoxic' OR 'chemotherapeutic' OR 'immunomodulator' OR 'immunosuppressant' OR 'immunocompromised')) AND 'article'/it AND 'human'/de	356	All fields

18-May-21	CINAHL Plus with Full Text	((disseminated N5 aspergillosis) OR (dissemination N5 aspergillosis) OR central nervous system aspergillosis OR central nervous system aspergillosis OR neuroaspergillosis OR nervous system invasive aspergillosis OR cerebral aspergillosis OR CNS aspergillosis OR brain aspergillosis OR intracranial aspergillosis OR cranial aspergillosis) AND (cancer chemotherapy OR (cancer N5 chemotherapy) OR antineoplastic agent OR ((neoplasm OR hematologic malignancy OR leukemia OR lymphoma) AND (chemotherapy OR antineoplastic OR antitumor OR antitumour OR anti-angiogenic OR immunomodulatory OR cytotoxic OR chemotherapeutic OR immunomodulator OR immunosuppressant OR immunocompromised)))	18	All fields
18-May-21	Web of Science - Science Index Expanded	((disseminated NEAR aspergillosis) OR (dissemination NEAR aspergillosis) OR central nervous system aspergillosis OR central nervous system aspergillosis OR neuroaspergillosis OR nervous system invasive aspergillosis OR cerebral aspergillosis OR CNS aspergillosis OR brain aspergillosis OR intracranial aspergillosis OR cranial aspergillosis) AND (cancer chemotherapy OR (cancer NEAR chemotherapy) OR antineoplastic agent OR ((neoplasm OR hematologic malignancy OR leukemia OR lymphoma) AND (chemotherapy OR antineoplastic OR antitumor OR antitumour OR anti-angiogenic OR immunomodulatory OR cytotoxic OR chemotherapeutic OR immunomodulator OR immunosuppressant OR immunocompromised)))	156	Topic
18-May-21	www.greylit.org	((disseminated aspergillosis) OR (dissemination aspergillosis) OR central nervous system aspergillosis OR central nervous system aspergillosis OR neuroaspergillosis OR nervous system invasive aspergillosis OR cerebral aspergillosis OR CNS aspergillosis OR brain aspergillosis OR intracranial aspergillosis OR cranial aspergillosis) AND (cancer chemotherapy OR (cancer chemotherapy) OR antineoplastic agent OR ((neoplasm OR hematologic malignancy OR leukemia OR lymphoma) AND (chemotherapy OR antineoplastic OR antitumor OR antitumour OR anti-angiogenic OR immunomodulatory OR cytotoxic OR chemotherapeutic OR immunomodulator OR immunosuppressant OR immunocompromised)))	0	

Supplementary Table S2. Quality assessment for each article used in the systematic review and overall level of bias.

Study ID	Does the patient(s) represent(s) the whole experience of the investigator (centre)?	Was the exposure adequately ascertained?	Was the outcome adequately ascertained?	Were other alternative causes that may explain the observation ruled out?	Was follow-up long enough for outcomes to occur?	Is the case(s) described with sufficient details to allow other investigators to replicate the research?	Overall level of Bias
Zwitserloot 2008	Yes	Yes	Yes	Yes	Yes	Yes	Low
Yeh 2007	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Wright 2003	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Wandroo 2006	Yes	Yes	Yes	Yes	Yes	Yes	Low
Walsh 1985	Yes	Yes	Yes	Yes	Yes	Unclear	Low
vanderLinden 2011	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Trigg 1993	Yes	Yes	Yes	Yes	Yes	Yes	Low
Tracy 1983	Yes	Yes	Yes	Yes	Yes	Yes	Low
Tattevin 2004	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Sparano 1992	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Schauwvlieghe 2020	Yes	Yes	Yes	Yes	Unclear	Yes	Low
SchamrothPravda 2019	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Sancho 1997	Yes	Yes	Yes	Yes	Yes	Yes	Low
Sakata 2021	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Ruchlemer 2019	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Prakash 2012	Yes	Yes	Yes	Yes	Yes	Yes	Low
Pongbhaesaj 2004	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Peng 2015	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Pascale 2015	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Palmisani 2017	Yes	Yes	Yes	No	Yes	Yes	Unclear
Nov 1984	Yes	Yes	Yes	Yes	Yes	Yes	Low
Mori 1998	Yes	Yes	Yes	Yes	Yes	Yes	Low

Middelhof 2005	Yes	Yes	Yes	Yes	Yes	Yes	Low
Marbello 2003	Yes	Yes	Yes	Yes	Yes	Yes	Low
Mahlknecht 1997	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Lionakis 2017	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Kurdow 2005	Yes	Yes	Yes	Yes	Yes	Yes	Low
Kreisel 1991	Yes	Yes	Yes	Yes	Yes	No	Unclear
Kawanami 2002	Yes	Yes	Yes	Yes	Yes	Unclear	Low
Kaste 2000	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Iwen 1997	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Iwen 1993	Yes	Yes	Yes	Unclear	Yes	Unclear	Unclear
Im 2012	Yes	Yes	Yes	No	Yes	Yes	Unclear
Hummel 2006	Unclear	Yes	Yes	Unclear	Yes	No	High
Henze 1982	Yes	Yes	Yes	No	Yes	Yes	Unclear
Guerhazi 2002	Yes	Yes	Yes	No	Yes	Yes	Unclear
Groll 1999	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Gaye 2018	Yes	Yes	Yes	Yes	Yes	Yes	Low
Flatt 2012	Yes	Yes	Yes	No	Yes	Yes	Unclear
Faisal 2019	Yes	Yes	Yes	Yes	Yes	No	Unclear
Eichenberger 2020	Yes	Yes	Yes	Yes	Yes	No	Unclear
DeLeonardis 2020	Yes	Yes	Yes	No	Yes	Yes	Unclear
Damaj 2004	Yes	Yes	Yes	Yes	Yes	Yes	Low
Beresford 2019	Yes	Yes	Yes	Yes	Yes	Yes	Low
Athanassiadou 2005	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Anciones 2018	Yes	Yes	Yes	Unclear	Yes	Yes	Low
Amanati 2020	Yes	Yes	Yes	Yes	Yes	Yes	Low

Low bias = 1 or fewer questions with the answer of "unclear," Unclear bias = 2 questions with the answer of "unclear" or 1 with the answer of "no," high risk of bias = 3 or more questions with the answer of "unclear" or 2 questions with the answer of "unclear" and 1 with the answer of "no" or 2 questions with the answer of "no"

Supplementary Table S3. Data for HM, neutropenia status, inclusion of chemotherapy, and outcome of individual patients from included studies.

Patient #	Underlying Disease	Reported ANC or WBC Status (cells/ul)	Chemotherapy	Outcome
1	CLL	<100	yes	Survived
2	CLL	7100	no	Survived
3	ALL	≤500	yes	Survived
4	ALL	≤500	yes	Died
5	AML	NA	NA	Died
6	AML	NA	yes	Died
7	MM	Neutropenic	yes	Died
8	ALL	NA	NA	Survived
9	AML	NA	NA	Died
10	ALL	NA	NA	Survived
11	NHL	>550	yes	Died
12	NHL	≤500	yes	Died
13	NHL	≤500	yes	Died
14	NHL	<500	yes	Died
15	NHL	<500	yes	Died
16	ALL	<500	yes	Died
17	ALL	NA	NA	Died
18	AML	NA	NA	Survived
19	AML	<100	yes	Died
20	AML	<100	yes	Died
21	ALL	<100	yes	Died
22	ALL	Granulocytopenia	yes	Survived
23	AML	Granulocytopenia	yes	Died
24	NHL	NA	yes	Died
25	NHL	Not neutropenic	yes	Died
26	NHL	<500	yes	Survived
27	AML	NA	yes	Survived
28	AML	NA	yes	Survived
29	AML	NA	yes	Died
30	AML	NA	yes	Survived
31	CLL	NA	yes	Died
32	CLL	Not neutropenic	no	Died
33	ALL	NA	yes	Survived
34	ALL	NA	yes	Survived
35	AML	<100	yes	Died
36	ALL	<100	yes	Died
37	AML	<100	yes	Died
38	ALL	<100	yes	Died
39	AML	<100	yes	Died

40	ALL	<100	yes	Died
41	NHL	NA	NA	Died
42	AML	NA	NA	Survived
43	AML	1,200^	yes	Survived
44	AML	10,200^	no	Survived
45	NHL	650^	yes	Died
46	ALL	220^	yes	Died
47	AML	<500	yes	Died
48	AML	NA	yes	Survived
49	ALL	480	yes	Survived
50	AML	100	yes	Survived
51	ALL	NA	yes	Survived
52	AML	1100^	yes	Died
53	AML	NA	yes	Died
54	NHL	1500	yes	Died
55	ALL	4500^ (38% neutrophils)	yes	Died
56	AML	3393	no	Died
57	ALL	3900^	yes	Died
58	ALL	NA	yes	Died
59	AML	NA	no	Survived
60	AML	NA	yes	Survived
61	AML	Neutropenic	yes	Died
62	CLL	<100	yes	Survived
63	AML	<500	yes	Survived
64	AML	Neutropenic	yes	Survived
65	AML	2,420^	NA	Survived
66	ALL	NA	yes	Survived
67	CML	Neutropenic	yes	Died
68	ALL	<500	yes	Survived
69	CLL	1000	no	Survived
70	CLL	3200^	no	Survived
71	ALL	Neutropenic	yes	Survived
72	AML	Neutropenic	yes	Survived
73	CLL	2600	no	Survived
74	ALL	Neutropenic	yes	Survived
75	ALL	Neutropenic	yes	Died
76	ALL	NA	yes	Survived

White blood cell count

Abbreviations: ANC = Absolute neutrophil count; WBC = White blood cell; NA = Data not available; AML = Acute myeloid leukemia; ALL = Acute lymphocytic leukemia; CML = Chronic myeloid leukemia; CLL = Chronic lymphocytic leukemia; NHL = non-Hodgkin's lymphoma; MM = Multiple myeloma