The Can't Add TOGETHER Trial

Houston, we have a problem

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If a study has a press release strategy, it's fair to assume that its motivations are more aligned with good press rather than good science. On March 18th, the world was treated to another negative headline: "Ivermectin Didn't Reduce Covid-19 Hospitalizations in Largest Trial to Date". It wasn't possible for the journalist to interrogate that claim, because the study hadn't been published. Nonetheless, the headline was dutifully beamed out by the Wall Street Journal in another example of "Science by Press Release".

PR teams plan to get 'good press' before the study is published so that even if the study is terrible, the headline is shared far and wide before its claims can be tested. If headlines are what you want, it's a win-win strategy

This is the Ivermectin TOGETHER trial, something we've waited years for. It's finally here! And as many of us predicted, there are some serious issues with it. Despite the expected problems, very few were prepared for the number of serious issues that would be discovered. This post will focus only on the numerical issues which discredit the study. The digging will come later…for now, I'll focus on the numerical issues.

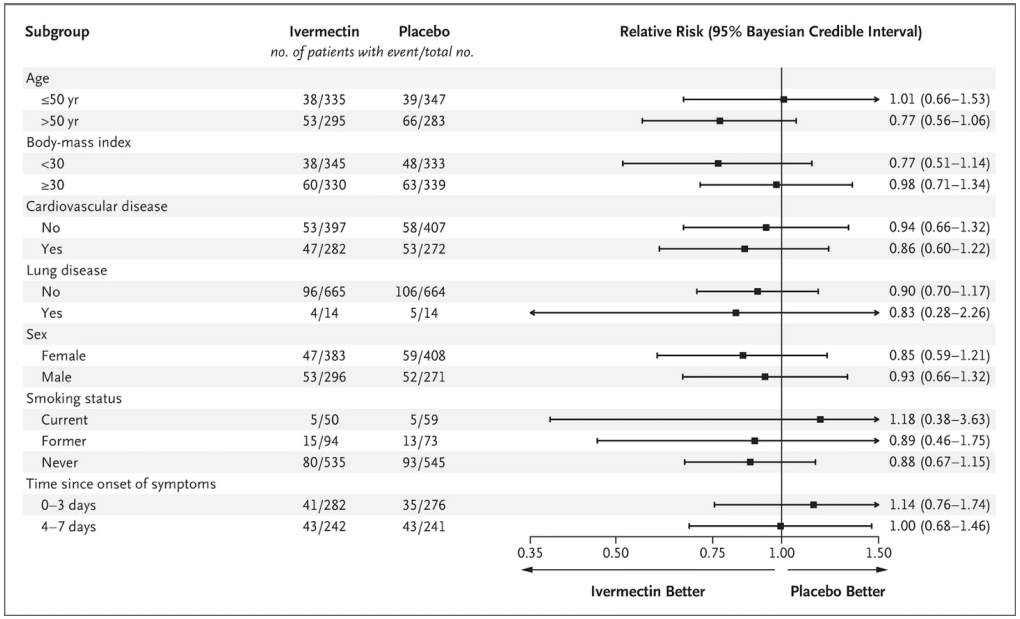
Missing patients in the subgroup analysis

There were two arms to the study, Ivermectin and placebo. The study enrolled 679 patients in each arm, so 679 patients took Ivermectin and 679 took a placebo.

Part of the study looked at subgroups within those arms to compare how they did. It broke down patients by weight, cardiovascular disease, lung disease and 'time since onset of symptoms'. That's the number of days the patient had shown symptoms when they presented to the clinic to enrol in the study.

Here's the issue, the size of the broken down groups should all add up to 679 patients, but they do not. In the Ivermectin 'arm' of the study, there's an 'age subgroup' which lists 335 patients older or equal to 50 years old, and 295 younger than 50 years old. But that only adds to 630

patients, **suggesting that 49 patients were neither younger, equal to, or older than 50 years old**. These problems are apparent right the way through the subgroup analysis, where the totals rarely add up to 679 patients. A list of the missing patients is shown in the table below the original data, which is below.



Subgroup	Ivermectin	Placebo	Relative Risk (95% Bayesian Credible Interval)
	no. of patients with event/total no.		
Age			
≤50 yr	38/335	39/347	1.01 (0.66–1.53)
>50 yr	53/295	66/283	0.77 (0.56–1.06)
Body-mass index			
<30	38/345	48/333	0.77 (0.51–1.14)
≥30	60/330	63/339	0.98 (0.71–1.34)
Cardiovascular disease			
No	53/397	58/407	0.94 (0.66–1.32)
Yes	47/282	53/272	0.86 (0.60–1.22)
Lung disease			
No	96/665	106/664	0.90 (0.70–1.17)
Yes	4/14	5/14	0.83 (0.28–2.26)
Sex			
Female	47/383	59/408	0.85 (0.59–1.21)
Male	53/296	52/271	0.93 (0.66–1.32)
Smoking status			
Current	5/50	5/59	1.18 (0.38–3.63)
Former	15/94	13/73	0.89 (0.46–1.75)
Never	80/535	93/545	0.88 (0.67–1.15)
Time since onset of symptoms			
0–3 days	41/282	35/276	1.14 (0.76–1.74)
4–7 days	43/242	43/241	1.00 (0.68–1.46)

Original data from Figure 2 - The Subgroup Analysis

Subgroup	Ivermectin N=679	Placebo N=679
Age		
≥ 50 years old	335	347
< 50 years old	295	283
Total	630	630
Missing	**49**	**49**
Body Mass Index		
< 30	345	333
≥ 30	330	339
Total	675	672
Missing	**4**	**7**
Cardiovascular Disease		
No	397	407
Yes	282	272
Total	679	679
Missing	**0**	**0**
Lung Disease		
No	665	664
Yes	14	14
Total	679	678
Missing	**0**	**1**
Sex		
Female	383	408

Male	296	271
Total	679	679
Missing	**0**	**0**
Smoking Status		
Current	50	59
Former	94	73
Never	535	545
Total	679	677
Missing	**0**	**2**
Time since symptom onset		
0-3 days	282	276
4-7 days	242	241
Total	524	517
Missing	**155**	**162**

Adding up the subgroups shows there are missing patients. Why?

The biggest discrepancy is in the 'Time since Symptom Onset' subgroup, where there are 155

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