

Clinical features of pneumocystis pneumonia in non-human immunodeficiency virus-infected patients: A systemic review and meta-analysis

Running title: PCP in non-HIV

Masashi Ishihara¹, Shigeru Tanzawa¹, Takeshi Honda¹, Yasuko Ichikawa¹, Kiyotaka Watanabe¹, Nobuhiko Seki¹

¹ Division of Oncology, Department of Internal Medicine, Teikyo University School of Medicine, Tokyo, Japan

Corresponding author: Nobuhiko Seki

Department of Oncology, Teikyo University Hospital 2-11-1 Kaga, Itahashi, Tokyo 173-8606, Japan

E-mail: nseki@med.teikyo-u.ac.jp

Tel: 03-3964-1211;

Fax: 03-3964-1211

Supplementary Tables and Figures

Issa	2018	○				○	△	△	
Jin	2019	○		△		△	△	△	
Kanj	2021								not specified
Kato	2019	○		△		△	△	△	β-D-glucan positive
Kim	2014	○	○	△	△		△	△	
Ko	2019	○	○	△		△	△	△	
Kofteridis	2014	○	○		△		△	△	
Korkmaz Ekren	2018	○	○	△	△	△	△	△	
Kosaka	2017								not specified
Kumagai	2019	○	○			△	△	△	β-D-glucan positive
Kunihiro	2015	○	○			△	△	△	β-D-glucan positive
Lahmer	2017								not specified
Lee	2019	○	○		△	△	△	△	
Lemiale	2013	○	○		△	△	○		
Li	2014	○	○			△	△	△	
Liu	2019	○	○			△	△	△	PCR only was excluded
Mansharamani	2000				○		△	△	
Matsumura	2011		○			○	△	△	
Moon	2011				○		△	△	
Mu	2016			△	△	△	△	△	
Mundo	2020				○		△	△	
Nakamura	2009			△		△	△	△	
Nakashima	2017	○	○	△		△	△	△	
Pereira-Díaz	2019								Not specified
Roblot	2002	○	○	△	△		○		
Roembke	2014	○	○			○	△	△	
Roux	2014			△	△		△	△	
Sheikholeslami	2013					○	△	△	
Sun	2021	○	○	△		△	△	△	

Tamai	2014	○	○	Δ		Δ	Δ	Δ	β-D-glucan positive
Tang	2021	○	○			○	Δ	Δ	
Tasaka	2010	○	○		○	○	Δ	Δ	β-D-glucan positive
Toper	2011			Δ	Δ		Δ	Δ	
Vogel	2007			○			○		
Wang	2017			Δ	Δ	Δ	Δ	Δ	
Weng	2016	○	○	○			Δ	Δ	
Wieruszewski	2020	○		Δ		Δ	Δ	Δ	
Wu	2021	○	○			○	Δ	Δ	Immunocompromised
Yu	2017	○		○			○		
Zahar	2002			Δ	Δ	○	Δ		
Zalmanovich	2020	○	○	Δ	Δ		○		

PCP: *Pneumocystis* pneumonia, HIV: human immunodeficiency virus, BAL: bronchoalveolar lavage, PCR: polymerase chain reaction, ○: “and”, Δ: “or”

Table S2 Prophylaxis for PCP

Author	Year	Patients	Prophylaxis	Drug
Bienvenu	2016	461	27	Trimethoprim/sulfamethoxazole
Burghi	2021	321	55	sulfamethoxazole/trimethoprim, atovaquone, pentamidine
Calero-Bernal	2016	128	7	Trimethoprim/sulfamethoxazole, pentamidine
Enomoto	2010	17	0	Trimethoprim/sulfamethoxazole
Gilmartin	2002	33	3	Trimethoprim/sulfamethoxazole, pentamidine, isethionate dapsone
Hamada	2020	74	1	Trimethoprim/sulfamethoxazole
Ideguchi	2020	50	0	None
Kim	2014	173	6	Trimethoprim/sulfamethoxazole
Ko	2019	51	2	Not specified
Kofteridis	2014	62	21	Trimethoprim/sulfamethoxazole
Korkmaz	2018	45	3	Not specified
Ekren				
Kosaka	2017	77	1	Trimethoprim/sulfamethoxazole
Lee	2019	362	94	Trimethoprim/sulfamethoxazole
Lemiale	2013	139	5	Not specified
Roblot	2002	103	4	Not specified
Roux	2014	321	12	Trimethoprim/sulfamethoxazole, aerosolized pentamidine, dapsone, atovaquone
Toper	2011	41	7	Not specified
Vogel	2007	27	0	None
Wieruszewski	2020	323	8	Not specified
Zahar	2002	39	5	Trimethoprim/sulfamethoxazole
Zalmanovich	2020	77	5	Trimethoprim/sulfamethoxazole

PCP: *Pneumocystis pneumonia*

Table S3 Methods used to detect cytomegalovirus

Author	Year	Percentage	Method
Calero-Bernal	2016	8.6%	not specified
Festic	2005	10.0%	not specified
Huang	2016	57.6%	not specified
Kato	2019	2.3%	CMV antigenemia assay
Kim	2014	13.3%	CMV antigenemia assay
Ko	2019	25.5%	real-time PCR
Korkmaz	2018	62.2%	real-time PCR
Ekren			
Moon	2011	26.1%	Cultured
Tamai	2014	3.4%	not specified
Toper	2011	7.3%	not specified
Weng	2016	61.0%	CMV antigenemia assay
Wu	2021	18.0%	Presence of pathological or microbiological evidence from a specimen collected from a sterile site
Yu	2017	54.3%	real-time PCR
Zahar	2002	28.2%	not specified

CMV: cytomegalovirus, PCR: polymerase chain reaction

Table S4 Methods used to identify viruses

Author	Year	Percentage	Method
Assal	2021	42.9%	Viral culture or PCR, clinical features consistent with viral pneumonia
Calero-Bernal	2016	11.7%	Not specified
Cerón	2014	20.0%	For detecting: dengue, influenza, para-influenza, CMV
Jin	2019	54.0%	Not specified
Ko	2019	39.2%	Multiplex nested PCR assays for detecting: influenza viruses A and B; parainfluenza viruses 1, 2, and 3; respiratory syncytial virus; adenovirus
Lemiale	2013	3.6%	Not specified
Moon	2011	27.3%	Culture for conventional viruses

Table S5 Methods used to identify bacteria			
Author	Year	Percentage	Method
Assal	2021	25.6%	Microbiologically confirmed
Calero-Bernal	2016	14.8%	Microbiologically confirmed
Cerón	2014	13.3%	Microbiologically confirmed
Festic	2005	13.3%	Microbiologically confirmed
Huang	2016	40.2%	Not specified
Jin	2019	11.9%	Bacteremia
Kim	2014	10.4%	Bacteremia
Ko	2019	21.6%	Microbiologically confirmed
Lemiale	2013	14.4%	Not specified
Moon	2011	1.1%	Culture for conventional bacteria
Toper	2011	12.2%	Microbiologically confirmed
Weng	2016	9.8%	Bacteremia
Wu	2021	52.0%	Symptoms and pathogenic bacteria
Yu	2017	40.0%	Gram staining, acid-fast staining, culture
Zahar	2002	12.8%	Not specified

Figure S1. PRISMA flow diagram of study selection.

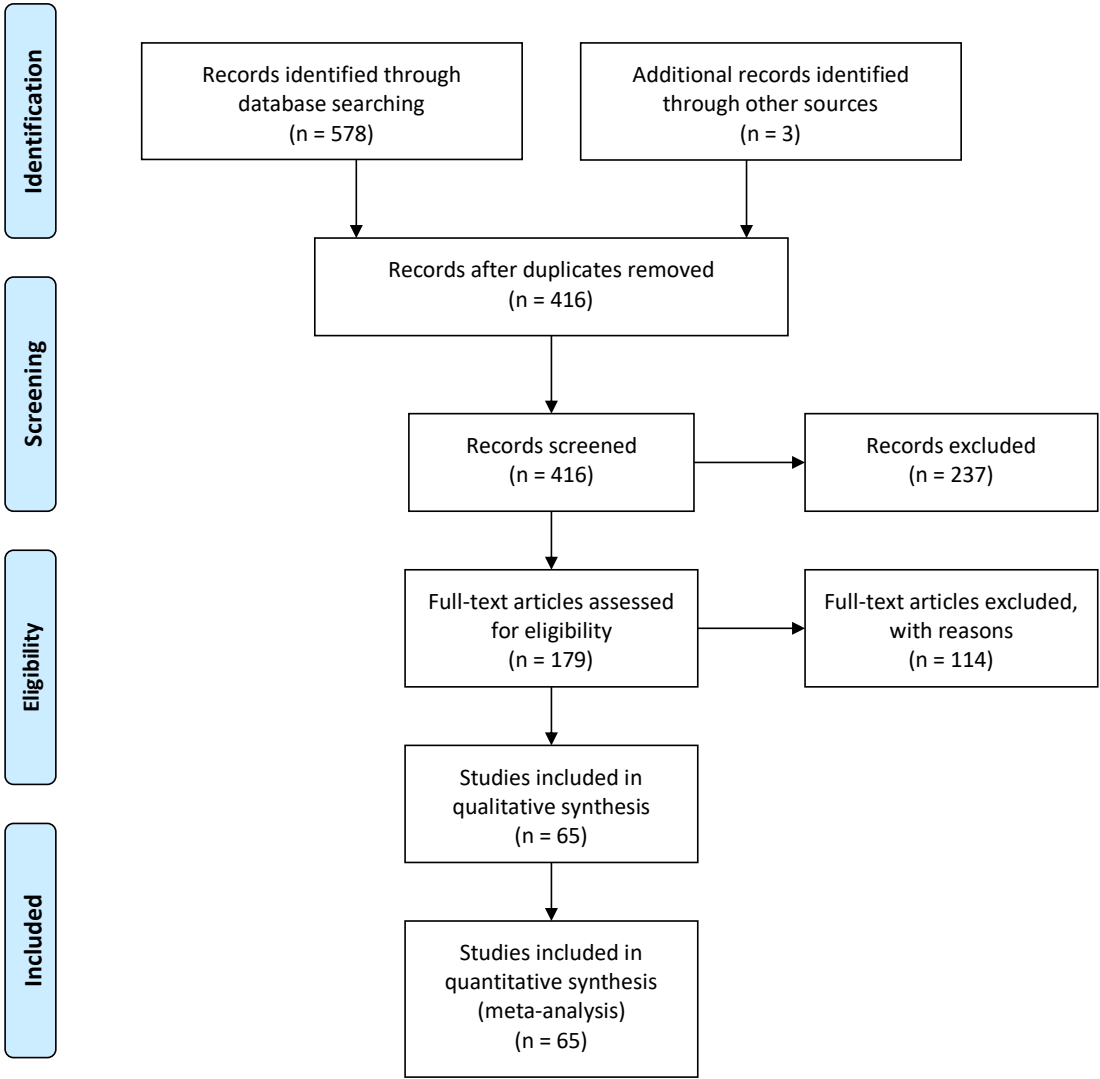


Figure S2. Data of mean patient age in the enrolled studies.

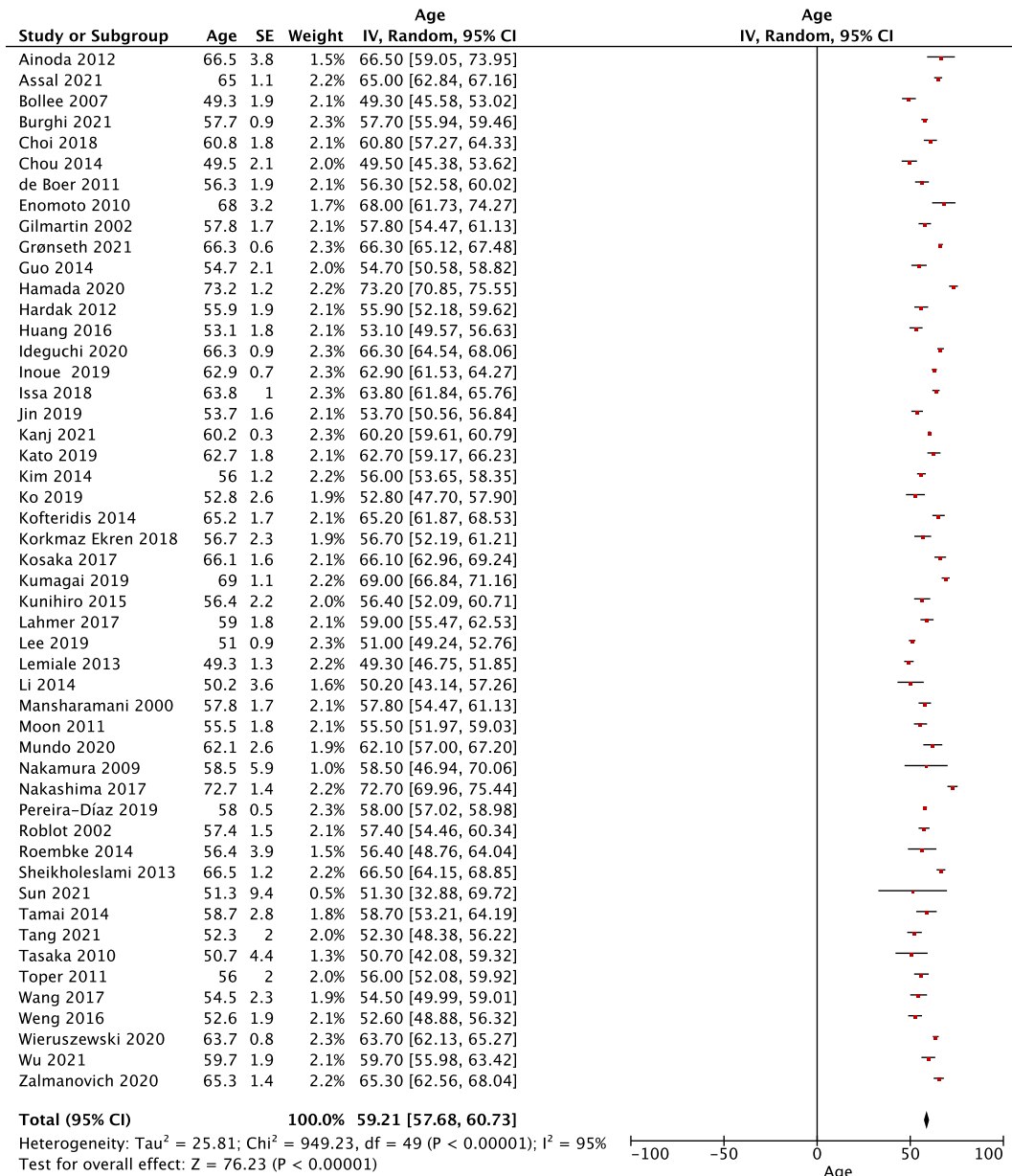


Figure S3. Data of sex in the enrolled studies.

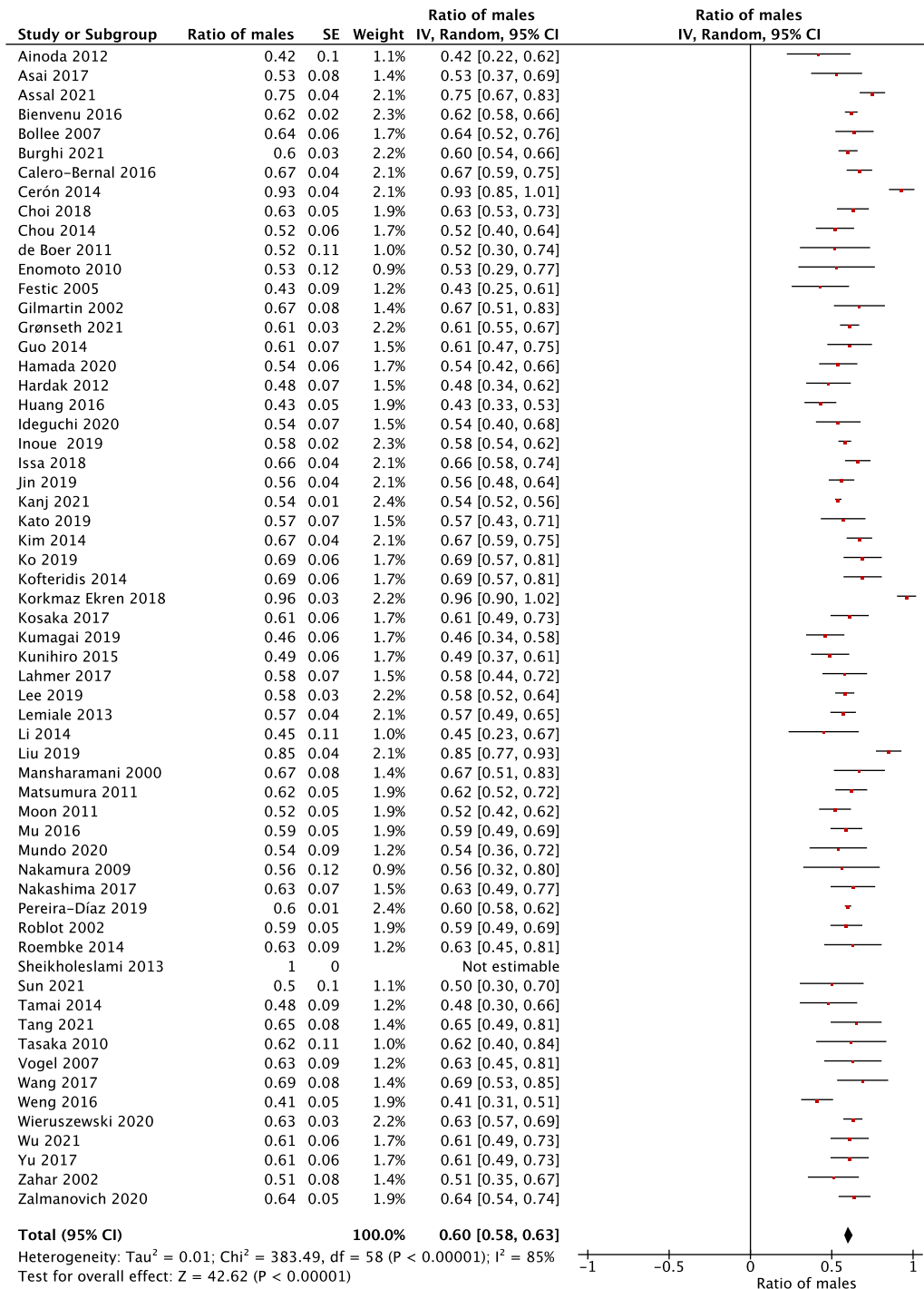


Figure S4. Data of mean body mass index in the enrolled studies.

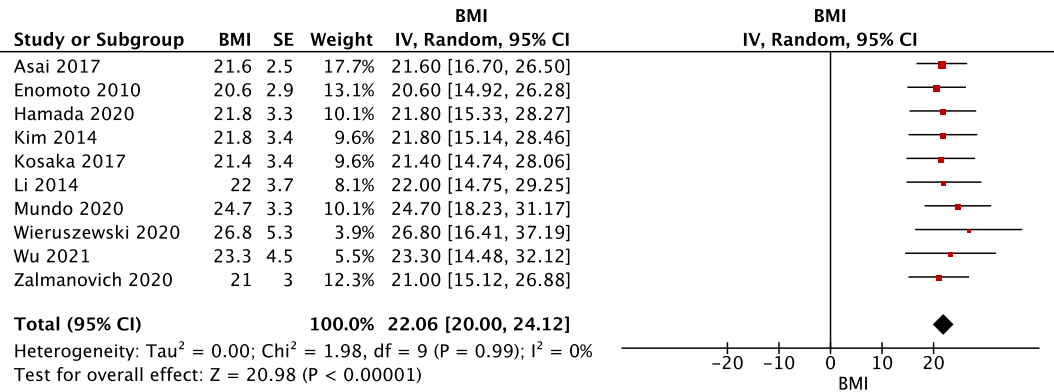


Figure S5. Data of prophylaxis in the enrolled studies.

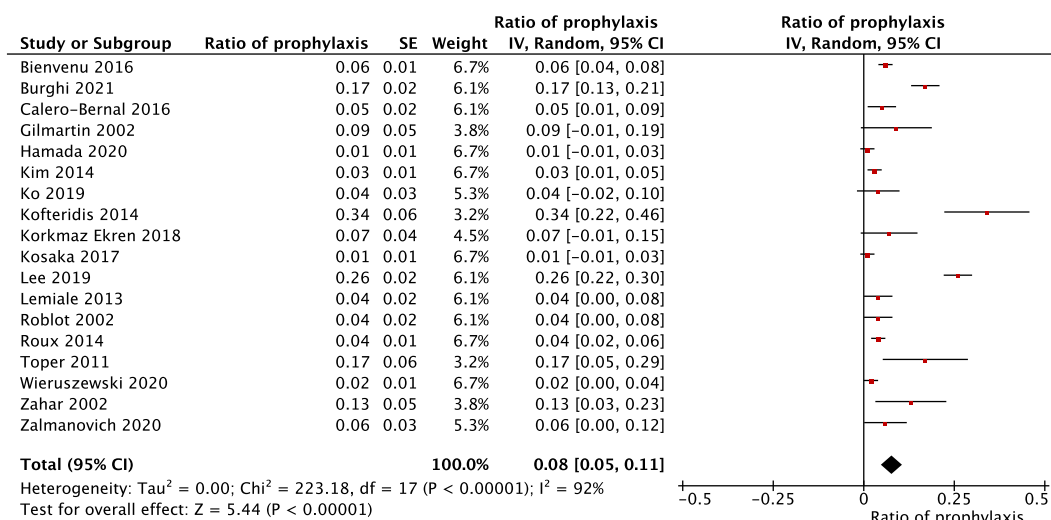


Figure S6. Mean time from symptom onset to treatment.

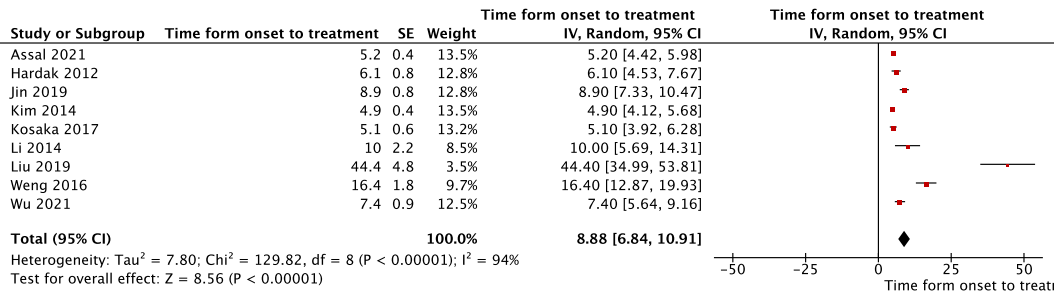


Figure S7. Data of mortality of PCP in non-HIV patients.

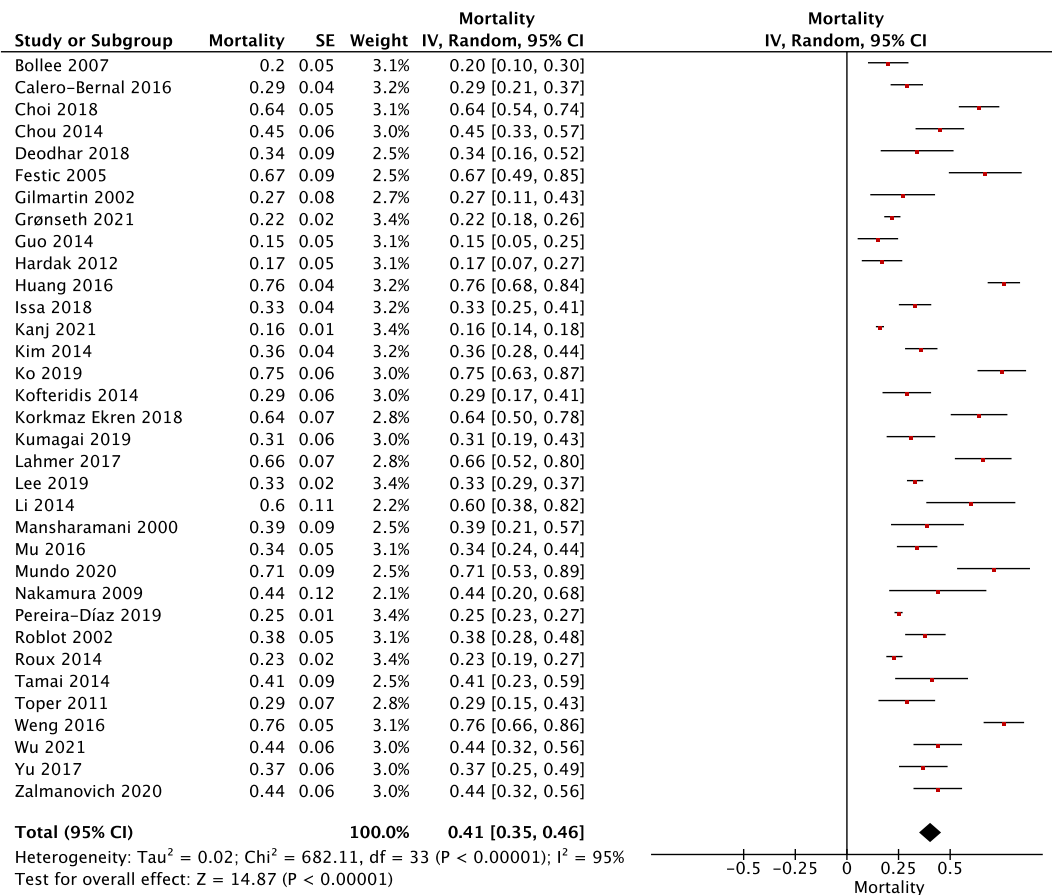


Figure S8. Mean white blood cell values.

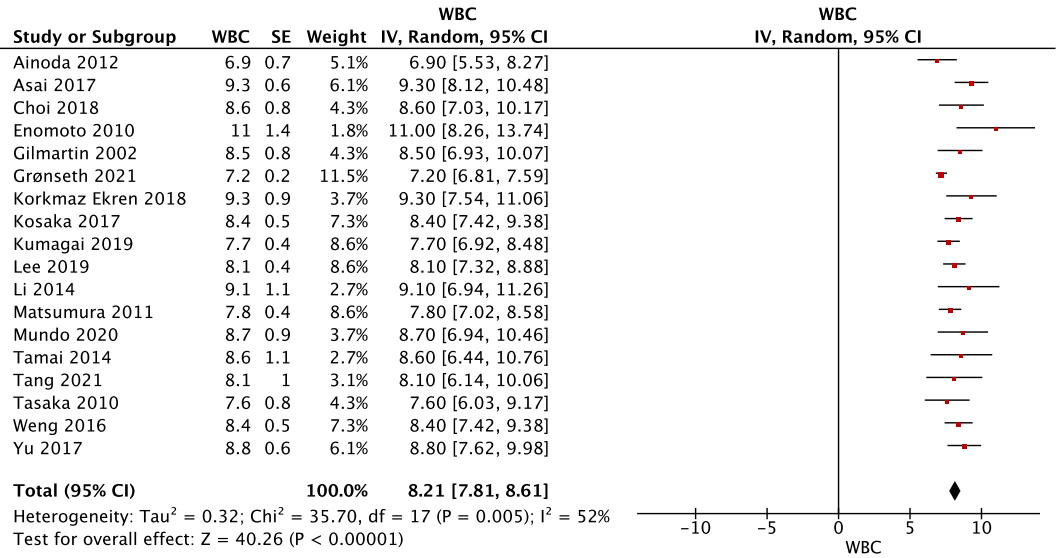


Figure S9. Mean value of lactate dehydrogenase.

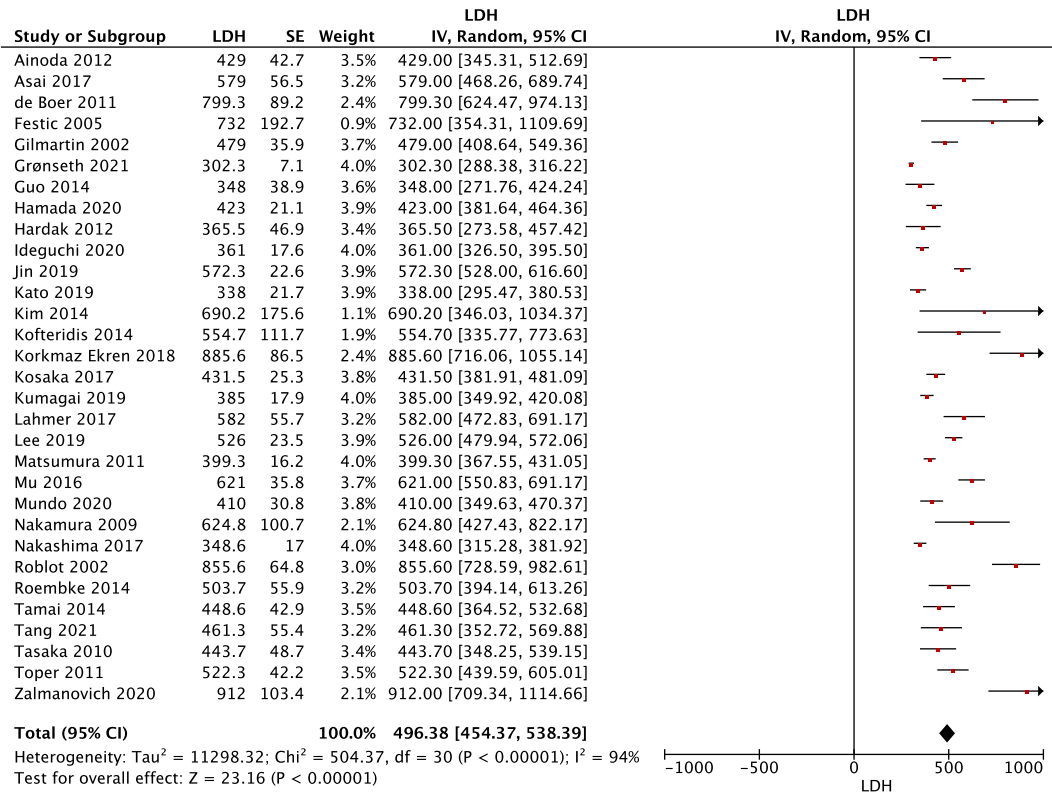


Figure S10. Mean value of albumin.

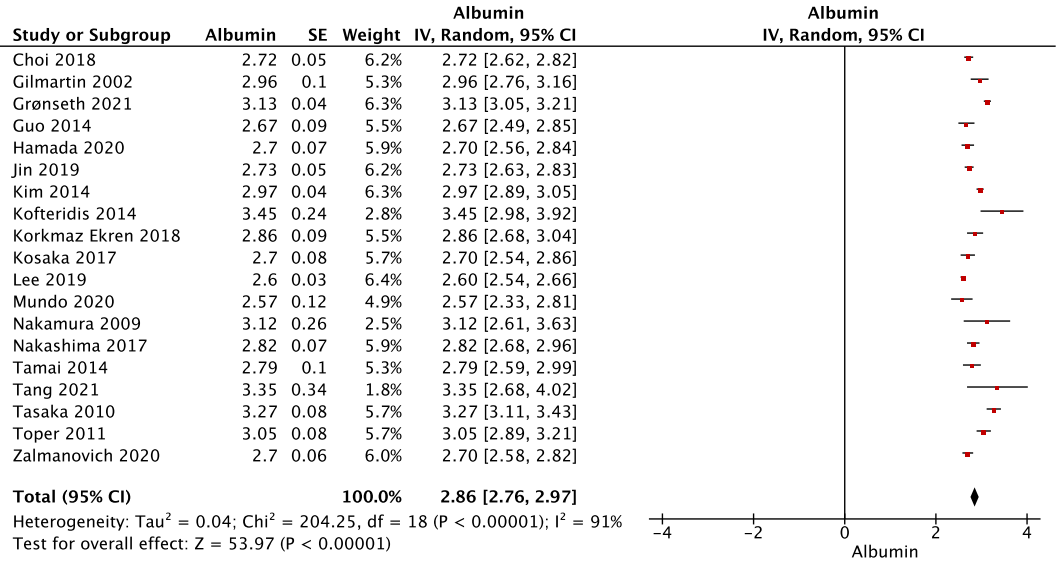


Figure S11. Mean value of C-reaction protein

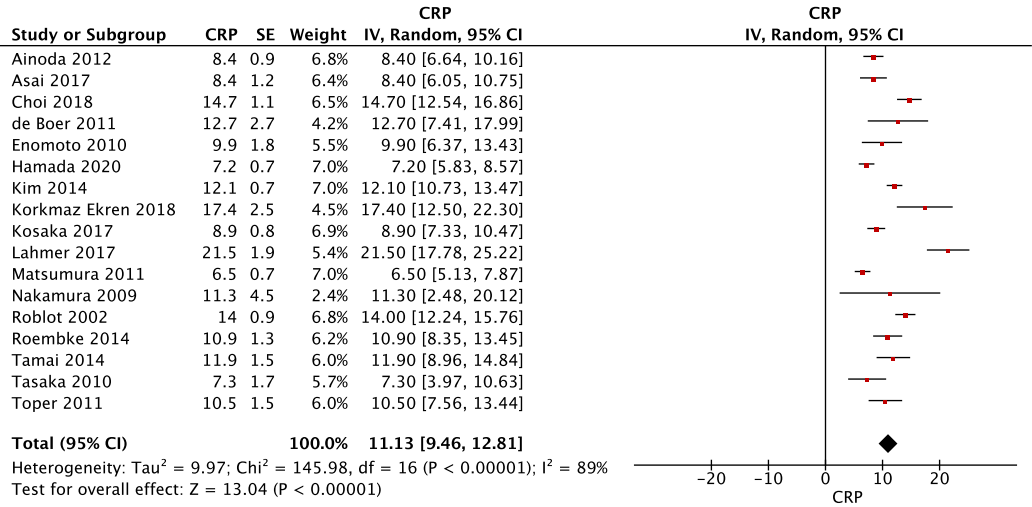


Figure S12. Mean value of (1,3) β -D glucan.

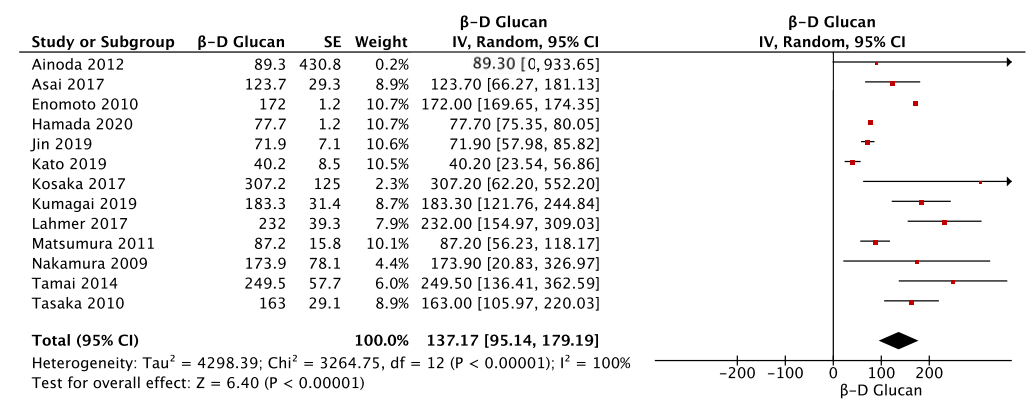


Figure S13. Mean value of KL-6.

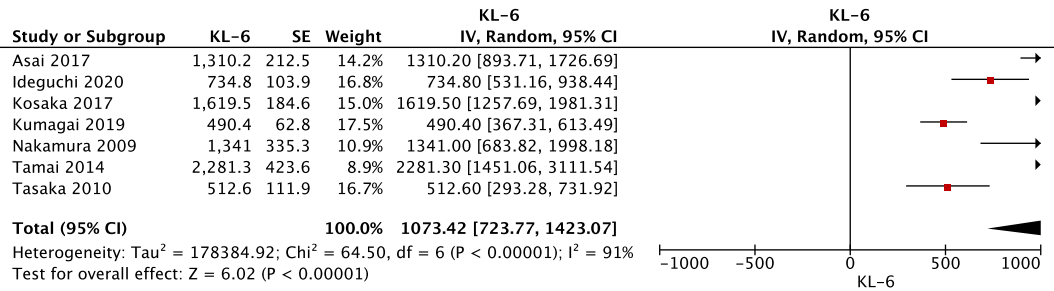


Figure S14. Data of hematologic malignancy as a comorbidity.

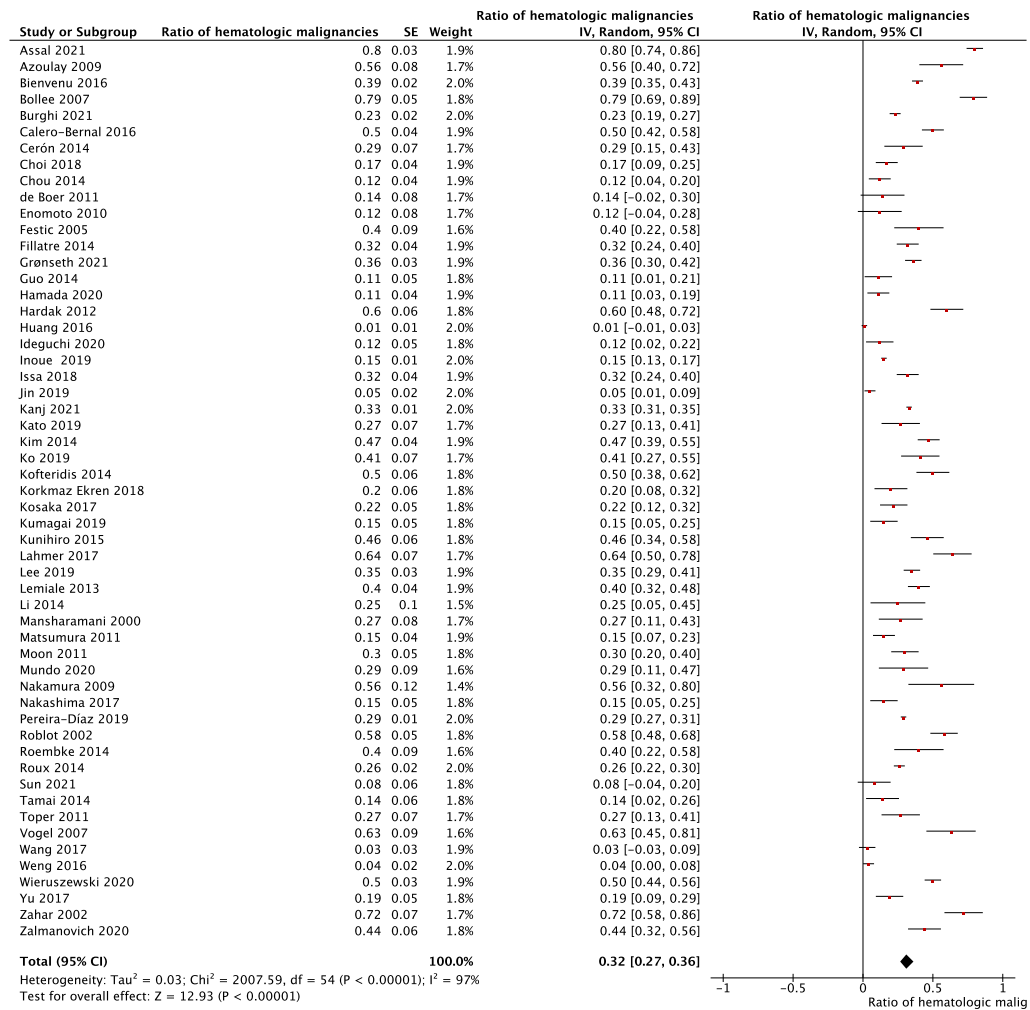


Figure S15. Data of immunosuppression as a comorbidity.

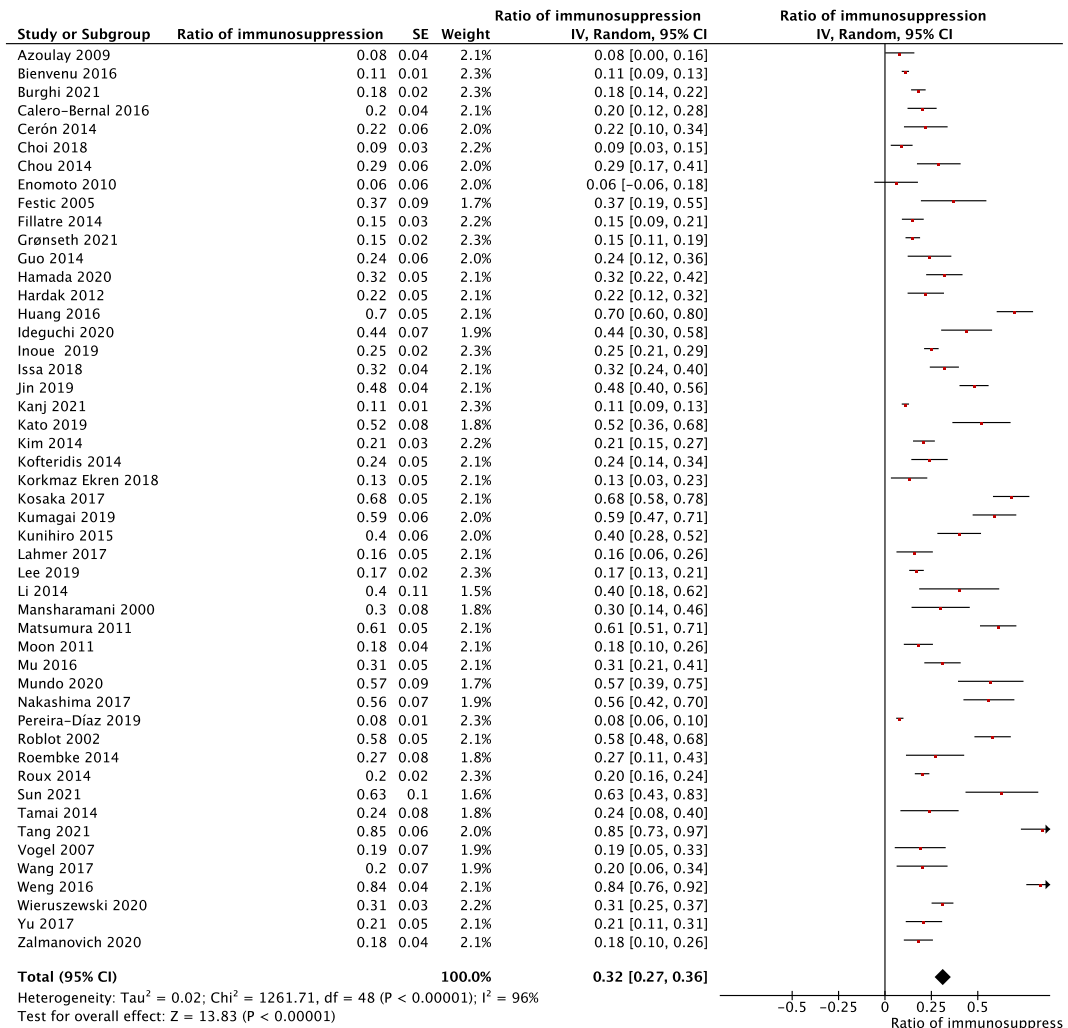


Figure S16. Data of transplantation as a comorbidity.

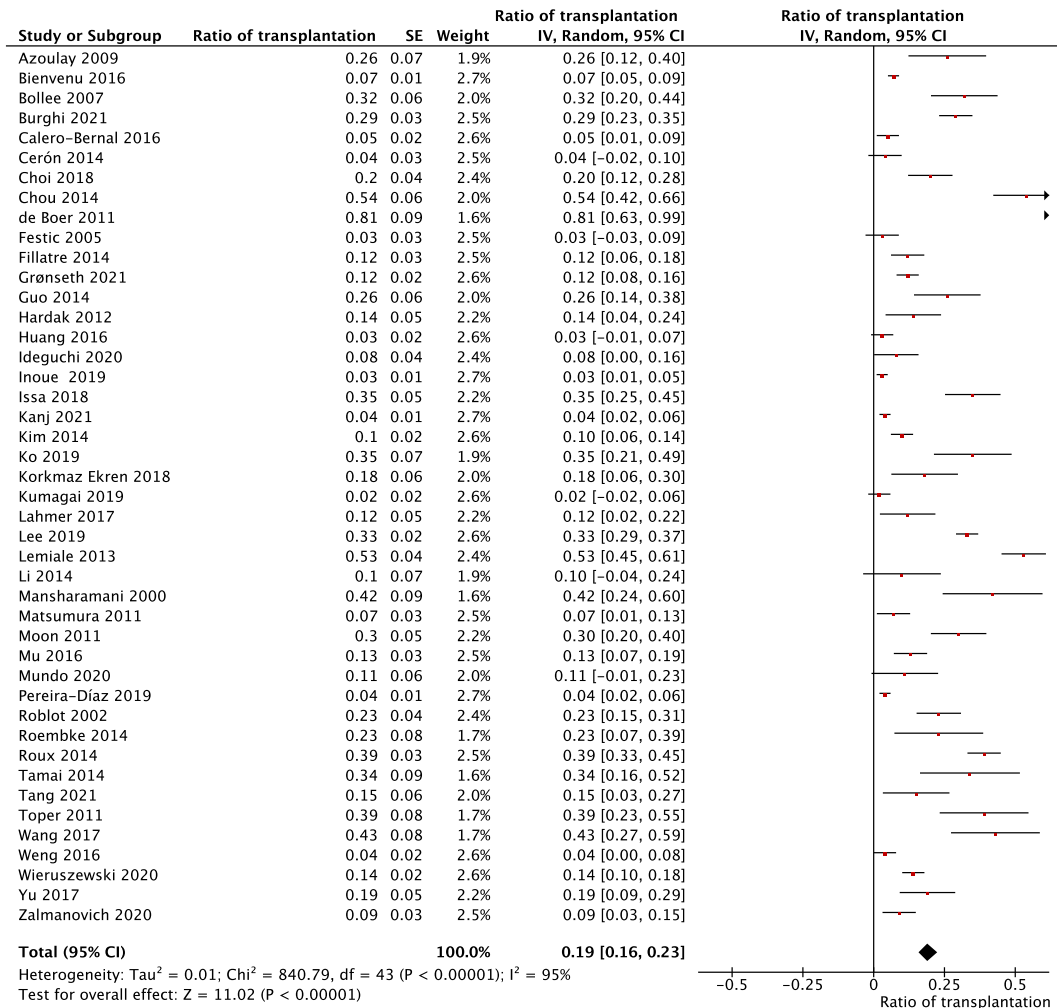


Figure S17. Data of solid tumor as a comorbidity.

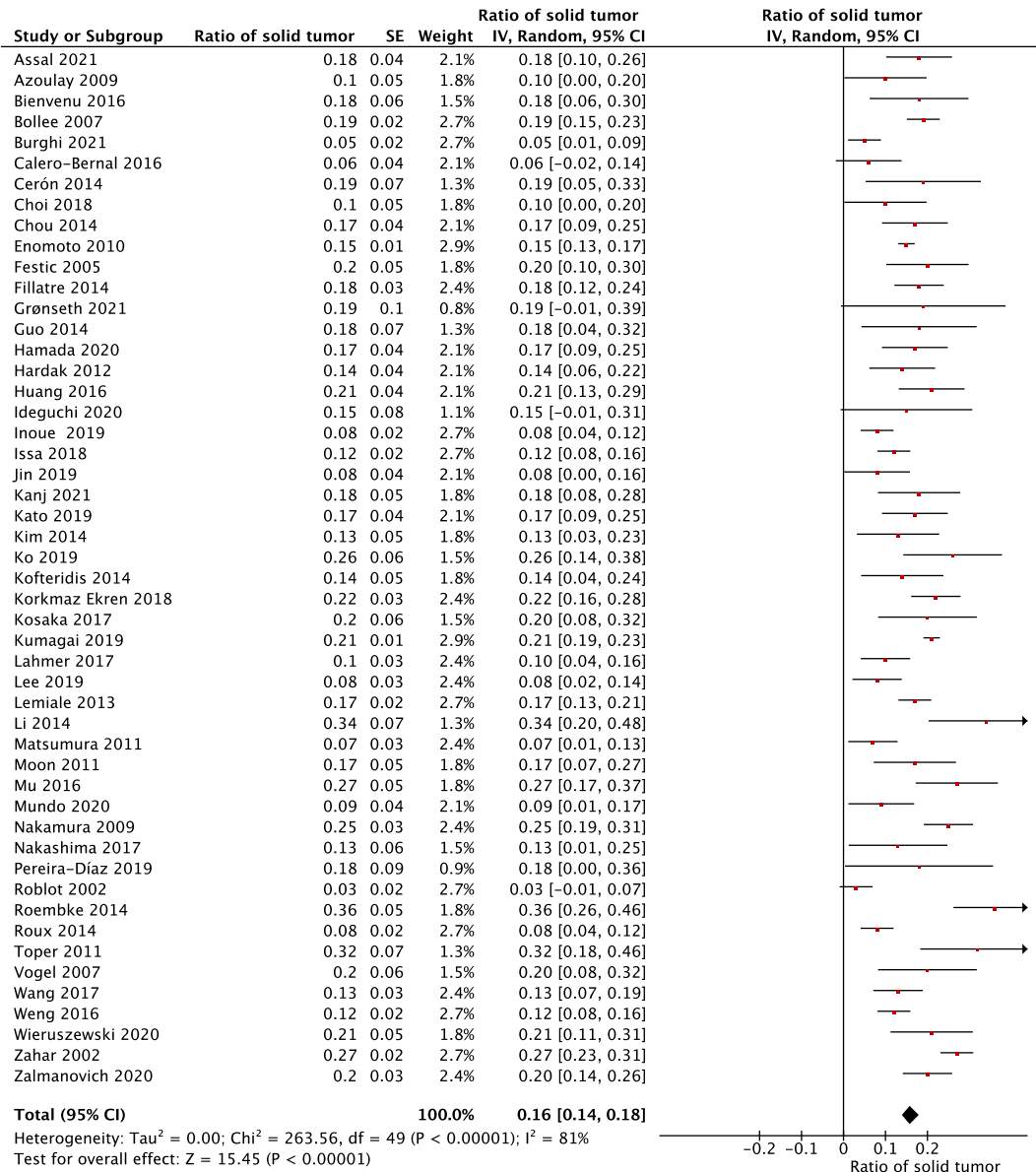


Figure S18. Data of dyspnea as a symptom.

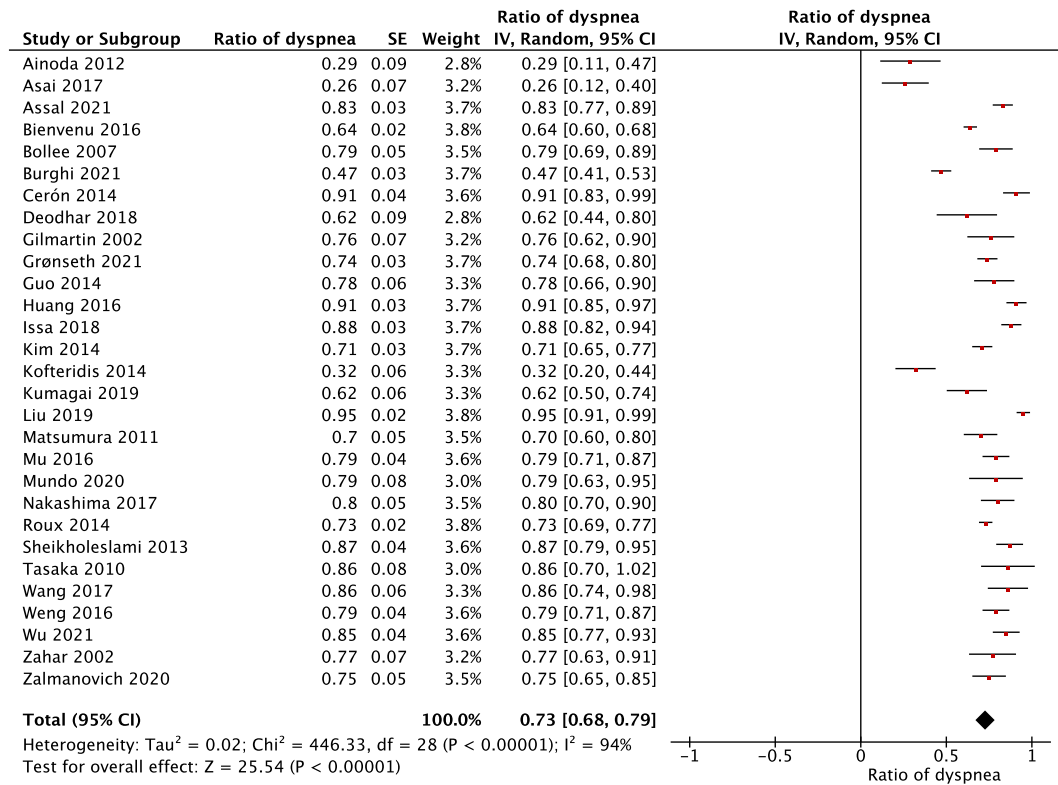


Figure S19. Data of fever as a symptom.

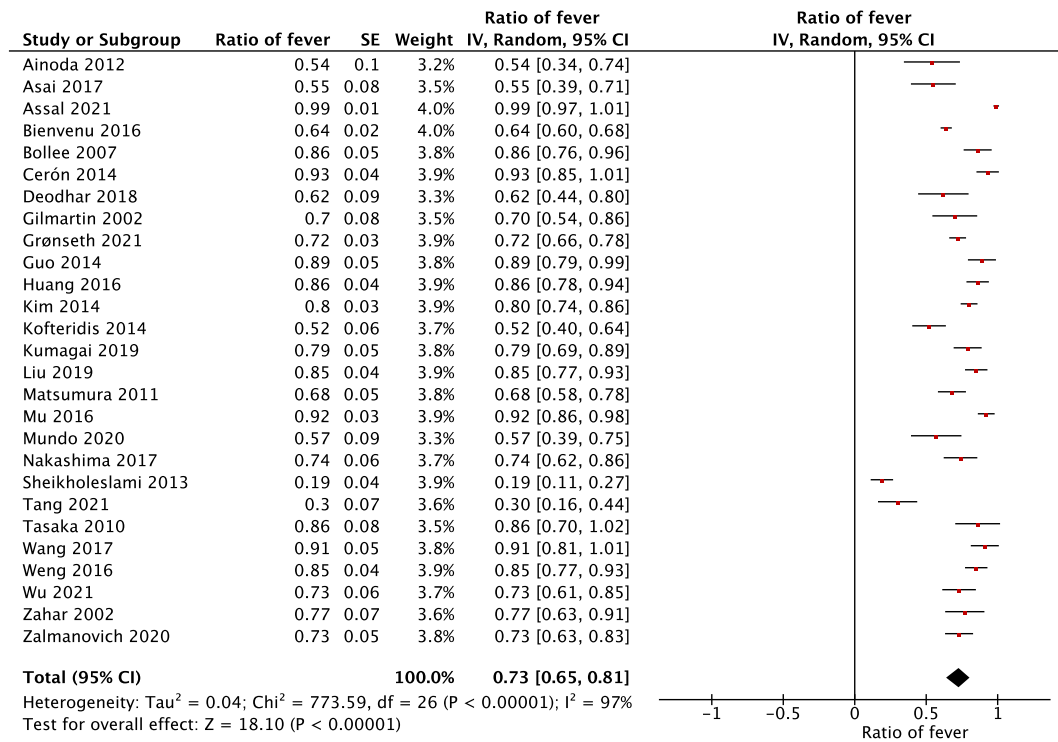


Figure S20. Data of cough as a symptom.

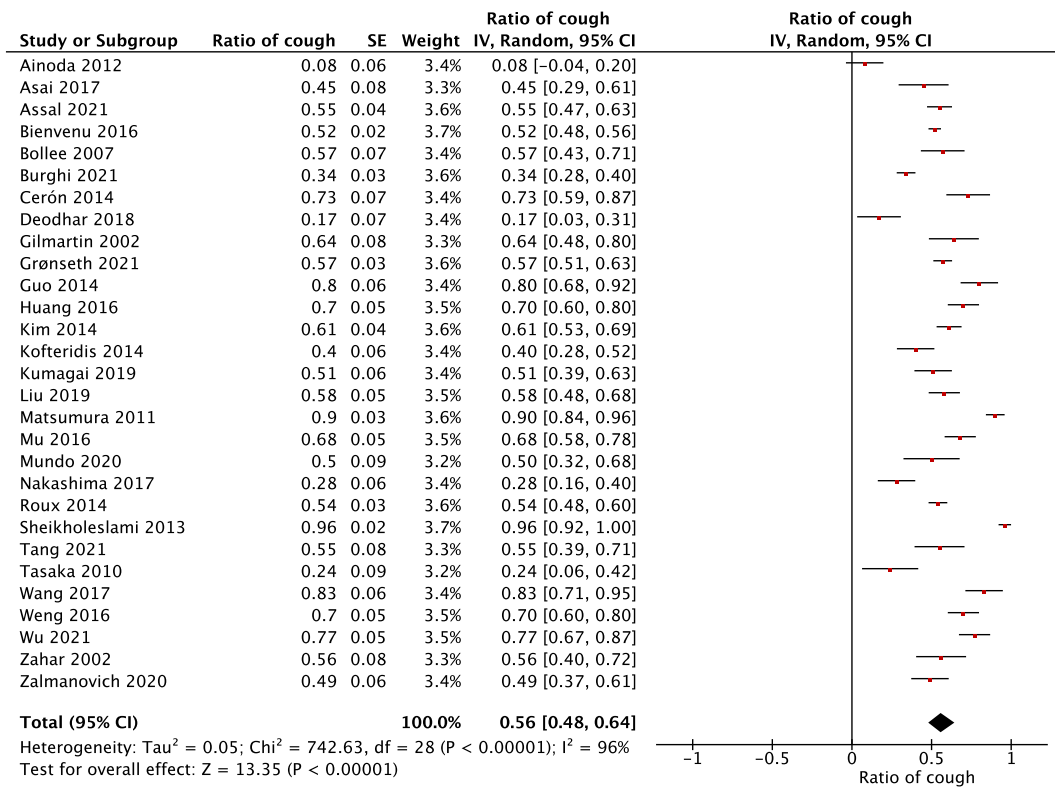


Figure S21. Data of sputum as a symptom.

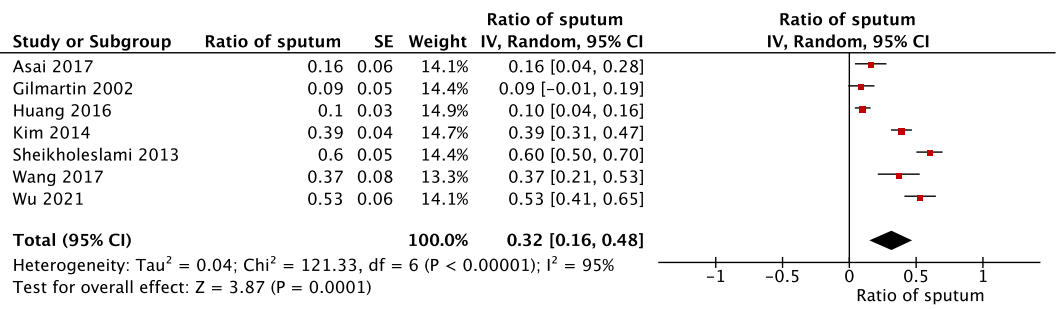


Figure S22. Data of hemoptysis as a symptom

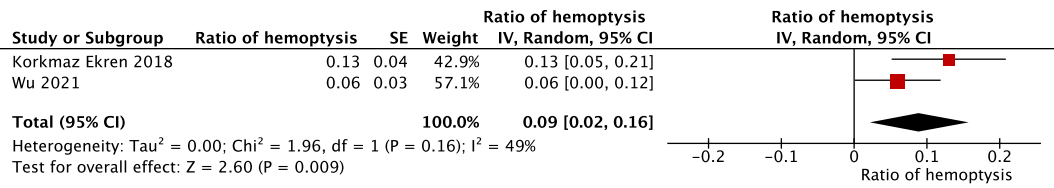


Figure S23. Data of chest pain as a symptom

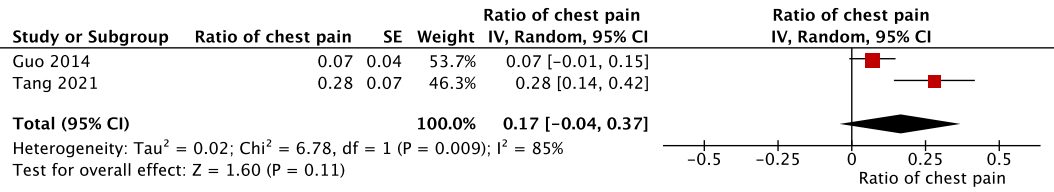


Figure S24. Data of viral existence in PCP without HIV.

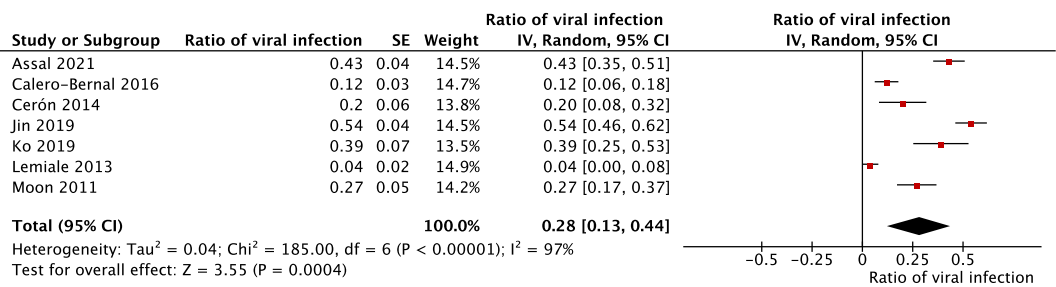


Figure S25. Data of bacterial existence in PCP without HIV.

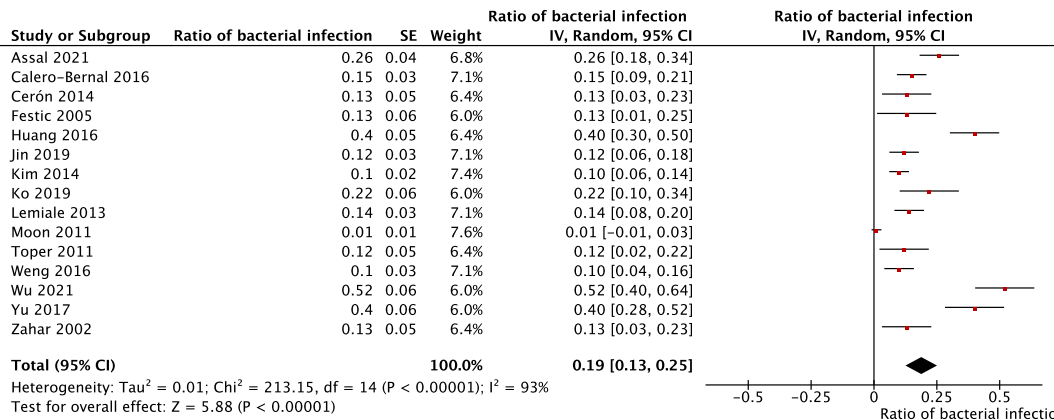


Figure S26. Data of fungal existence in PCP without HIV.

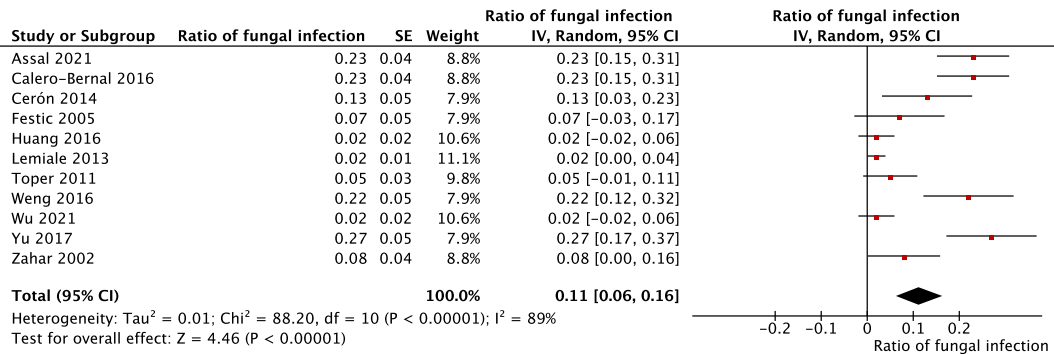


Figure S27. Data of cytomegalovirus existence in PCP without HIV.

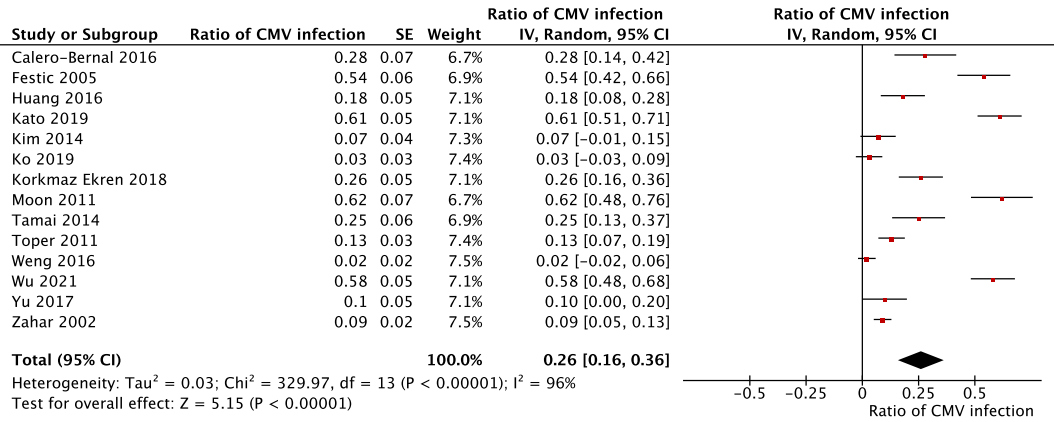


Figure S28. Data of ground glass opacity as a radiographic finding.

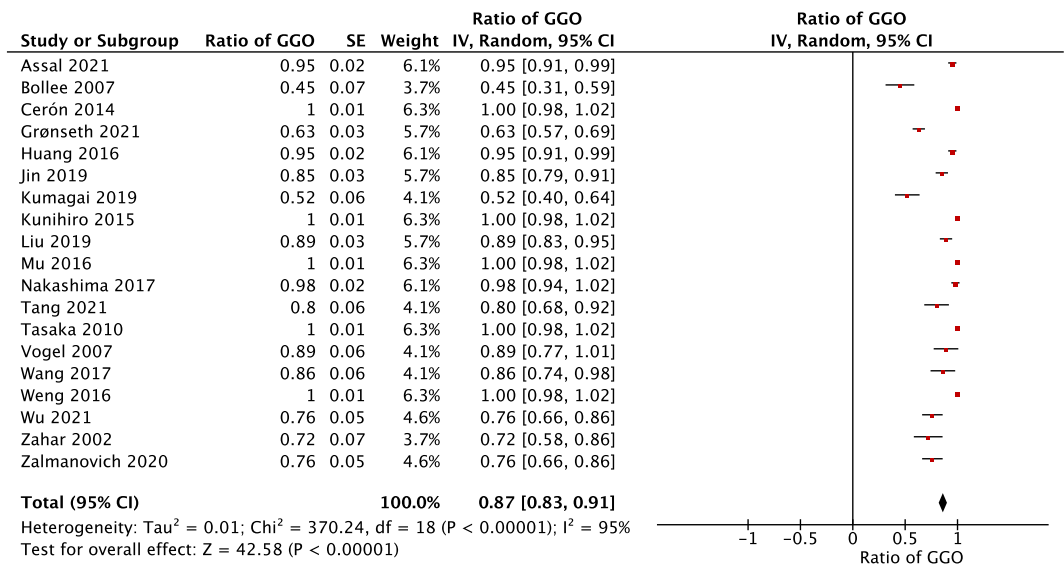


Figure S29. Data of septal thickening as a radiographic finding.

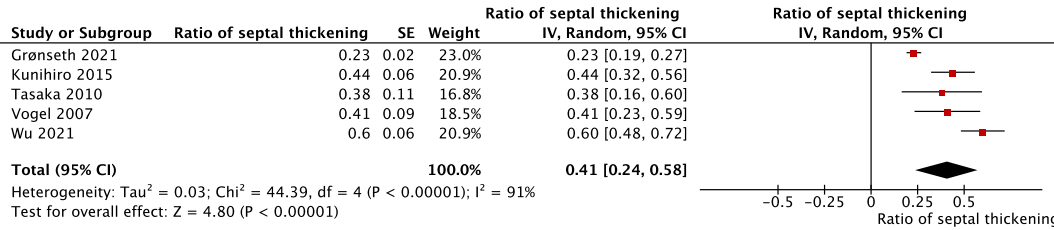


Figure S30. Data of consolidation as a radiographic finding.

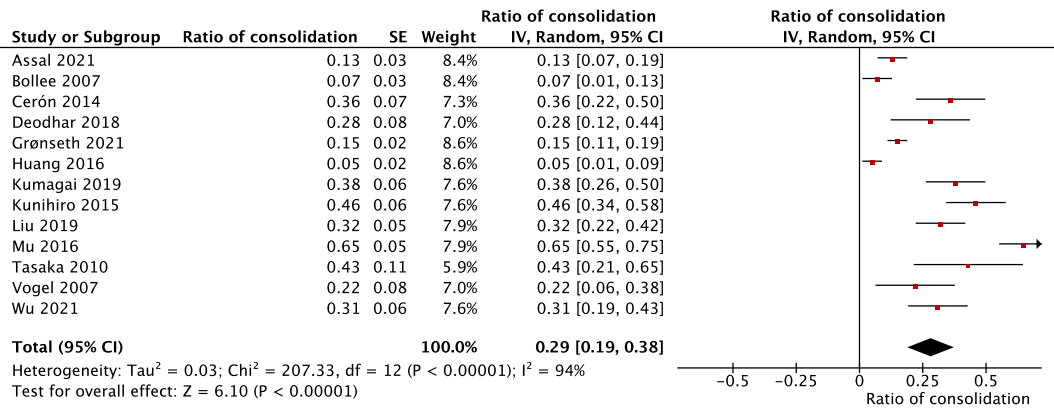


Figure S31. Data of pleural effusion as a radiographic finding.

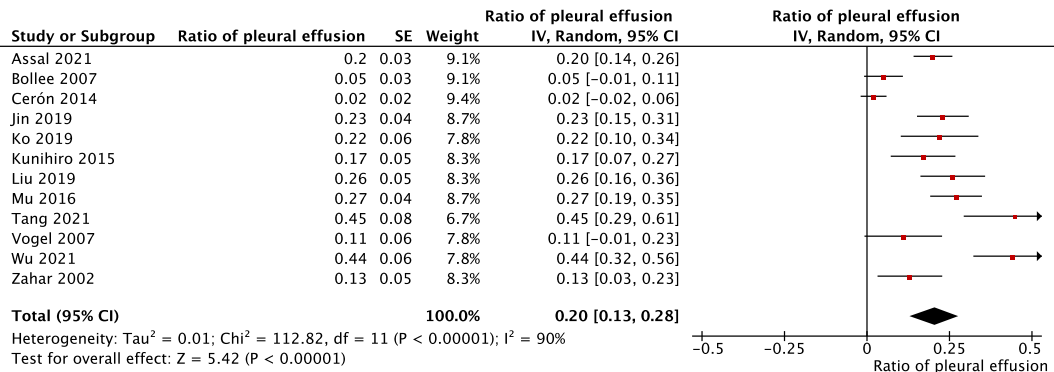


Figure S32. Data of lung nodules as a radiographic finding.

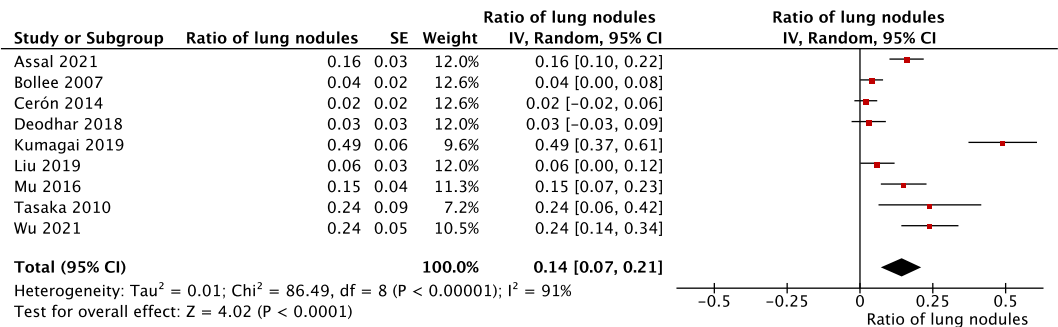


Figure S33 Data of pneumothorax as a radiographic finding.

