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BACKGROUND

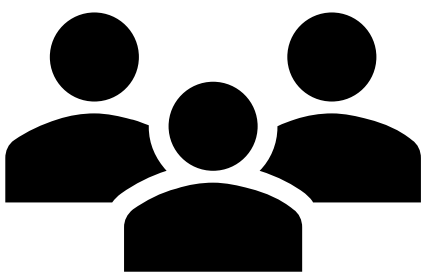
- Chronic obstructive pulmonary disease (COPD) is more prevalent and severe among people with HIV (PWH) compared to those without HIV
- High smoking prevalence is a major driver of COPD
- Chronic inflammation, immune dysfunction, and pulmonary infections associated with HIV likely also contribute to accelerated COPD
- We determined associations between inflammatory biomarkers and COPD in PWH**

METHODS

- Setting:* Centers for AIDS Research Network of Integrated Clinical Systems (CNICS) Cohort
 - 10-site cohort of adult PWH engaged in care at academic clinics across the U.S.
- Participants:* case cohort of virally suppressed (<400 copies/mL) PWH with plasma specimens
- Observation Period:* specimens collected once per person in 2010-2018; COPD ascertained through 2023

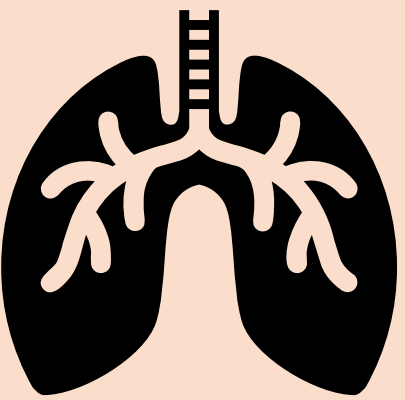
COPD: defined by a validated algorithm using ICD diagnoses + >90 days on a COPD inhaler medication

- Analysis*
 - Relative risk regression adjusted for age, sex, smoking status and CD4 cell count at specimen date, with sampling weighted for case cohort design
 - Biomarkers were log-transformed and standard deviation scaled to standardize estimates



N=1,425

- 83% male; 17% female
- Mean age: 47 years; SD: 11
- 61% non-White



242 PWH (17%) had COPD

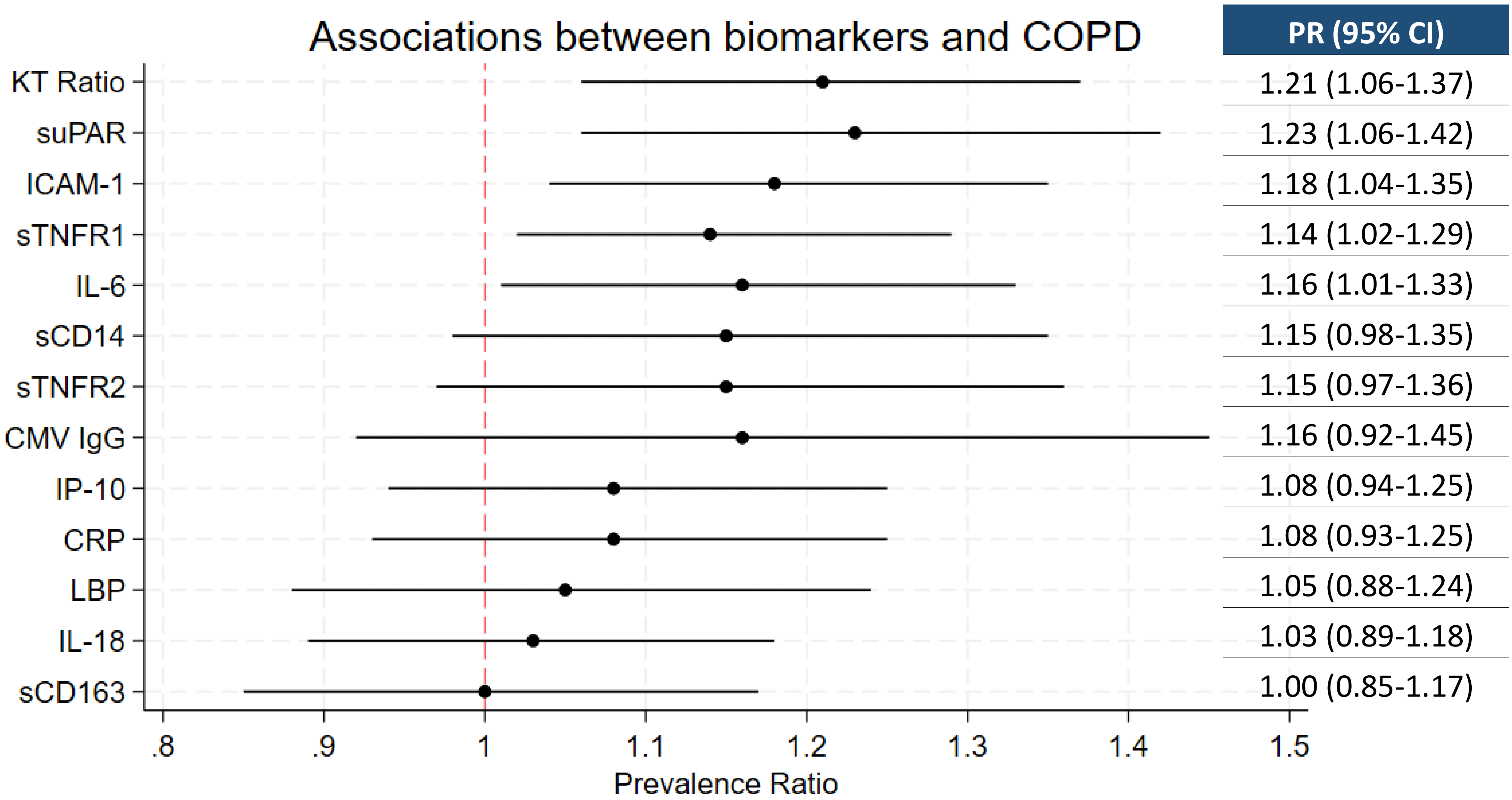
- Overall, 54% of PWH reported ever-smoking
- Among PWH with COPD, 77% reported ever-smoking

Elevated KT ratio was associated with a 21% greater prevalence of COPD.

Markers of generalized inflammation were also increased in PWH with COPD

RESULTS

Figure 1. Prevalence Ratios (PR) between standard deviation-scaled log-transformed biomarkers and COPD using relative risk regression models weighted for sampling probabilities, adjusted for age, sex, CD4 count, and smoking status (N=1425)



RESULTS

- In addition to smoking, PWH with COPD reported more substance use
 - A similar proportion of PWH with and without COPD reported ever using cannabis (52% vs. 48%)
 - More PWH with COPD had illicit drug use compared to PWH without COPD (50% vs. 36%)
- Additional adjustment of models for cannabis use and illicit drug use (methamphetamine, cocaine/crack, or illicit opioids) did not change findings

LIMITATIONS

- Observational design precludes determination of causality
- We analyzed biomarkers at a single timepoint, thus do not have information on trajectory of inflammation

CONCLUSIONS

- Several biomarkers were significantly associated with COPD in virally suppressed PWH engaged in care
 - KT ratio**, linked with infections including active tuberculosis and SARS-CoV-2; although limited knowledge of its role in COPD, suggested by smaller studies of people without HIV
 - suPAR**, **sTNFR1**, **IL-6**, markers of generalized inflammation
 - ICAM-1**, linked to endothelial activation
- Results suggest a potential role for biomarkers associated with microbial stimuli and inflammatory responses to contribute to the pathogenesis of COPD in PWH

ADDITIONAL INFORMATION

The authors would like to acknowledge all CNICS participants and personnel for their contributions to this work

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