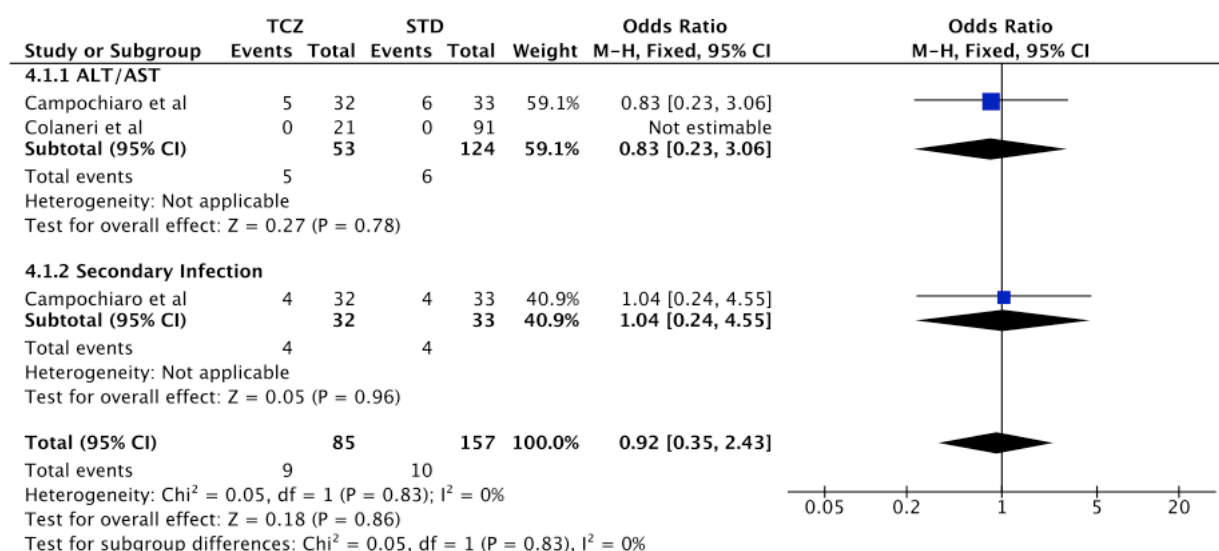


Supplementary materials

Search Strategy

We ran the following search strategy in PubMed until May 2020:

1. “COVID-19” [All Fields] OR “SARS-COV-2” [All Fields] OR “novel coronavirus disease” [All Fields] OR “novel coronavirus pneumonia” [All Fields]
2. “anti-IL-6R antibody” [All Fields] OR “anti-IL-6R antibody” [Title/Abstract]
3. “Tocilizumab” [All Fields] OR “Tocilizumab” [Title/Abstract]
4. “IL-6 polymorphism” [All Fields]
5. “Pneumonia” [All Fields]
6. 1 AND 2
7. 1 AND 3
8. 1 AND 2 AND 3
9. 4 AND 5



Supplementary Fig. 1. Forest plot of pooled studies evaluating the adverse effect between Tocilizumab (TCZ) group and standard treatment (STD) group.

Supplemental references:

1. Endeman H, Meijvis SC, Rijkers GT, van Velzen-Blad H, van Moorsel CH, Grutters JC, et al. Systemic cytokine response in patients with community-acquired pneumonia. *Eur Respir J* 2011;37(6):1431-8. doi: 10.1183/09031936.00074410.
2. Su G, Ding L, Zhang Z. The Effect of Interleukin-6 Gene Polymorphism on Pediatric Pneumonia. *Iran J Public Health* 2019;48(11):2035-2040.
3. Mao ZR, Zhang SL, Feng B. Association of IL-10 (-819T/C, -592A/C and -1082A/G) and IL-6 -174G/C gene polymorphism and the risk of pneumonia-induced sepsis. *Biomarkers* 2017;22(2):106-112. doi: 10.1080/1354750X.2016.1210677.
4. Zhao J, Zhang W, Shen L, Yang X, Liu Y, Gai Z. Association of the ACE, GSTM1, IL-6, NOS3, and CYP1A1 polymorphisms with susceptibility of mycoplasma pneumoniae pneumonia in Chinese children. *Medicine (Baltimore)* 2017;96(15):e6642. doi: 10.1097/MD.00000000000006642.
5. Salnikova LE, Smelaya TV, Moroz VV, Golubev AM, Rubanovich AV. Functional polymorphisms in the CYP1A1, ACE, and IL-6 genes contribute to susceptibility to community-acquired and nosocomial pneumonia. *Int J Infect Dis* 2013;17(6):e433-42. doi: 10.1016/j.ijid.2013.01.005.
6. Schaaf B, Rupp J, Müller-Steinhardt M, Kruse J, Boehmke F, Maass M, et al The interleukin-6 -174 promoter polymorphism is associated with extrapulmonary bacterial dissemination in *Streptococcus pneumoniae* infection. *Cytokine* 2005;31(4):324-8. doi: 10.1016/j.cyto.2005.05.008.

7. Zidan HE, Elbehedy RM, Azab SF. IL6-174 G/C gene polymorphism and its relation to serum IL6 in Egyptian children with community-acquired pneumonia. *Cytokine* 2014;67(2):60-4. doi: 10.1016/j.cyto.2014.02.013.
8. Feng B, Mao ZR, Pang K, Zhang SL, Li L. Association of tumor necrosis factor α -308G/A and interleukin-6 -174G/C gene polymorphism with pneumonia-induced sepsis. *J Crit Care* 2015;30(5):920-3. doi: 10.1016/j.jcrc.2015.04.123
9. Jerrard-Dunne P, Sitzer M, Riskey P, Steckel DA, Buehler A, von Kegler S, et al. Interleukin-6 promoter polymorphism modulates the effects of heavy alcohol consumption on early carotid artery atherosclerosis: the Carotid Atherosclerosis Progression Study (CAPS). *Stroke* 2003;34(2):402-7. doi: 10.1161/01.str.0000053849.09308.b2.
10. Flores C, Ma SF, Maresso K, Wade MS, Villar J, Garcia J. IL6 gene-wide haplotype is associated with susceptibility to acute lung injury. *Transl Res* 2008;152(1):11-7. doi: 10.1016/j.trsl.2008.05.006.
11. Cai Q, Huang D, Yu H, Zhu Z, Xia Z, Su Y. Characteristics of Liver Tests in COVID-19 Patients. *J Hepatol* 2020. pii: S0168-8278(20)30218-X. doi: 10.1016/j.jhep.2020.04.006.