High Risk of Renal Complications After Type 2 Diabetes Mellitus Diagnosis in People with HIV vs. without HIV

Isabela Killander Möller[1,2], Philippe Wagner[3,4], Tintin Bäckdahl[1,5], Pontus Hedberg[1], Piotr Nowak[1,5], Pär Sparén[2], Magnus Gisslén[6,7], Pontus Nauclér[5,8], Åsa Mellgren[6,7], Fredrik Månsson[9], Johanna Brännström[1,10,11], Olof Elvstam[9,12], Björn Eliasson[13], Christina Carlander[1,2,5]

Conclusions

People with HIV and diagnosed with type 2 diabetes mellitus (T2DM) had **a higher risk of renal complications** compared to people without HIV.

There was no observed increased risk of cardiovascular events and all-cause mortality in adjusted models.

This highlights the need for future research to explore underlying mechanism, including antiretroviral therapy, to guide targeted prevention and management.

Table. Baseline characteristics at time of type 2 diabetes diagnosis

	People with HIV	People without HIV
All, n	350	311 668
Age, median (IQR)	54 (47–62)	63 (54–71)
Low income (quartile 1), n(%)	140 (40)	76 335 (25)
HbA1c, median (IQR)	52 (45-69)	50 (44–62)
eGFR, mean (SD)	93 (28)	87 (25)

Method

Register-based nationwide study using data from the Cohort Study on Morbidity and HIV in Sweden (COSMOHS).

Study population: All diagnosed with T2DM in Sweden between 2010-01-01 and 2019-12-31 identified from the National Diabetes Register.

- Exclusion: HIV-diagnosis after T2DM

Outcomes (assessed until 2014-12-31):

- Kidney: acute kidney injury (AKI), ≥40% decline of estimated glomerular filtration rate (eGFR), major adverse kidney event (MAKE)
- Cardiovascular: coronary heart disease, stroke, major adverse cardiovascular event (MACE)
- All-cause mortality.

Statistical analysis: Cox proportional hazard models estimated adjusted hazard ratios (adjHR) by HIV-status. Adjusting for propensity score quintiles based on age, sex, migrant status, comorbidities, education, and income.

Introduction

We aimed to assess whether, among individuals with type 2 diabetes mellitus, people with HIV (PWH) face a higher risk of adverse outcomes compared with those without HIV (PWoH).

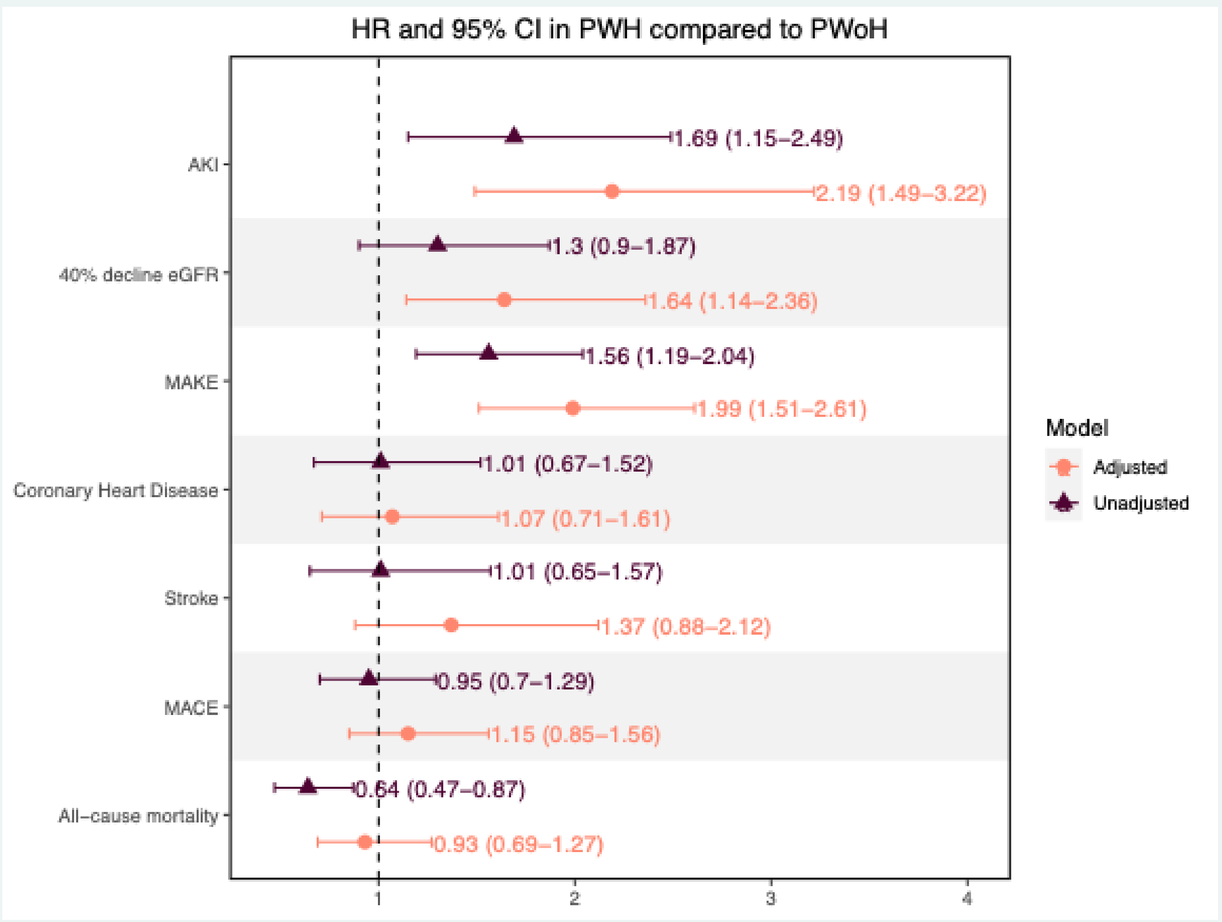


Figure 2. Hazard ratio of adverse outcomes in PWH compared to PWoH diagnosed with type 2 diabetes mellitus (T2DM). MACE defined as the composite outcome of coronary heart disease, stroke, or cardiovascular death. MAKE defined as the composite outcome of acute kidney injury, 40% decline of eGFR, or renal death. Abbreviations: AKI, acute kidney injury; CI, confidence interval; eGFR, estimated glomerular filtration rate; HR, hazard ratio; MACE, major adverse cardiovascular event; MAKE, major adverse kidney event.

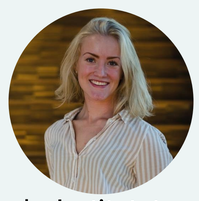
Sensitivity analysis

Excluding PWH on TDF at T2DM-diagnosis still showed increased risk of renal complications in PWH compared to PWoH.

Table. Outcomes by HIV-status

	People with HIV	People without HIV
Acute kidney injury, n (%)	26 (7.4)	16036 (5.1)
40% decline of eGFR	29 (8.3)	22444 (7.2)
Major adverse kidney event	52 (14.9)	34661 (11.1)
Coronary heart disease	23 (6.6)	21867 (7.0)
Stroke	20 (5.7)	19285 (6.2)
Major adverse cardiovascular event	42 (12.0)	42619 (13.7)
All-cause mortality	40 (11.4)	62903 (20.2)

Isabela Killander Möller,
Department of Medicine, Huddinge
Karolinska Institutet |Karolinska Universitetssjukhuset Huddinge
+4670-9606888
isabela.killander.moller@ki.se | ki.se



[1]Department of Medicine Huddinge, Karolinska Institutet, Stockholm, Sweden, [2]Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden, [3]Department of Clinical Sciences, Orthopedics, Lund University, Lund, Sweden, [4]Centre for Clinical Research Västmanland, Västmanland County Hospital, Uppsala University, Västerås, Sweden, [5]Department of Infectious Diseases, Karolinska University Hospital, Stockholm, Sweden, [6]Department of Infectious Diseases, Institute of Biomedicine, Sahlgrenska Academy at University of Gothenburg, Sweden, [7]Department of Infectious Diseases, Sahlgrenska University Hospital, Region Västra Götaland, Gothenburg, Sweden, [8]Division of Infectious Diseases, Department of Medicine Solna, Karolinska Institutet, Stockholm Sweden, [9]Department of Translational Medicine, Lund University, Malmö, Sweden, [10]Department of Infectious Diseases, Södersjukhuset, Stockholm, Sweden, [11]Department of Clinical Science and Education, Karolinska Institute, Södersjukhuset, Stockholm, Sweden, [12]Department of Infectious Diseases, Växjö Hospital, Växjö, Sweden, [13]Department of Medicine, Sahlgrenska University Hospital, Region Västra Götaland, Gothenburg, Sweden