

Steroids in COVID-19

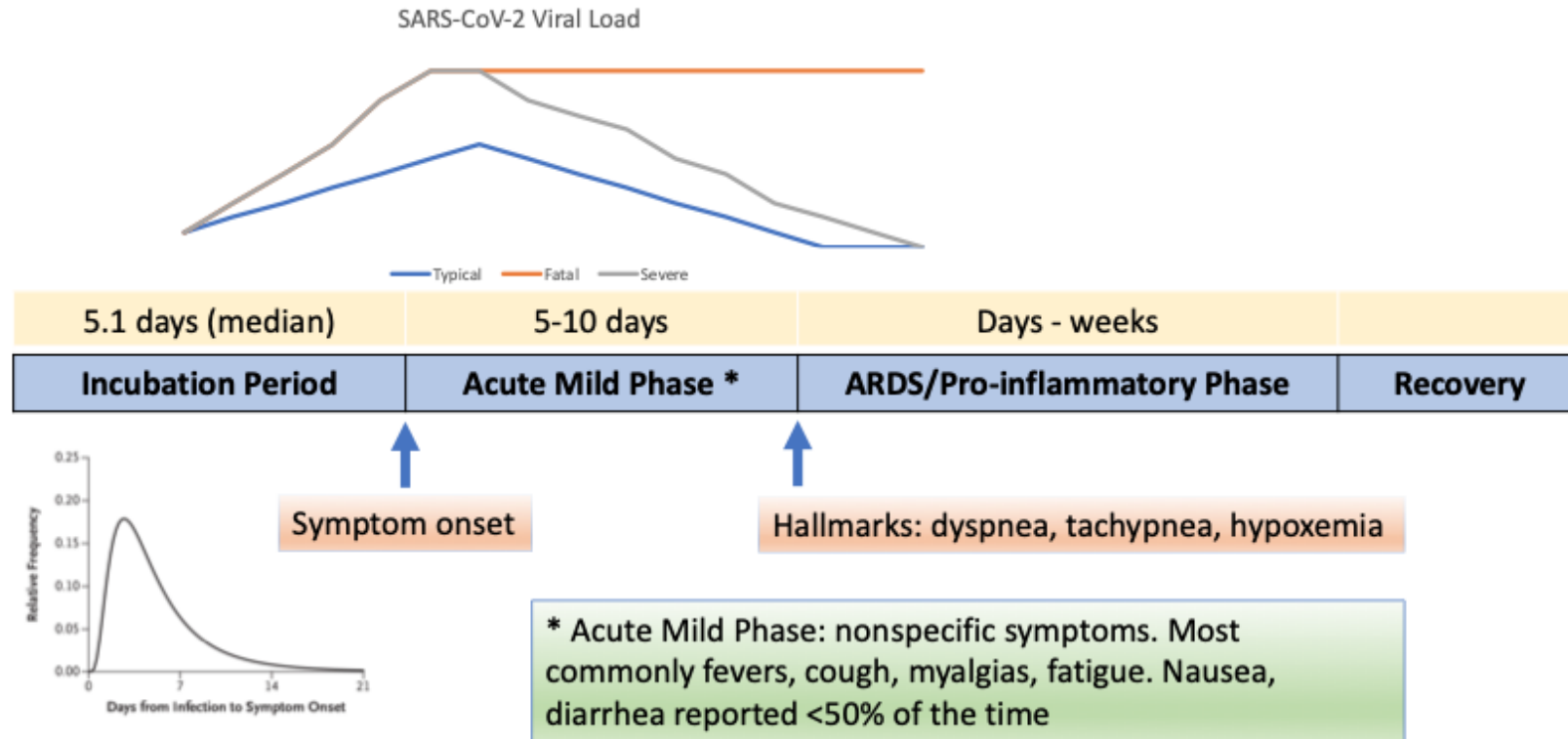
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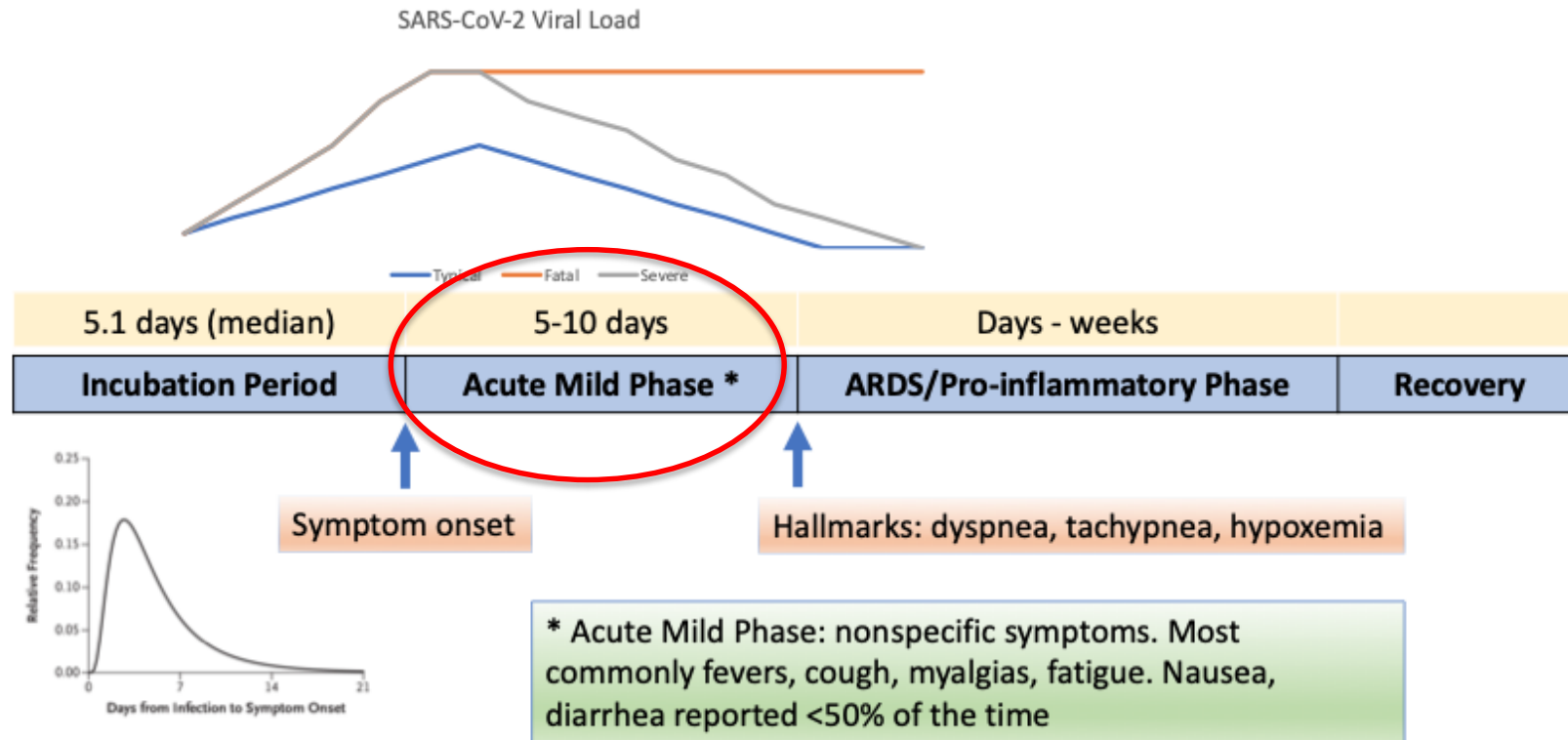
COVID-19 Disease Course



Pan Lancet ID 2020 [https://doi.org/10.1016/S1473-3099\(20\)30113-4](https://doi.org/10.1016/S1473-3099(20)30113-4)
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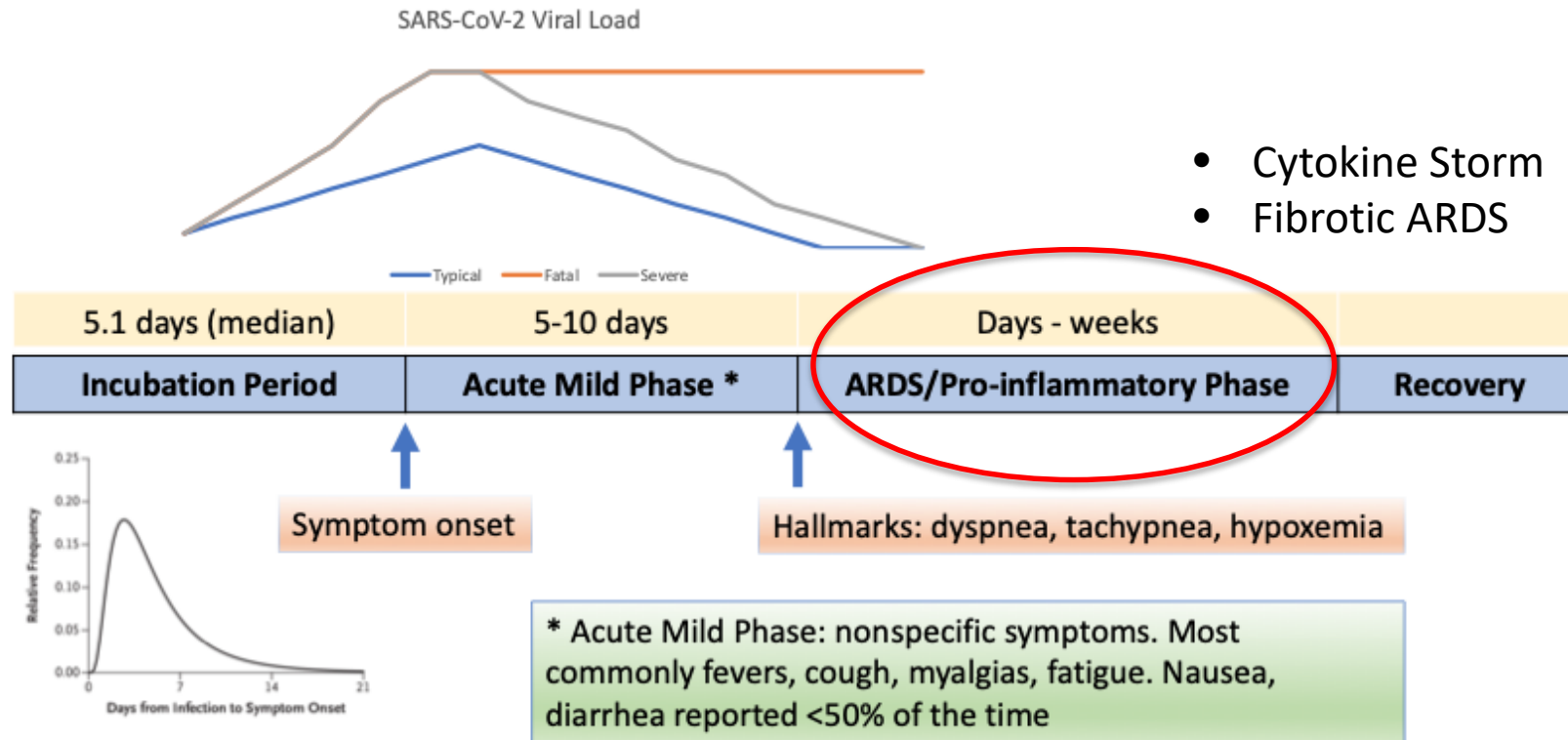
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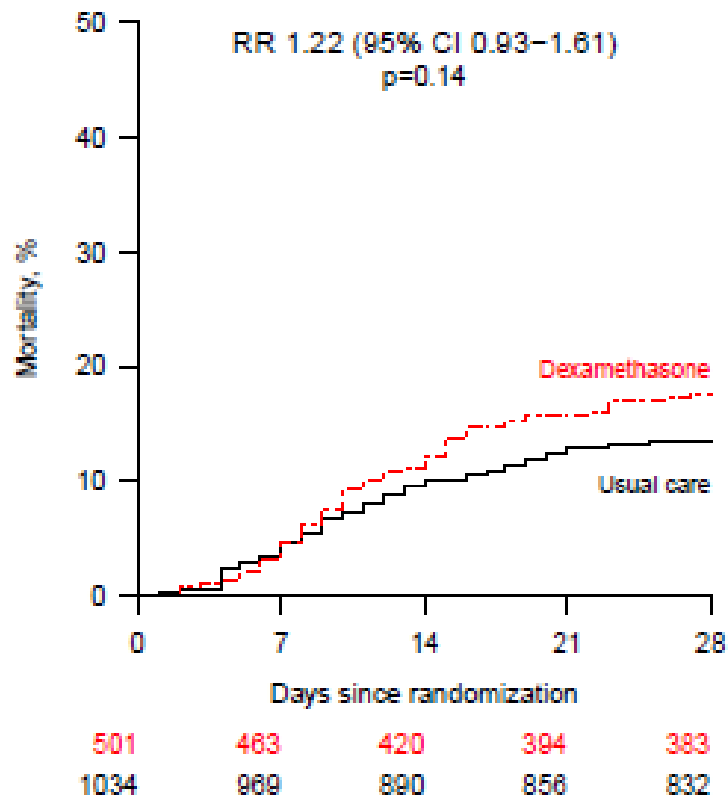
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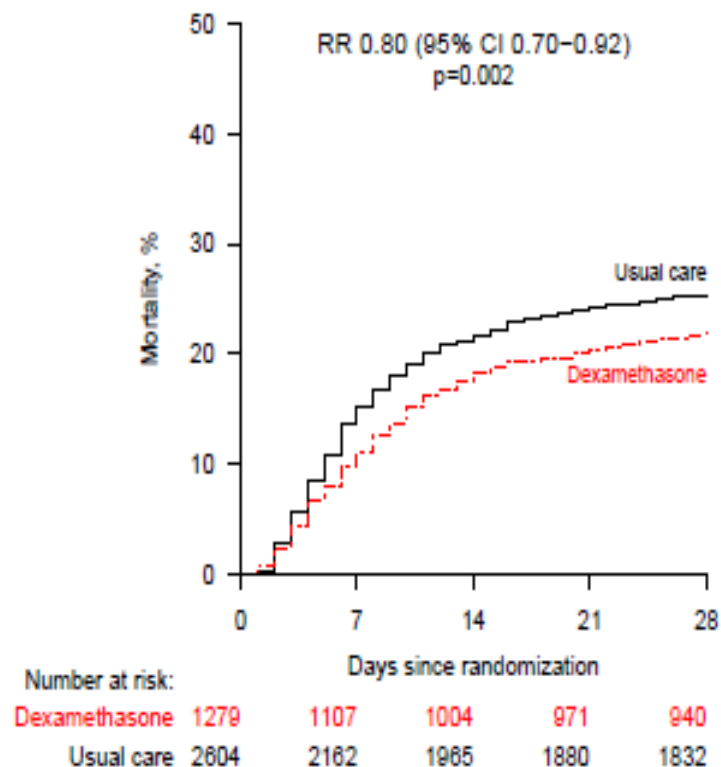
Table 1: Baseline characteristics by randomized allocation and level of respiratory support received

	Treatment allocation		Respiratory support received at randomization		
	Dexamethasone (n=2104)	Usual care (n=4321)	No oxygen received (n=1535)	Oxygen only (n=3883)	Invasive mechanical ventilation (n=1007)
Age, years	66.9 (15.4)	65.8 (15.8)	69.3 (17.6)	66.7 (15.3)	59.0 (11.5)
<70	1142 (54%)	2506 (58%)	660 (43%)	2149 (55%)	839 (83%)
≥70 to <80	467 (22%)	860 (20%)	338 (22%)	837 (22%)	152 (15%)
≥80	495 (24%)	955 (22%)	537 (35%)	897 (23%)	16 (2%)
Sex					
Male	1338 (64%)	2750 (64%)	892 (58%)	2462 (63%)	734 (73%)
Female*	766 (36%)	1571 (36%)	643 (42%)	1421 (37%)	273 (27%)
Number of days since symptom onset	8 (5-13)	9 (5-13)	6 (3-10)	9 (5-12)	13 (8-18)
Respiratory support received					
No oxygen received	501 (24%)	1034 (24%)	1535 (100%)	0 (0%)	0 (0%)
Oxygen only	1279 (61%)	2604 (60%)	0 (0%)	3883 (100%)	0 (0%)
Invasive mechanical ventilation	324 (15%)	683 (16%)	0 (0%)	0 (0%)	1007 (100%)

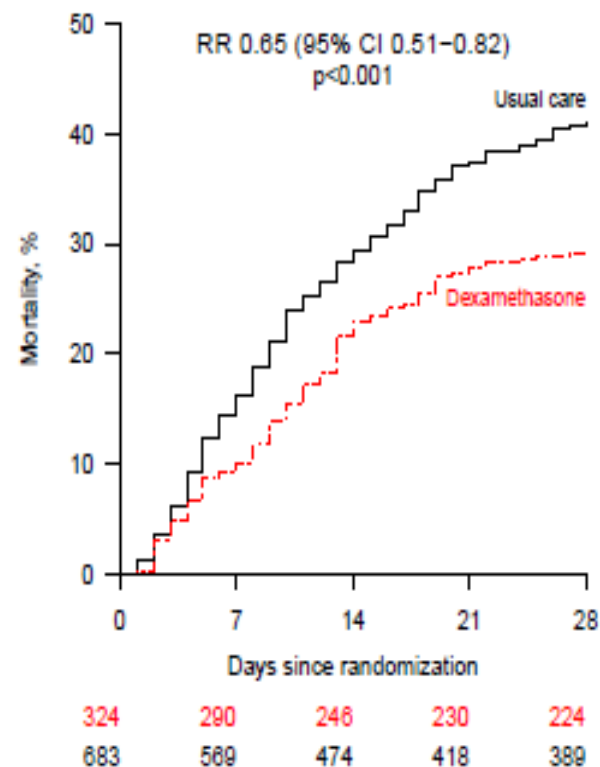
b) No oxygen received (n=1535)



c) Oxygen only (n=3883)



d) Invasive mechanical ventilation (n=1007)



Steroids and RNA Clearance (MERS-CoV)

- Significant delay in MERS-CoV RNA Clearance
 - Observed when corticosteroids were initiated early
 - Late initiation (> 7 days) not associated with delayed clearance

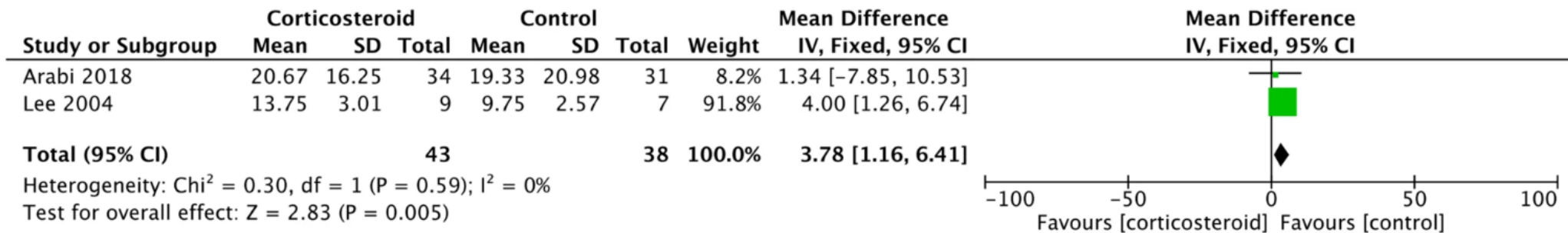
Arabi YM, Mandourah Y, Al-Hameed F, et al. Corticosteroid Therapy for Critically Ill Patients with Middle East Respiratory Syndrome. *Am J Respir Crit Care Med*. 2018;197(6):757-767.
doi:10.1164/rccm.201706-1172OC

CoronaViruses and Steroids

- Increased length of hospital stay
- No change in mortality

Fig. 2: The effect of corticosteroid on virus clearness.

From: Impact of corticosteroid therapy on outcomes of persons with SARS-CoV-2, SARS-CoV, or MERS-CoV infection: a systematic review and meta-analysis



Comparison of virus clearness between corticosteroid and comparator.

Li, H., Chen, C., Hu, F. *et al.* Impact of corticosteroid therapy on outcomes of persons with SARS-CoV-2, SARS-CoV, or MERS-CoV infection: a systematic review and meta-analysis. *Leukemia* 34, 1503–1511 (2020). <https://doi.org/10.1038/s41375-020-0848-3>

Steroids in Non COVID ARDS

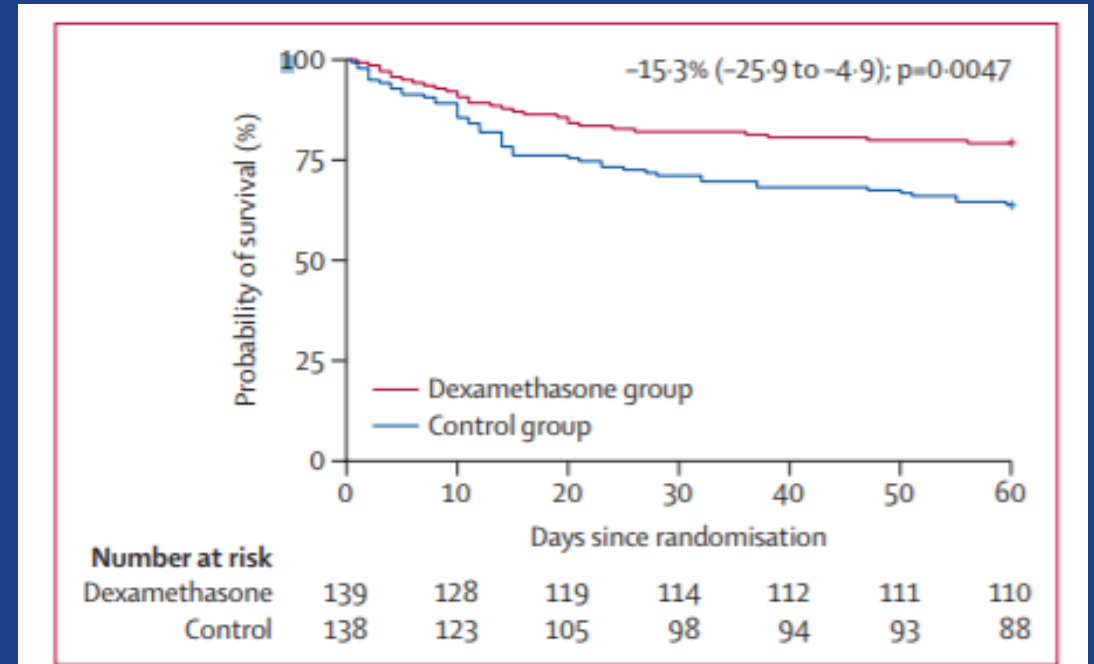
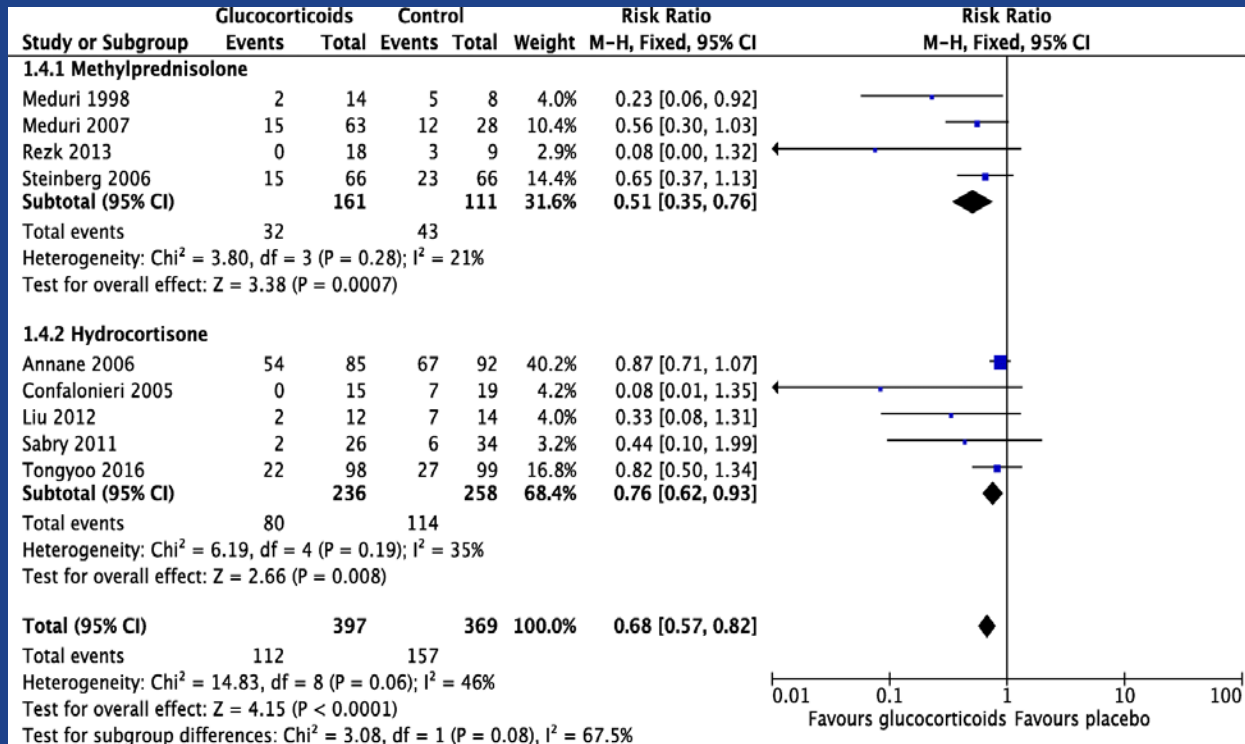


Figure 2: Kaplan-Meier survival estimates during the first 60 days of trial

Meduri, G.U., Siemieniuk, R.A.C., Ness, R.A. *et al.* Prolonged low-dose methylprednisolone treatment is highly effective in reducing duration of mechanical ventilation and mortality in patients with ARDS. *J Intensive Care* 6, 53 (2018). <https://doi.org/10.1186/s40560-018-0321-9>

Villar J, Ferrando C, Martínez D, et al. Dexamethasone treatment for the acute respiratory distress syndrome: a multicentre, randomised controlled trial. *Lancet Respir Med*. 2020;8(3):267-276. doi:10.1016/S2213-2600(19)30417-5

Take home points

- Steroids have a role to play in intubated patients with SARS-CoV-2 pneumonia/ARDS
- Issues to consider
 - Unclear role in the non-intubated patient
 - Timing of initiation
 - Side effects
 - Long term consequences

