Prevalence of non-alcoholic fatty liver disease in vertically-HIV infected youths

#2031

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BACKGROUND

- The prevalence of subclinical liver abnormalities is high among people living with HIV, but data regarding perinatally HIV-infected children and adolescents (PHIV) are scarce.
- The prevalence of non-alcoholic fatty liver disease (NAFLD) is increasing worldwide, and might be increased in people living with HIV.
- Non-invasive image techniques offer an opportunity to address NAFLD in a population in which the scores validated for adults have not been tested.

METHODS

- Prospective transversal study including PHIV under follow-up at the Spanish National Cohort of HIV-infected children and adolescents (CoRISpe)
- HIV-exposed uninfected siblings as controls, paired by age and gender
- Non-invasive imaging techniques for the diagnosis of NAFLD and/or fibrosis were performed, including Shear Wave Elastography, Fibroscan and Controlled Attenuation Parameter (CAP).
- Anthropometric measurements, lipid profile, demographic, clinical and immuno-virological data were collected. Values for children and adolescents were z-score adjusted.
- Four scores to predict NAFLD and/or fibrosis were calculated and their accuracy evaluated.

RESULTS

- 75 participants (59.2% women) were included, all HIV participants were on ART, 86.8% suppressed (Table 1).
- The prevalence of NAFLD was 28.9% in PHIV vs. 7.9% among non-HIV infected controls (p=0.02). Three HIV-infected patients presented fibrosis.

Parameters	PHIV (n=38)	HIV- controls (n=38)	*p-value*
Age, years	18.0 (14.9 – 24.2)	21.9 (14.9 – 27.0)	0.16
Female, (%)	22 (57.9)	23 (60.5)	0.82
Weight, kg	54.0 (44.6 – 60.3)	60.7 (48.9 – 72.3)	0.04
Heigh,t cm	158.0 (152.0 – 168.0)	169.3 (152.9 – 180.0)	0.02
BMI	20.3 (18.4 – 23.6)	22.0 (19.4 – 23.5)	0.27
Overweight (BMI>25)	6 (15.8)	5 (13.2)	0.74
Obesity (BMI>30)	1 (2.6)	0 (0.0)	0.31
Waist-to-hip ratio	0.86 (0.79 – 0.91)	0.87 (0.83 – 0.92)	0.57
NAFLD by imaging, (%)	11 (28.9)	3 (7.9)	0.02
Fibrosis, (%)	3 (7.9)	0 (0)	0.21
FibroScan, Kpa	5.0 (4.2 – 5.6)	4.1 (3.6 – 5.1)	0.01

Table 1. Characteristics of perinatally HIV-infected children and adolescents and uninfected controls

The prevalence of NAFLD was high among PHIV, and only partially explained by overweight and other metabolic risk factors

RESULTS

- PHIV presenting with NAFLD had increased BMI [23 (21.2–25.0) vs 19.1 (18.4 – 22.5), p=0.04] and higher waist-to-hip ratio [0.91 (0.87 – 0.94) vs 0.83 (0.77 – 0.89), p=0.01], but 64% of HIV-infected patients with NAFLD had no overweight or other metabolic risk factors (Table 2).
- No association was found with HIV-related or ART related variables, the CD4/CD8 T-cell ratio was lower among patients diagnosed with NAFLD [0.9 (0.6 – 1.1) vs 1.3 (1.0 – 1.7); p< 0.05].
- Score results were normal for most participants, presenting only 5 out of 30 PHIV with HIS score altered (NAFLD diagnosis confirmed in 3); APRI altered in 2/31 (none confirmed fibrosis). FIB-4 and TyG scores were normal in all cases.

P	Gender	Age	Tanner	BMI	Waist/hip	Fibrosis	CD4 Nadir	CD4/CD8	CDC	PNPLA3	ART, n	Altered HSI
1	F	17.8	V	24.2	0.91	F0-F1	340	0.31	A	GG	4	NA
2	M	11.3	II	23.4	0.94	F0-F1	217	1.27	A	CC	5	No
3	F	10.5	I	25.0	0.91	F0-F1	402	0.92	N	CG	3	NA
4	F	9.2	I	17.6	0.84	F0-F1	328	1.02	A	GG	1	NA
5	F	18.0	V	23.2	-	F0-F1	360	0.86	A	GG	2	Yes
6	M	18.0	V	26.8	1.07	F0-F1	302	0.74	A	NA	4	NA
7	M	26.1	V	21.9	0.89	F0-F1	158	NA	C	NA	9	No
8	F	26.6	V	21.2	-	F0-F1	200	NA	A	NA	9	NA
9	F	33.5	V	18.2	0.87	F0-F1	216	NA	B	NA	12	No
10	M	27.8	V	43.3	-	F2	291	NA	B	CG	10	Yes
11	F	26.0	V	23.3	-	F0-F1	639	NA	B	NA	7	Yes

Table 2. Characteristics of perinatally HIV-infected children and adolescents diagnosed with NAFLD

CONCLUSIONS

- The prevalence of non-alcoholic fatty liver disease was high (28.9%) among perinatally HIV infected patients.
- Overweight, obesity and metabolic risk factors do not explain NAFLD in a 64% of HIV-infected patients in our cohort.
- Scores based on clinical and analytical parameters did not perform well to identify subjects at risk
- Ultrasound evaluation of the liver should be considered in routine clinical practice for NAFLD screening in the management of perinatally PHIV.
- Prevention of metabolic risk factors should be actively promoted, and new strategies for the management of NAFLD are urgently needed.



Figure 1. Fatty liver disease. Shiny liver with poor visualization of intrahepatic vessels. (*Sahuquillo et al. JONNPR 2020*)

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