

**Patho-immune mechanisms of hypertension in HIV:
A systematic and thematic review**

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Running Head: Immune-activation and hypertension in HIV

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Supplementary Material

Supplementary Table 1: Characteristics and findings of studies from European/western countries reporting on Inflammation, hypertension and HIV

Author/	Type of study, country and population	Sample size and subjects	Key findings	Limitations/notes/conclusion
Armah et al 2012	prospective longitudinal study/ United states	A total of 1525 HIV-infected and 843 uninfected	- HIV-infected veterans had less prevalent hypertension 57% Compared to uninfected veterans 71% - HIV-infected veterans with HIV-1 RNA ≥ 500 copies/mL or CD4 count < 200 cells/μL had a significantly higher prevalence of elevated IL-6 (odds ratio [OR], 1.54; 95% confidence interval [CI], 1.14–2.09; OR, 2.25; 95% CI, 1.60–3.16, respectively) and D-dimer (OR, 1.97; 95% CI, 1.44–2.71, OR, 1.68; 95% CI, 1.22–2.32, respectively) after adjusting for comorbidities. - HIV-infected veterans with a CD4 cell count < 200 cells/μL had significantly higher prevalence of elevated sCD14 compared to uninfected veterans (OR, 2.60; 95% CI, 1.64–4.14).	- Biomarkers where not segregated based on hypertension - Study was not specifically addressing hypertension and its correlates in HIV
Manner et al 2012	Longitudinal / Norway	434	- In a longitudinal study of 434 HIV-infected individuals (43 ± 11 years, 72% males, 71% Caucasians), the prevalence of hypertension at 35% did not change during the follow-up time (3.4 ± 0.8 years). - The incidence of new-onset hypertension was 29.8 per 1000 person-years (95% confidence interval (CI) 20.3–42.2). HIV duration, mean BP and abnormal urinary albumin excretion remained independent predictors of new-onset hypertension after multiple adjustments. Both nadir CD4 cell count < 50 cells/μL (adjusted OR, 2.48; 95% CI, 1.27–4.83) and increased duration of ART (adjusted OR, 1.13, 1.03–1.24) were independent predictors of sustained hypertension throughout the study period.	

- Older age, male gender, BMI > 25 kg/m² and baseline CD4 cell count ≥200 cells/μL were also independent predictors of sustained hypertension

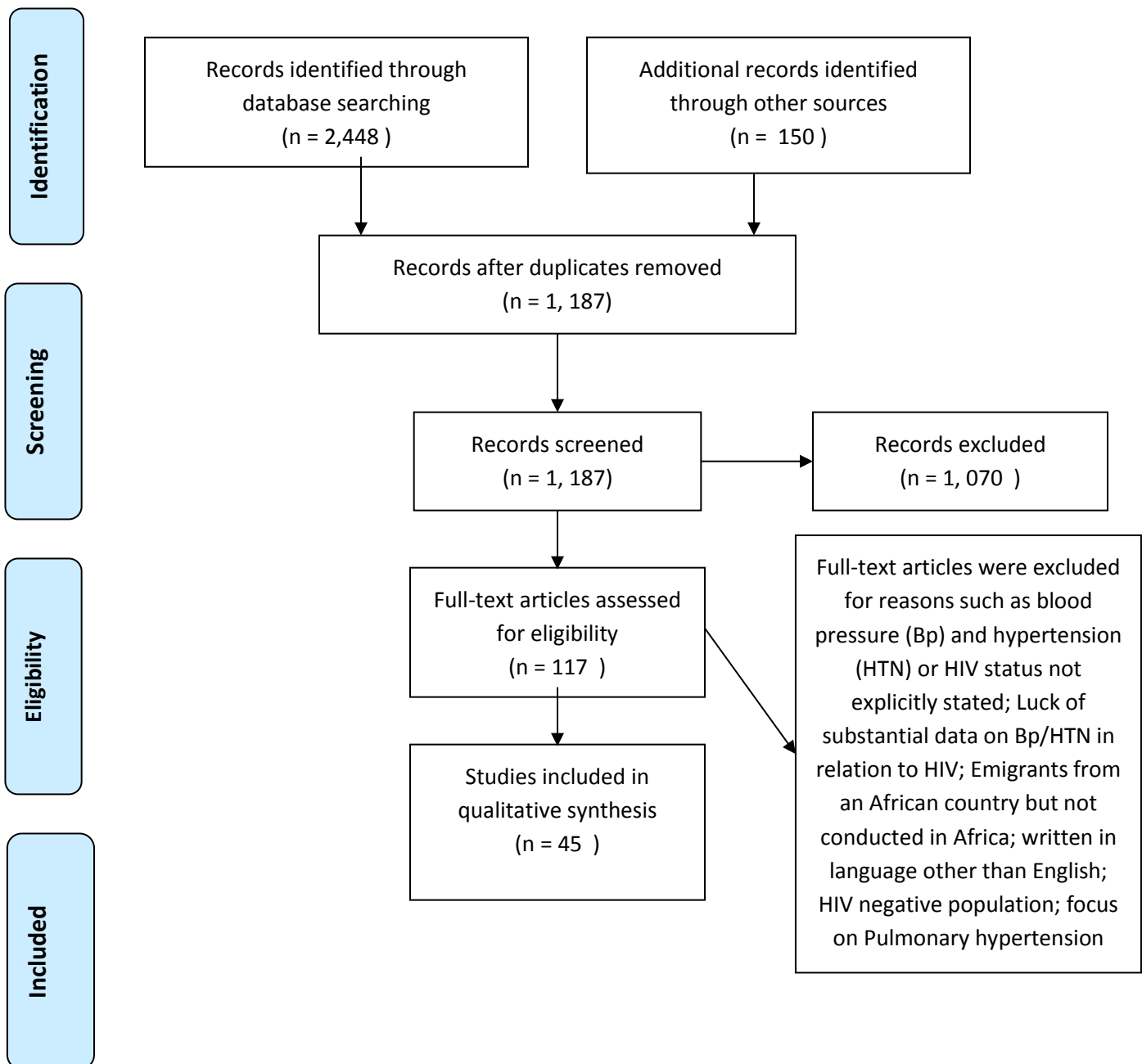
Markers of microbial translocation predict hypertension in HIV-infected individuals

- In this exploratory substudy of 42 HIV-infected patients (median age 42 (IQR 32–46) years; 79% men, 81% Caucasians, 38% hypertensive)
- There was a stepwise increase in the number of patients with hypertension across titers of LPS (p = 0.001) and sCD14 (p = 0.007).
- Both LPS and sCD14 independently predicted subsequent blood pressure levels after adjustment for age and gender. For each 10 pg/ml increase in LPS (range 66–272 pg/ml), the adjusted increment in SBP and DBP during the first period of blood pressure recording was 1.03 (95% CI 0.23–1.83) mmHg (p = 0.013) and 0.78 (0.29–1.26) mmHg (p = 0.002), respectively.

van Zoest et al 2017	Review article	• Global Prevalence of hypertension in PLHIV 4-57%	• Studies addressing immune contribution to hypertension scarce
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PLWH, people living with HIV; HIV, human immunodeficiency virus; BP, blood pressure; ART, antiretroviral therapy; IL, interleukin; BMI, body mass index; CI, confidence interval; sCD14, soluble CD14;

Supplementary Figure 1: PRISMA 2009 Flow Diagram of article identification, screening, eligibility and inclusion



Supplementary Figure 2: PRISMA 2009 Flow Diagram of article identification, screening, eligibility and inclusion on studies from European/ western countries

