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Liver steatosis is not associated with endothelial function or hormone use in transgender women

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BACKGROUND

- Transgender women (TGW) present disproportionate chronic diseases burden.
- Very little is known about inflammation-related chronic diseases among TGW in low and middle-income countries (LMIC), especially in the context of HIV infection and gender-affirming hormone therapy (GAHT).
- We aimed to assess the association of liver steatosis with subclinical atherosclerosis measured by brachial artery flow-mediated dilatation (FMD) and GAHT.

METHODS

- Cross-sectional study among TGW aged 18+ years of the Transcendendo cohort, Rio de Janeiro, Brazil, between October-2019 and May-2023.
- Participants answered a structured questionnaire, collected blood samples, and performed transient liver elastography (Fibroscan®) and FMD.
- Valid elastography results considered if: had at least 10 valid measurements, the percentage of valid measurements was >60%, and Controlled Attenuation Parameter (CAP) interquartile range (IQR)/CAP <30%. Results with CAP ≥248 dB/m were classified as liver steatosis.
- Percentage of FMD [(peak diameter-baseline diameter)/baseline diameter] used Bivariate analysis compared TGW with and without liver steatosis.

TRADITIONAL FACTORS AND HIV-POSITIVE STATUS WERE ASSOCIATED WITH LIVER STEATOSIS AMONG BRAZILIAN TGW. CHANGES IN ARTERIAL DIAMETER AND GAHT EXPOSURE WERE NOT ASSOCIATED WITH LIVER STEATOSIS. OUR FINDINGS REINFORCE THE NEED OF INCLUDING TRADITIONAL FACTORS OF LIVER STEATOSIS FOR TGW'S CLINICAL ASSESSMENT.

Table 1. Clinical characteristics of TGW overall and according to liver steatosis, Rio de Janeiro, Brazil, 2019-2023.

	Overall (N=131)	No steatosis (N=95)	Steatosis (N=36)	p-value[1]
Age (years)	39.0 (31.0-44.0)	38.0 (29.0-42.0)	40.5 (32.8-51.5)	0.037
BMI (kg/m2)[2]	26.2 (22.6-29.9)	24.4 (21.8-27.3)	30.5 (28.0-36.2)	<0.001
Metabolic syndrome[3]	42 (33)	20 (22)	22 (61)	<0.001
LDL cholesterol(mg/dL)[2]	96.0 (75.0-115.8)	86.5 (70.2-111.0)	105.5 (90.5-127.0)	0.005
Positive HIV status[3]	80 (61)	64 (67)	16 (44)	0.016
Current GAHT use[3]	65 (51)	50 (53)	15 (47)	0.57
GAHT exposure for >17y[3]	61 (49)	42 (47)	19 (54)	0.48
%FMD[2]	7.0 (4.6-12.0)	7.5 (4.6-12.4)	6.7 (4.7-10.4)	0.43
Last CD4+ count (cells/mm³)[2]	800.5 (535.5-1,021.5)	772.5 (484.2-1,013.5)	892.5 (791.2-1,161.0)	0.073
Nadir CD4+ count (cells/mm³)[2,4]	337.0 (171.2-596.8)	330.5 (164.5-548.0)	459.0 (238.8-673.8)	0.36
Detectable HIV viral load[2,3,4]	21 (26)	19 (30)	2 (12)	0.21
ART regimen DTG/3TC/TDF[3,4]	52 (65)	42 (66)	10 (62)	0.81

3TC: lamivudine, **BMI:** body mass index, **DTG:** dolutegravir, **FMD**: flow-mediated dilation, **GAHT**: gender-affirming hormone therapy, **LDL**: low density lipoprotein, **TDF**: tenofovir, **TGW**: transgender women. [1]Wilcoxon rank sum test, Pearson's Chi-squared test, Fisher's exact test, [2]Median (IQR); [3]n (%), [4]Among TGW living with HIV

RESULTS

- Among 157 TGW, 131 (83.4%) had valid liver assessments. Among these, median age was 39.0 years (IQR:31.0-44.0), 80 (61.0%) were living with HIV, 65 (51.0%) were currently on GAHT, and 36 (27.5%) had liver steatosis.
- Participants with steatosis: significantly older, higher body mass index, LDL levels, higher proportion of metabolic syndrome, and less frequently were living with HIV (Table 1).
- GAHT (current and exposure), hormone levels, and FMD were not associated with liver steatosis.
- TGW living with HIV according to liver steatosis did not differ on nadir CD4+ count and viral load. The most common antiretroviral regimen was DTG/3TC/TDF (62.5%[10/16] and 71.9% [48/64] among TGW with steatosis and without steatosis, respectively). Six participants were on dual antiretroviral therapy with 3TC/DTG (18.8%[3/16] and 4.7%[3/64] among TGW with and without steatosis, respectively).

CONCLUSIONS

- Traditional factors and HIV-positive status were associated with liver steatosis among Brazilian TGW. Changes in arterial diameter and GAHT exposure were not associated with liver steatosis. Our findings reinforce the need of including traditional factors of liver steatosis for TGW's clinical assessment.

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