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BACKGROUND

- COVID-19 pandemic has created a multitude of challenges for patients with inflammatory bowel disease (IBD)
- Recent retrospective study from US Veterans Affairs (VA) showed an increased long-term risk of cardiovascular disease (CVD) and thromboembolic disease after COVID-19
- With the quickly evolving SARS-CoV-2 variants, it is important to fully understand the magnitude of complications from COVID-19 in patients with IBD

AIM

- Compare the short- and long-term risk of CVD and venous thromboembolism (VTE) after COVID-19 in patients with IBD

METHODS

- Real-time search and analysis of the U.S Collaborative Network in the TriNetX platform containing ~ 85 million patients from 52 health care organizations
- IBD cohort (n=8773): Adults ≥18 with ICD-10 codes for ulcerative colitis (UC) or Crohn's disease (CD) plus one IBD-related medication who developed COVID-19
Control cohort: Adults ≥ 18 without IBD and other autoimmune diseases
- Study outcomes: cardiac complications (arrhythmias, heart failure, myocarditis, and pericarditis), ischemic heart disease (IHD), ischemic stroke, peripheral artery disease, and VTE
- Secondary aims of the study include risk of complications based on the following:
 - 1) ≥ 2 doses of BNT162b2 or mRNA-1273 COVID-19 vaccine
 - 2) Active disease < 6 months prior to COVID-19
 - 3) Immunosuppressive therapy
- Propensity score matching was performed for age, gender, race, ethnicity, hypertension, hyperlipidemia, diabetes mellitus, nicotine dependence, BMI ≥ 30, chronic respiratory disease, CKD, malignancy, and cirrhosis
- Risk expressed as adjusted odds ratio (aOR) with 95% confidence interval (CI)

Table 1: Risk of cardiac and thromboembolic complications within 3 months and 3-12 months after COVID-19 in IBD cohort expressed adjusted odds ratio (aOR) with 95% CI

Complication	Time period	N (%)	aOR	95% CI
Cardiac	< 3 mo	130 (2.1)	1.3	1.01 – 1.70
	3-12 mo	405 (6.9)	1.6	1.4 – 1.9
IHD	< 3 mo	177 (2.6)	1.5	1.2 – 1.9
	3-12 mo	235 (3.5)	1.4	1.1 – 1.7
VTE	< 3 mo	142 (1.8)	1.6	1.2 – 2.0
	3-12 mo	334 (4.3)	2.2	1.8 – 2.6
Ischemic stroke	< 3 mo	72 (0.8)	1.1	0.83 – 1.6
	3-12 mo	383 (4.8)	2.2	1.9 – 2.7
Peripheral artery disease (PAD)	< 3 mo	47 (0.5)	1.5	0.9 – 2.4
	3-12 mo	134 (1.4)	2.2	1.6 – 3.0

Figure 1: Risk of cardiac and thromboembolic complications in IBD cohort with active disease compared to IBD cohort with stable disease after COVID-19

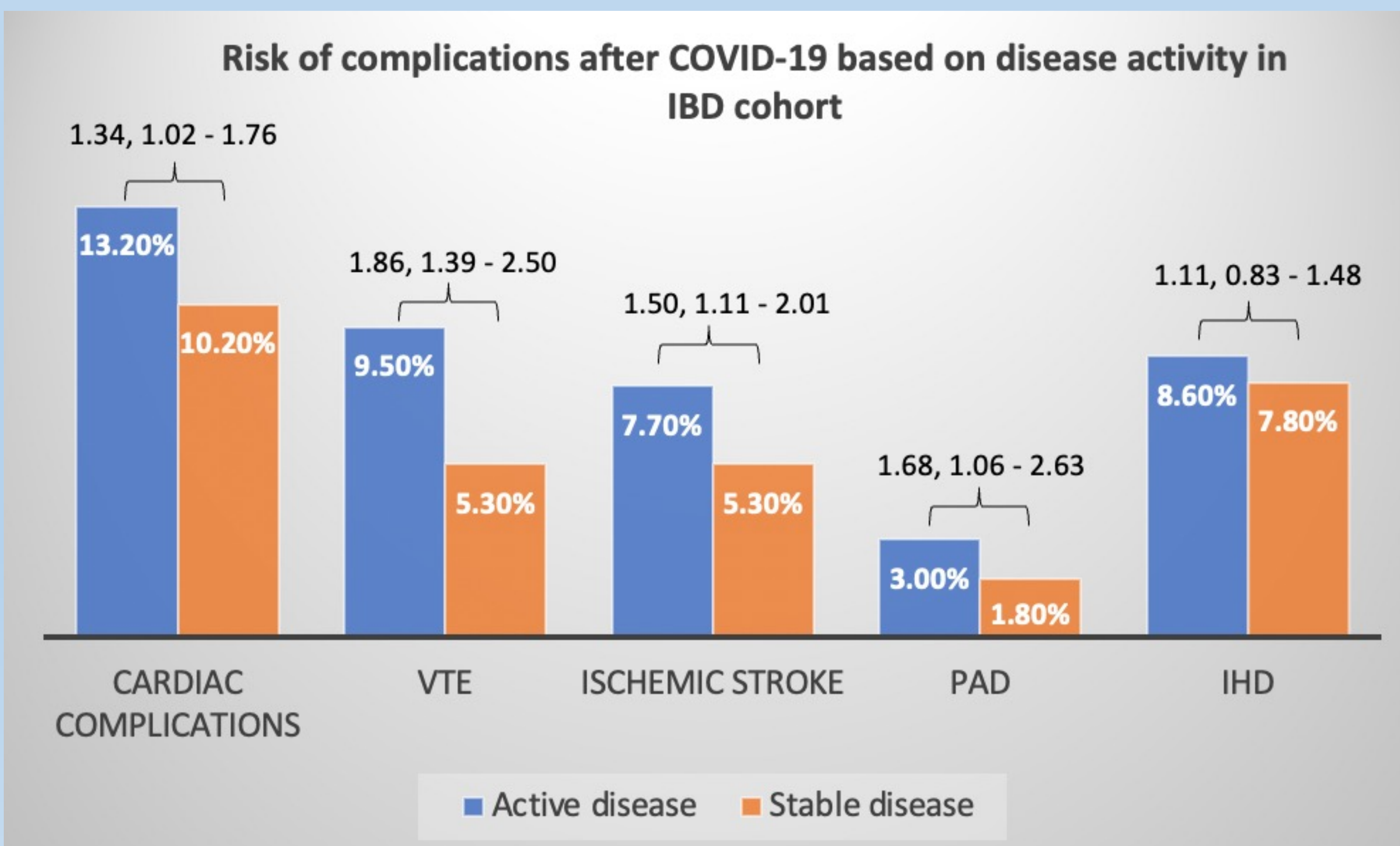
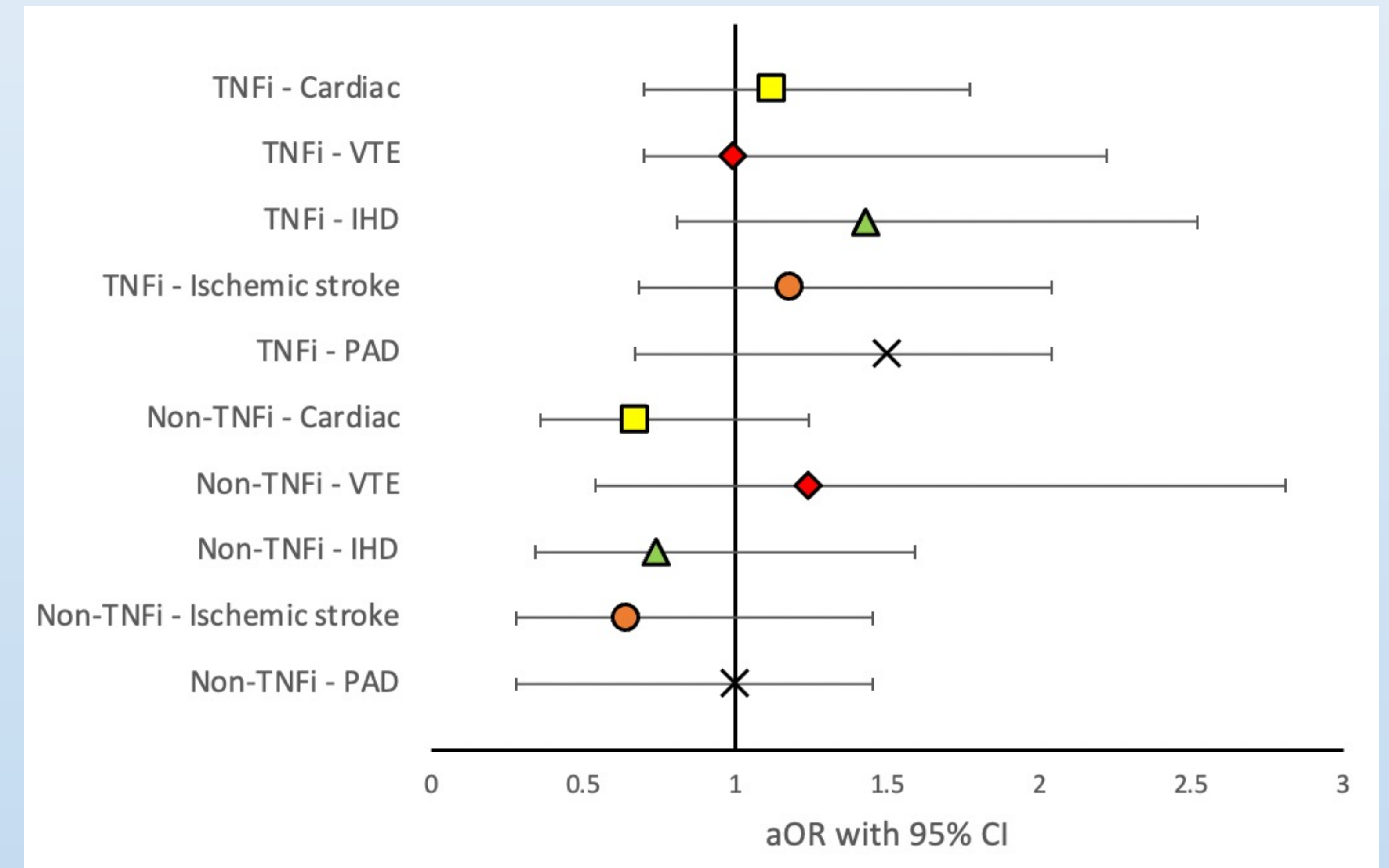


Figure 2: Risk of cardiac and thromboembolic complications in IBD cohort on TNFi and non-TNFi compared to patients on 5-ASA expressed as adjusted odds ratios with 95% confidence intervals



DISCUSSION

- Our study indicates that patients with IBD are at an increased risk for CVD and VTE in both the short (< 3 months) and long (3-12 months) term compared to patients without IBD
- Proposed mechanisms for CVD after COVID-19 could be related to direct and indirect cardiovascular injury
- Vaccinated IBD cohort had a lower risk of composite of cardiac complications, ischemic stroke, PAD, and VTE (aOR 0.39, 95% CI 0.18 – 0.83) compared to the unvaccinated IBD cohort.
- Higher risk of cardiac complications and VTE was noted in patients with active disease suggesting the contribution of hyperimmune responses towards the severity of COVID-19
- Immune modifying therapies do not increase the risk of these outcomes

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